# Gnus Manual

*Gnus v5.10.2*

**by Lars Magne Ingebrigtsen**

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Gnus is the advanced, self-documenting, customizable, extensible unreal-time newsreader for GNU Emacs.

Oops. That sounds oddly familiar, so let's start over again to avoid being accused of plagiarism:

Gnus is a message-reading laboratory. It will let you look at just about anything as if it were a newsgroup. You can read mail with it, you can browse directories with it, you can ftp with it—you can even read news with it!

Gnus tries to empower people who read news the same way Emacs empowers people who edit text. Gnus sets no limits to what the user should be allowed to do. Users are encouraged to extend Gnus to make it behave like they want it to behave. A program should not control people; people should be empowered to do what they want by using (or abusing) the program.

# Starting Gnus

If your system administrator has set things up properly, starting Gnus and reading news is extremely easy—you just type 'M-x gnus' in your Emacs.

If you want to start Gnus in a different frame, you can use the command 'M-x gnus-other-frame' instead.

If things do not go smoothly at startup, you have to twiddle some variables in your '~/.gnus.el' file. This file is similar to '~/.emacs', but is read when Gnus starts.

If you puzzle at any terms used in this manual, please refer to the terminology section (see "Terminology" on page 398).

## 1.1 Finding the News

The gnus-select-method variable says where Gnus should look for news. This variable should be a list where the first element says *how* and the second element says *where*. This method is your native method. All groups not fetched with this method are foreign groups.

For instance, if the "news.somewhere.edu" NNTP server is where you want to get your daily dosage of news from, you'd say:

```
(setq gnus-select-method '(nntp "news.somewhere.edu"))
```

If you want to read directly from the local spool, say:

```
(setq gnus-select-method '(nnspool ""))
```

If you can use a local spool, you probably should, as it will almost certainly be much faster. But do not use the local spool if your server is running Leafnode; in this case, use (nntp "localhost").

If this variable is not set, Gnus will take a look at the NNTPSERVER environment variable. If that variable isn't set, Gnus will see whether gnus-nntpserver-file ('/etc/nntpserver' by default) has any opinions on the matter. If that fails as well, Gnus will try to use the machine running Emacs as an NNTP server. That's a long shot, though.

If gnus-nntp-server is set, this variable will override gnus-select-method. You should therefore set gnus-nntp-server to nil, which is what it is by default.

You can also make Gnus prompt you interactively for the name of an NNTP server. If you give a non-numerical prefix to gnus (i.e., 'C-u M-x gnus'), Gnus will let you choose between the servers in the gnus-secondary-servers list (if any). You can also just type in the name of any server you feel like visiting. (Note that this will set gnus-nntp-server, which means that if you then 'M-x gnus' later in the same Emacs session, Gnus will contact the same server.)

However, if you use one NNTP server regularly and are just interested in a couple of groups from a different server, you would be better served by using the 'B' command in the group buffer. It will let you have a look at what groups are available, and you can subscribe to any of the groups you want to. This also makes '.newsrc' maintenance much tidier. See "Foreign Groups" on page 23.

A slightly different approach to foreign groups is to set the gnus-secondary-select-methods variable. The select methods listed in this variable are in many ways just as native as the gnus-select-method server. They will also be queried for active files during startup (if that's required), and new newsgroups that appear on these servers will be subscribed (or not) just as native groups are.

For instance, if you use the nnmbox back end to read your mail, you would typically set this variable to

```
(setq gnus-secondary-select-methods '((nnmbox "")))
```

## 1.2 The First Time

If no startup files exist, Gnus will try to determine what groups should be subscribed by default.

If the variable gnus-default-subscribed-newsgroups is set, Gnus will subscribe you to just those groups in that list, leaving the rest killed. Your system administrator should have set this variable to something useful.

Since she hasn't, Gnus will just subscribe you to a few arbitrarily picked groups (i.e., "*.newusers"). (*Arbitrary* is defined here as *whatever Lars thinks you should read.*)

You'll also be subscribed to the Gnus documentation group, which should help you with most common problems.

If gnus-default-subscribed-newsgroups is t, Gnus will just use the normal functions for handling new groups, and not do anything special.

## 1.3 The Server is Down

If the default server is down, Gnus will understandably have some problems starting. However, if you have some mail groups in addition to the news groups, you may want to start Gnus anyway.

Gnus, being the trusting sort of program, will ask whether to proceed without a native select method if that server can't be contacted. This will happen whether the server doesn't actually exist (i.e., you have given the wrong address) or the server has just momentarily taken ill for some reason or other. If you decide to continue and have no foreign groups, you'll find it difficult to actually do anything in the group buffer. But, hey, that's your problem. Blllrph!

If you know that the server is definitely down, or you just want to read your mail without bothering with the server at all, you can use the gnus-no-server command to start Gnus. That might come in handy if you're in a hurry as well. This command will not attempt to contact your primary server—instead, it will just activate all groups on level 1 and 2. (You should preferably keep no native groups on those two levels.) Also see "Group Levels" on page 21.

## 1.4 Slave Gnusae

You might want to run more than one Emacs with more than one Gnus at the same time. If you are using different '.newsrc' files (e.g., if you are using the two different Gnusae to read from two different servers), that is no problem whatsoever. You just do it.

The problem appears when you want to run two Gnusae that use the same '.newsrc' file.

To work around that problem some, we here at the Think-Tank at the Gnus Towers have come up with a new concept: *Masters* and *slaves*. (We have applied for a patent on this concept, and have taken out a copyright on those words. If you wish to use those words in conjunction with each other, you have to send $1 per usage instance to me. Usage of the patent (*Master/Slave Relationships In Computer Applications*) will be much more expensive, of course.)

Anyway, you start one Gnus up the normal way with 'M-x gnus' (or however you do it). Each subsequent slave Gnusae should be started with 'M-x gnus-slave'. These slaves won't save normal '.newsrc' files, but instead save *slave files* that contain information only on what groups have been read in the slave session. When a master Gnus starts, it will read (and delete) these slave files, incorporating all information from them. (The slave files will be read in the sequence they were created, so the latest changes will have precedence.)

Information from the slave files has, of course, precedence over the information in the normal (i.e., master) '.newsrc' file.

If the '.newsrc*' files have not been saved in the master when the slave starts, you may be prompted as to whether to read an auto-save file. If you answer "yes", the unsaved changes to the master will be incorporated into the slave. If you answer "no", the slave may see some messages as unread that have been read in the master.

## 1.5 Fetching a Group

It is sometimes convenient to be able to just say "I want to read this group and I don't care whether Gnus has been started or not". This is perhaps more useful for people who write code than for users, but the command gnus-fetch-group provides this functionality in any case. It takes the group name as a parameter.

## 1.6 New Groups

If you are satisfied that you really never want to see any new groups, you can set gnus-check-new-newsgroups to nil. This will also save you some time at startup. Even if this variable is nil, you can always subscribe to the new groups just by pressing 'U' in the group buffer (see "Group Maintenance" on page 34). This variable is ask-server by default. If you set this variable to always, then Gnus will query the back ends for new groups even when you do the 'g' command (see "Scanning New Messages" on page 43).

### 1.6.1 Checking New Groups

Gnus normally determines whether a group is new or not by comparing the list of groups from the active file(s) with the lists of subscribed and dead groups. This isn't a particularly fast method. If gnus-check-new-newsgroups is ask-server, Gnus will ask the server for new groups since the last time. This is both faster and cheaper. This also means that you can get rid of the list of killed groups altogether, so you may set gnus-save-killed-list to nil, which will save time both at startup, at exit, and all over. Saves disk space, too. Why isn't this the default, then? Unfortunately, not all servers support this command.

I bet I know what you're thinking now: How do I find out whether my server supports ask-server? No? Good, because I don't have a fail-safe answer. I would suggest just setting this variable to ask-server and see whether any new groups appear within the next few days. If any do, then it works. If none do, then it doesn't work. I could write a function to make Gnus guess whether the server supports ask-server, but it would just be a guess. So I won't. You could telnet to the server and say HELP and see whether it lists "NEWGROUPS" among the commands it understands. If it does, then it might work. (But there are servers that lists "NEWGROUPS" without supporting the function properly.)

This variable can also be a list of select methods. If so, Gnus will issue an ask-server command to each of the select methods, and subscribe them (or not) using the normal methods. This might be handy if you are monitoring a few servers for new groups. A side effect is that startup will take much longer, so you can meditate while waiting. Use the mantra "dingnusdingnusdingnus" to achieve permanent bliss.

### 1.6.2 Subscription Methods

What Gnus does when it encounters a new group is determined by the gnus-subscribe-newsgroup-method variable.

This variable should contain a function. This function will be called with the name of the new group as the only parameter.

Some handy pre-fab functions are:

gnus-subscribe-zombies Make all new groups zombies. This is the default. You can browse the zombies later (with 'A z') and either kill them all off properly (with 'S z'), or subscribe to them (with 'u').

gnus-subscribe-randomly Subscribe all new groups in arbitrary order. This really means that all new groups will be added at "the top" of the group buffer.

gnus-subscribe-alphabetically Subscribe all new groups in alphabetical order.

gnus-subscribe-hierarchically Subscribe all new groups hierarchically. The difference between this function and gnus-subscribe-alphabetically is slight. gnus-subscribe-alphabetically will subscribe new groups in a strictly alphabetical

fashion, while this function will enter groups into its hierarchy. So if you want to have the "rec" hierarchy before the "comp" hierarchy, this function will not mess that configuration up. Or something like that.

gnus-subscribe-interactively Subscribe new groups interactively. This means that Gnus will ask you about **all** new groups. The groups you choose to subscribe to will be subscribed hierarchically.

gnus-subscribe-killed Kill all new groups.

gnus-subscribe-topics Put the groups into the topic that has a matching subscribe topic parameter (see "Topic Parameters" on page 41). For instance, a subscribe topic parameter that looks like

```
"nnslashdot"
```

will mean that all groups that match that regex will be subscribed under that topic.

If no topics match the groups, the groups will be subscribed in the top-level topic.

A closely related variable is gnus-subscribe-hierarchical-interactive. (That's quite a mouthful.) If this variable is non-nil, Gnus will ask you in a hierarchical fashion whether to subscribe to new groups or not. Gnus will ask you for each sub-hierarchy whether you want to descend the hierarchy or not.

One common mistake is to set the variable a few paragraphs above (gnus-subscribe-newsgroup-method) to gnus-subscribe-hierarchical-interactive. This is an error. This will not work. This is ga-ga. So don't do it.

### 1.6.3 Filtering New Groups

A nice and portable way to control which new newsgroups should be subscribed (or ignored) is to put an *options* line at the start of the '.newsrc' file. Here's an example:

```
options -n !alt.all !rec.all sci.all
```

This line obviously belongs to a serious-minded intellectual scientific person (or she may just be plain old boring), because it says that all groups that have names beginning with "alt" and "rec" should be ignored, and all groups with names beginning with "sci" should be subscribed. Gnus will not use the normal subscription method for subscribing these groups. gnus-subscribe-options-newsgroup-method is used instead. This variable defaults to gnus-subscribe-alphabetically.

If you don't want to mess with your '.newsrc' file, you can just set the two variables gnus-options-subscribe and gnus-options-not-subscribe. These two variables do exactly the same as the '.newsrc' "options -n" trick. Both are regexps, and if

the new group matches the former, it will be unconditionally subscribed, and if it matches the latter, it will be ignored.

Yet another variable that meddles here is gnus-auto-subscribed-groups. It works exactly like gnus-options-subscribe, and is therefore really superfluous, but I thought it would be nice to have two of these. This variable is more meant for setting some ground rules, while the other variable is used more for user fiddling. By default this variable makes all new groups that come from mail back ends (nnml, nnbabyl, nnfolder, nnmbox, nnmh, and nnmaildir) subscribed. If you don't like that, just set this variable to nil.

New groups that match this regexp are subscribed using gnus-subscribe-options-newsgroup-method.

## 1.7 Changing Servers

Sometimes it is necessary to move from one NNTP server to another. This happens very rarely, but perhaps you change jobs, or one server is very flaky and you want to use another.

Changing the server is pretty easy, right? You just change gnus-select-method to point to the new server?

*Wrong!*

Article numbers are not (in any way) kept synchronized between different NNTP servers, and the only way Gnus keeps track of what articles you have read is by keeping track of article numbers. So when you change gnus-select-method, your '.newsrc' file becomes worthless.

Gnus provides a few functions to attempt to translate a '.newsrc' file from one server to another. They all have one thing in common—they take a looong time to run. You don't want to use these functions more than absolutely necessary.

If you have access to both servers, Gnus can request the headers for all the articles you have read and compare Message-IDs and map the article numbers of the read articles and article marks. The 'M-x gnus-change-server' command will do this for all your native groups. It will prompt for the method you want to move to.

You can also move individual groups with the 'M-x gnus-group-move-group-to-server' command. This is useful if you want to move a (foreign) group from one server to another.

If you don't have access to both the old and new server, all your marks and read ranges have become worthless. You can use the 'M-x gnus-group-clear-data-on-native-groups' command to clear out all data that you have on your native groups. Use with caution.

Clear the data from the current group only—nix out marks and the list of read articles (gnus-group-clear-data).

After changing servers, you **must** move the cache hierarchy away, since the cached articles will have wrong article numbers, which will affect which articles Gnus thinks are read. gnus-group-clear-data-on-native-groups will ask you if you

want to have it done automatically; for gnus-group-clear-data, you can use 'M-x gnus-cache-move-cache' (but beware, it will move the cache for all groups).

## 1.8 Startup Files

Now, you all know about the '.newsrc' file. All subscription information is traditionally stored in this file.

Things got a bit more complicated with GNUS. In addition to keeping the '.newsrc' file updated, it also used a file called '.newsrc.el' for storing all the information that didn't fit into the '.newsrc' file. (Actually, it also duplicated everything in the '.newsrc' file.) GNUS would read whichever one of these files was the most recently saved, which enabled people to swap between GNUS and other newsreaders.

That was kinda silly, so Gnus went one better: In addition to the '.newsrc' and '.newsrc.el' files, Gnus also has a file called '.newsrc.eld'. It will read whichever of these files that are most recent, but it will never write a '.newsrc.el' file. You should never delete the '.newsrc.eld' file—it contains much information not stored in the '.newsrc' file.

You can turn off writing the '.newsrc' file by setting gnus-save-newsrc-file to nil, which means you can delete the file and save some space, as well as exiting from Gnus faster. However, this will make it impossible to use other newsreaders than Gnus. But hey, who would want to, right? Similarly, setting gnus-read-newsrc-file to nil makes Gnus ignore the '.newsrc' file and any '.newsrc-SERVER' files, which is convenient if you have a tendency to use Netscape once in a while.

If gnus-save-killed-list (default t) is nil, Gnus will not save the list of killed groups to the startup file. This will save both time (when starting and quitting) and space (on disk). It will also mean that Gnus has no record of what groups are new or old, so the automatic new groups subscription methods become meaningless. You should always set gnus-check-new-newsgroups to nil or ask-server if you set this variable to nil (see "New Groups" on page 4). This variable can also be a regular expression. If that's the case, remove all groups that do not match this regexp before saving. This can be useful in certain obscure situations that involve several servers where not all servers support ask-server.

The gnus-startup-file variable says where the startup files are. The default value is '~/.newsrc', with the Gnus (El Dingo) startup file being whatever that one is, with a ".eld" appended. If you want version control for this file, set gnus-backup-startup-file. It respects the same values as the version-control variable.

gnus-save-newsrc-hook is called before saving any of the newsrc files, while gnus-save-quick-newsrc-hook is called just before saving the '.newsrc.eld' file, and gnus-save-standard-newsrc-hook is called just before saving the '.newsrc' file. The latter two are commonly used to turn version control on or off. Version control is on by default when saving the startup files. If you want to turn backup creation off, say something like:

```
(defun turn-off-backup ()
  (set (make-local-variable 'backup-inhibited) t))

(add-hook 'gnus-save-quick-newsrc-hook 'turn-off-backup)
(add-hook 'gnus-save-standard-newsrc-hook 'turn-off-backup)
```

When Gnus starts, it will read the gnus-site-init-file ('.../site-lisp/gnus' by default) and gnus-init-file ('~/.gnus' by default) files. These are normal Emacs Lisp files and can be used to avoid cluttering your '~/.emacs' and 'site-init' files with Gnus stuff. Gnus will also check for files with the same names as these, but with '.elc' and '.el' suffixes. In other words, if you have set gnus-init-file to '~/.gnus', it will look for '~/.gnus.elc', '~/.gnus.el', and finally '~/.gnus' (in this order).

## 1.9 Auto Save

Whenever you do something that changes the Gnus data (reading articles, catching up, killing/subscribing groups), the change is added to a special *dribble buffer*. This buffer is auto-saved the normal Emacs way. If your Emacs should crash before you have saved the '.newsrc' files, all changes you have made can be recovered from this file.

If Gnus detects this file at startup, it will ask the user whether to read it. The auto save file is deleted whenever the real startup file is saved.

If gnus-use-dribble-file is nil, Gnus won't create and maintain a dribble buffer. The default is t.

Gnus will put the dribble file(s) in gnus-dribble-directory. If this variable is nil, which it is by default, Gnus will dribble into the directory where the '.newsrc' file is located. (This is normally the user's home directory.) The dribble file will get the same file permissions as the '.newsrc' file.

If gnus-always-read-dribble-file is non-nil, Gnus will read the dribble file on startup without querying the user.

## 1.10 The Active File

When Gnus starts, or indeed whenever it tries to determine whether new articles have arrived, it reads the active file. This is a very large file that lists all the active groups and articles on the server.

Before examining the active file, Gnus deletes all lines that match the regexp gnus-ignored-newsgroups. This is done primarily to reject any groups with bogus names, but you can use this variable to make Gnus ignore hierarchies you aren't ever interested in. However, this is not recommended. In fact, it's highly discouraged. Instead, see "New Groups" on page 4 for an overview of other variables that can be used instead.

The active file can be rather Huge, so if you have a slow network, you can set gnus-read-active-file to nil to prevent Gnus from reading the active file. This variable is some by default.

Gnus will try to make do by getting information just on the groups that you actually subscribe to.

Note that if you subscribe to lots and lots of groups, setting this variable to nil will probably make Gnus slower, not faster. At present, having this variable nil will slow Gnus down considerably, unless you read news over a 2400 baud modem.

This variable can also have the value some. Gnus will then attempt to read active info only on the subscribed groups. On some servers this is quite fast (on sparkling, brand new INN servers that support the LIST ACTIVE group command), on others this isn't fast at all. In any case, some should be faster than nil, and is certainly faster than t over slow lines.

Some news servers (old versions of Leafnode and old versions of INN, for instance) do not support the LIST ACTIVE group. For these servers, nil is probably the most efficient value for this variable.

If this variable is nil, Gnus will ask for group info in total lock-step, which isn't very fast. If it is some and you use an NNTP server, Gnus will pump out commands as fast as it can, and read all the replies in one swoop. This will normally result in better performance, but if the server does not support the aforementioned LIST ACTIVE group command, this isn't very nice to the server.

If you think that starting up Gnus takes too long, try all the three different values for this variable and see what works best for you.

In any case, if you use some or nil, you should definitely kill all groups that you aren't interested in to speed things up.

Note that this variable also affects active file retrieval from secondary select methods.

## 1.11 Startup Variables

gnus-load-hook A hook run while Gnus is being loaded. Note that this hook will normally be run just once in each Emacs session, no matter how many times you start Gnus.

gnus-before-startup-hook A hook run after starting up Gnus successfully.

gnus-startup-hook A hook run as the very last thing after starting up Gnus

gnus-started-hook A hook that is run as the very last thing after starting up Gnus successfully.

gnus-setup-news-hook A hook that is run after reading the '.newsrc' file(s), but before generating the group buffer.

gnus-check-bogus-newsgroups If non-nil, Gnus will check for and delete all bogus groups at startup. A *bogus group* is a group that you have in your '.newsrc'

file, but doesn't exist on the news server. Checking for bogus groups can take quite a while, so to save time and resources it's best to leave this option off, and do the checking for bogus groups once in a while from the group buffer instead (see "Group Maintenance" on page 34).

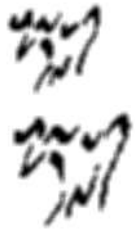
gnus-inhibit-startup-message If non-nil, the startup message won't be displayed. That way, your boss might not notice as easily that you are reading news instead of doing your job. Note that this variable is used before '~/.gnus.el' is loaded, so it should be set in '.emacs' instead.

gnus-no-groups-message Message displayed by Gnus when no groups are available.

gnus-play-startup-jingle If non-nil, play the Gnus jingle at startup.

gnus-startup-jingle Jingle to be played if the above variable is non-nil. The default is "Tuxedomoon.Jingle4.au".

# Group Buffer



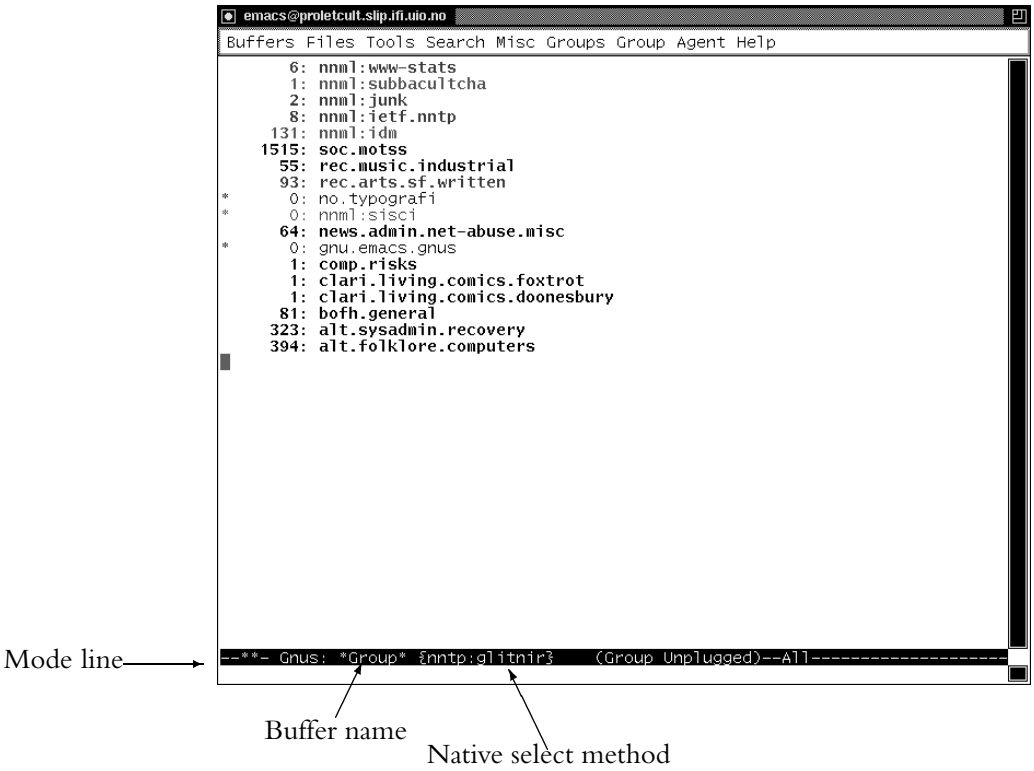



Figure 2.1: The Group Buffer

The *group buffer* lists all (or parts) of the available groups. It is the first buffer shown when Gnus starts, and will never be killed as long as Gnus is active.

## 2.1 Group Buffer Format

### 2.1.1 Group Line Specification

The default format of the group buffer is nice and dull, but you can make it as exciting and ugly as you feel like.

Here's a couple of example group lines:

```
     25: news.announce.newusers
 *    0: alt.fan.andrea-dworkin
```

Quite simple, huh?

You can see that there are 25 unread articles in "news.announce.newusers". There are no unread articles, but some ticked articles, in "alt.fan.andrea-dworkin" (see that little asterisk at the beginning of the line?).

You can change that format to whatever you want by fiddling with the gnus-group-line-format variable. This variable works along the lines of a format specification, which is pretty much the same as a printf specifications, for those of you who use (feh!) C. See "Formatting Variables" on page 325.

"%M%S%5y:%B%(%g%)/n" is the value that produced those lines above.

There should always be a colon on the line; the cursor always moves to the colon after performing an operation. See "Positioning Point" on page 328. Nothing else is required—not even the group name. All displayed text is just window dressing, and is never examined by Gnus. Gnus stores all real information it needs using text properties.

(Note that if you make a really strange, wonderful, spreadsheet-like layout, everybody will believe you are hard at work with the accounting instead of wasting time reading news.)

Here's a list of all available format characters:

"M" An asterisk if the group only has marked articles.

"S" Whether the group is subscribed.

"L" Level of subscribedness.

"N" Number of unread articles.

"I" Number of dormant articles.

"T" Number of ticked articles.

"R" Number of read articles.

"U" Number of unseen articles.

"t" Estimated total number of articles. (This is really max-number minus min-number plus 1.)

Gnus uses this estimation because the NNTP protocol provides efficient access to max-number and min-number but getting the true unread message count is not possible efficiently. For hysterical raisins, even the mail back ends, where the true number of unread messages might be available efficiently, use the same limited interface. To remove this restriction from Gnus means that the back end interface has to be changed, which is not an easy job. If you want to work on this, please contact the Gnus mailing list.

"y" Number of unread, unticked, non-dormant articles.

"i" Number of ticked and dormant articles.

"g" Full group name.

"G" Group name.

"C" Group comment (see "Group Parameters" on page 25) or group name if there is no comment element in the group parameters.

"D" Newsgroup description. You need to read the group descriptions before these will appear, and to do that, you either have to set gnus-read-active-file or use the group buffer 'M-d' command.

"o" "m" if moderated.

"O" "(m)" if moderated.

"s" Select method.

"B" If the summary buffer for the group is open or not.

"n" Select from where.

"z" A string that looks like "<%s:%n>" if a foreign select method is used.

"P" Indentation based on the level of the topic (see "Group Topics" on page 35).

"c" Short (collapsed) group name. The gnus-group-uncollapsed-levels variable says how many levels to leave at the end of the group name. The default is 1—this will mean that group names like "gnu.emacs.gnus" will be shortened to "g.e.gnus".

"m" "%" (gnus-new-mail-mark) if there has arrived new mail to the group lately.

"p" "#" (gnus-process-mark) if the group is process marked.

"d" A string that says when you last read the group (see "Group Timestamp" on page 45).

"u" User defined specifier. The next character in the format string should be a letter. Gnus will call the function gnus-user-format-function-"X", where "X" is the letter following "%u". The function will be passed a single dummy parameter as argument. The function should return a string, which will be inserted into the buffer just like information from any other specifier.

All the "number-of" specs will be filled with an asterisk ("*") if no info is available—for instance, if it is a non-activated foreign group, or a bogus native group.

### 2.1.2 Group Mode Line Specification

The mode line can be changed by setting gnus-group-mode-line-format (see "Mode Line Formatting" on page 326). It doesn't understand that many format specifiers:

"S" The native news server.

"M" The native select method.

### 2.1.3 Group Highlighting

Highlighting in the group buffer is controlled by the gnus-group-highlight variable. This is an alist with elements that look like (form . face). If form evaluates to something non-nil, the face will be used on the line.

Here's an example value for this variable that might look nice if the background is dark:

```
(cond (window-system
       (setq custom-background-mode 'light)
       (defface my-group-face-1
         '((t (:foreground "Red" :bold t))) "First group face")
       (defface my-group-face-2
         '((t (:foreground "DarkSeaGreen4" :bold t)))
         "Second group face")
       (defface my-group-face-3
         '((t (:foreground "Green4" :bold t))) "Third group face")
       (defface my-group-face-4
         '((t (:foreground "SteelBlue" :bold t))) "Fourth group face")
       (defface my-group-face-5
         '((t (:foreground "Blue" :bold t))) "Fifth group face")))

(setq gnus-group-highlight
      '(((> unread 200) . my-group-face-1)
        ((and (< level 3) (zerop unread)) . my-group-face-2)
        ((< level 3) . my-group-face-3)
        ((zerop unread) . my-group-face-4)
        (t . my-group-face-5)))
```

Also see "Faces and Fonts" on page 334.

Variables that are dynamically bound when the forms are evaluated include:

group The group name.

unread The number of unread articles in the group.

method The select method.

mailp Whether the group is a mail group.

level The level of the group.

score The score of the group.

ticked The number of ticked articles in the group.

total The total number of articles in the group. Or rather, max-number minus min-number plus one.

topic When using the topic minor mode, this variable is bound to the current topic being inserted.

When the forms are evaled, point is at the beginning of the line of the group in question, so you can use many of the normal Gnus functions for snarfing info on the group.

gnus-group-update-hook is called when a group line is changed. It will not be called when gnus-visual is nil. This hook calls gnus-group-highlight-line by default.

## 2.2 Group Maneuvering

All movement commands understand the numeric prefix and will behave as expected, hopefully.

'n' Go to the next group that has unread articles (gnus-group-next-unread-group).

'p'
'DEL' Go to the previous group that has unread articles (gnus-group-prev-unread-group).

'N' Go to the next group (gnus-group-next-group).

'P' Go to the previous group (gnus-group-prev-group).

'M-n' Go to the next unread group on the same (or lower) level (gnus-group-next-unread-group-same-level).

'M-p' Go to the previous unread group on the same (or lower) level (gnus-group-prev-unread-group-same-level).

Three commands for jumping to groups:

'j' Jump to a group (and make it visible if it isn't already) (gnus-group-jump-to-group). Killed groups can be jumped to, just like living groups.

',' Jump to the unread group with the lowest level (gnus-group-best-unread-group).

'.' Jump to the first group with unread articles (gnus-group-first-unread-group).

If gnus-group-goto-unread is nil, all the movement commands will move to the next group, not the next unread group. Even the commands that say they move to the next unread group. The default is t.

## 2.3 Selecting a Group

'SPACE' Select the current group, switch to the summary buffer and display the first unread article (gnus-group-read-group). If there are no unread articles in the group, or if you give a non-numerical prefix to this command, Gnus will offer to fetch all the old articles in this group from the server. If you give a numerical prefix n, n determines the number of articles Gnus will fetch. If n is positive, Gnus fetches the n newest articles, if n is negative, Gnus fetches the abs(n) oldest articles.

Thus, 'SPC' enters the group normally, 'C-u SPC' offers old articles, 'C-u 4 2 SPC' fetches the 42 newest articles, and 'C-u - 4 2 SPC' fetches the 42 oldest ones.

When you are in the group (in the Summary buffer), you can type 'M-g' to fetch new articles, or 'C-u M-g' to also show the old ones.

'RET' Select the current group and switch to the summary buffer (gnus-group-select-group). Takes the same arguments as gnus-group-read-group—the only difference is that this command does not display the first unread article automatically upon group entry.

'M-RET' This does the same as the command above, but tries to do it with the minimum amount of fuzz (gnus-group-quick-select-group). No scoring/killing will be performed, there will be no highlights and no expunging. This might be useful if you're in a real hurry and have to enter some humongous group. If you give a 0 prefix to this command (i.e., '0 M-RET'), Gnus won't even generate the summary buffer, which is useful if you want to toggle threading before generating the summary buffer (see "Summary Generation Commands" on page 117).

'M-SPACE' This is yet one more command that does the same as the 'RET' command, but this one does it without expunging and hiding dormants (gnus-group-visible-select-group).

'C-M-RET' Finally, this command selects the current group ephemerally without doing any processing of its contents (gnus-group-select-group-ephemerally). Even threading has been turned off. Everything you do in the group after selecting it in this manner will have no permanent effects.

The gnus-large-newsgroup variable says what Gnus should consider to be a big group. If it is nil, no groups are considered big. The default value is 200. If the group has more (unread and/or ticked) articles than this, Gnus will query the user before entering the group. The user can then specify how many articles should be fetched from the server. If the user specifies a negative number (-n), the n oldest articles will be fetched. If it is positive, the n articles that have arrived most recently will be fetched.

gnus-large-ephemeral-newsgroup is the same as gnus-large-newsgroup, but is only used for ephemeral newsgroups.

If gnus-auto-select-first is non-nil, select an article automatically when entering a group with the 'SPACE' command. Which article this is is controlled by the gnus-auto-select-subject variable. Valid values for this variable is:

unread Place point on the subject line of the first unread article.

first Place point on the subject line of the first article.

unseen Place point on the subject line of the first unseen article.

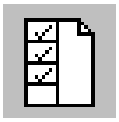
unseen-or-unread Place point on the subject line of the first unseen article, and if there is no such article, place point on the subject line of the first unread article.

best Place point on the subject line of the highest-scored unread article.

This variable can also be a function. In that case, that function will be called to place point on a subject line.

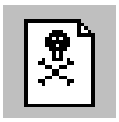
If you want to prevent automatic selection in some group (say, in a binary group with Huge articles) you can set the gnus-auto-select-first variable to nil in gnus-select-group-hook, which is called when a group is selected.

## 2.4 Subscription Commands



'S t'
'u' Toggle subscription to the current group (gnus-group-unsubscribe-current-group).

'S s'
'U' Prompt for a group to subscribe, and then subscribe it. If it was subscribed already, unsubscribe it instead (gnus-group-unsubscribe-group).



'S k'
'C-k' Kill the current group (gnus-group-kill-group).

'S y'
'C-y' Yank the last killed group (gnus-group-yank-group).

'C-x C-t' Transpose two groups (gnus-group-transpose-groups). This isn't really a subscription command, but you can use it instead of a kill-and-yank sequence sometimes.

'S w'
'C-w' Kill all groups in the region (gnus-group-kill-region).

'S z' Kill all zombie groups (gnus-group-kill-all-zombies).

'S C-k' Kill all groups on a certain level (gnus-group-kill-level). These groups can't be yanked back after killing, so this command should be used with some caution. The only time where this command comes in really handy is when you have a '.newsrc' with lots of unsubscribed groups that you want to get rid off. 'S C-k' on level 7 will kill off all unsubscribed groups that do not have message numbers in the '.newsrc' file.

Also see "Group Levels" on page 21.

## 2.5 Group Data

'c' Mark all unticked articles in this group as read (gnus-group-catchup-current). gnus-group-catchup-group-hook is called when catching up a group from the group buffer.

'C' Mark all articles in this group, even the ticked ones, as read (gnus-group-catchup-current-all).

'M-c' Clear the data from the current group—nix out marks and the list of read articles (gnus-group-clear-data).

'M-x gnus-group-clear-data-on-native-groups' If you have switched from one NNTP server to another, all your marks and read ranges have become worthless. You can use this command to clear out all data that you have on your native groups. Use with caution.

## 2.6 Group Levels

All groups have a level of *subscribedness*. For instance, if a group is on level 2, it is more subscribed than a group on level 5. You can ask Gnus to just list groups on a given level or lower (see "Listing Groups" on page 31), or to just check for new articles in groups on a given level or lower (see "Scanning New Messages" on page 43).

Remember: The higher the level of the group, the less important it is.

'S l' Set the level of the current group. If a numeric prefix is given, the next n groups will have their levels set. The user will be prompted for a level.

Gnus considers groups from levels 1 to gnus-level-subscribed (inclusive) (default 5) to be subscribed, gnus-level-subscribed (exclusive) and gnus-level-unsubscribed (inclusive) (default 7) to be unsubscribed, gnus-level-zombie to be zombies (walking dead) (default 8) and gnus-level-killed to be killed (completely dead) (default 9). Gnus treats subscribed and unsubscribed groups exactly the same, but zombie and killed groups have no information on what articles you have read, etc, stored. This

distinction between dead and living groups isn't done because it is nice or clever, it is done purely for reasons of efficiency.

It is recommended that you keep all your mail groups (if any) on quite low levels (e.g. 1 or 2).

Maybe the following description of the default behavior of Gnus helps to understand what these levels are all about. By default, Gnus shows you subscribed nonempty groups, but by hitting 'L' you can have it show empty subscribed groups and unsubscribed groups, too. Type 'l' to go back to showing nonempty subscribed groups again. Thus, unsubscribed groups are hidden, in a way.

Zombie and killed groups are similar to unsubscribed groups in that they are hidden by default. But they are different from subscribed and unsubscribed groups in that Gnus doesn't ask the news server for information (number of messages, number of unread messages) on zombie and killed groups. Normally, you use 'C-k' to kill the groups you aren't interested in. If most groups are killed, Gnus is faster.

Why does Gnus distinguish between zombie and killed groups? Well, when a new group arrives on the server, Gnus by default makes it a zombie group. This means that you are normally not bothered with new groups, but you can type 'A z' to get a list of all new groups. Subscribe the ones you like and kill the ones you don't want. ('A k' shows a list of killed groups.)

If you want to play with the level variables, you should show some care. Set them once, and don't touch them ever again. Better yet, don't touch them at all unless you know exactly what you're doing.

Two closely related variables are gnus-level-default-subscribed (default 3) and gnus-level-default-unsubscribed (default 6), which are the levels that new groups will be put on if they are (un)subscribed. These two variables should, of course, be inside the relevant valid ranges.

If gnus-keep-same-level is non-nil, some movement commands will only move to groups of the same level (or lower). In particular, going from the last article in one group to the next group will go to the next group of the same level (or lower). This might be handy if you want to read the most important groups before you read the rest.

If this variable is best, Gnus will make the next newsgroup the one with the best level.

All groups with a level less than or equal to gnus-group-default-list-level will be listed in the group buffer by default.

If gnus-group-list-inactive-groups is non-nil, non-active groups will be listed along with the unread groups. This variable is t by default. If it is nil, inactive groups won't be listed.

If gnus-group-use-permanent-levels is non-nil, once you give a level prefix to 'g' or 'l', all subsequent commands will use this level as the "work" level.

Gnus will normally just activate (i. e., query the server about) groups on level gnus-activate-level or less. If you don't want to activate unsubscribed groups, for instance, you might set this variable to 5. The default is 6.

## 2.7 Group Score

You would normally keep important groups on high levels, but that scheme is somewhat restrictive. Don't you wish you could have Gnus sort the group buffer according to how often you read groups, perhaps? Within reason?

This is what *group score* is for. You can have Gnus assign a score to each group through the mechanism described below. You can then sort the group buffer based on this score. Alternatively, you can sort on score and then level. (Taken together, the level and the score is called the *rank* of the group. A group that is on level 4 and has a score of 1 has a higher rank than a group on level 5 that has a score of 300. (The level is the most significant part and the score is the least significant part.))

If you want groups you read often to get higher scores than groups you read seldom you can add the gnus-summary-bubble-group function to the gnus-summary-exit-hook hook. This will result (after sorting) in a bubbling sort of action. If you want to see that in action after each summary exit, you can add gnus-group-sort-groups-by-rank or gnus-group-sort-groups-by-score to the same hook, but that will slow things down somewhat.

## 2.8 Marking Groups

If you want to perform some command on several groups, and they appear subsequently in the group buffer, you would normally just give a numerical prefix to the command. Most group commands will then do your bidding on those groups.

However, if the groups are not in sequential order, you can still perform a command on several groups. You simply mark the groups first with the process mark and then execute the command.

'#'
'M m' Set the mark on the current group (gnus-group-mark-group).

'M-#'
'M u' Remove the mark from the current group (gnus-group-unmark-group).

'M U' Remove the mark from all groups (gnus-group-unmark-all-groups).

'M w' Mark all groups between point and mark (gnus-group-mark-region).

'M b' Mark all groups in the buffer (gnus-group-mark-buffer).

'M r' Mark all groups that match some regular expression (gnus-group-mark-regexp).

Also see "Process/Prefix" on page 324.

If you want to execute some command on all groups that have been marked with the process mark, you can use the 'M-&' (gnus-group-universal-argument) command. It will prompt you for the command to be executed.

## 2.9 Foreign Groups

Below are some group mode commands for making and editing general foreign groups, as well as commands to ease the creation of a few special-purpose groups. All these commands insert the newly created groups under point—gnus-subscribe-newsgroup-method is not consulted.

'G m' Make a new group (gnus-group-make-group). Gnus will prompt you for a name, a method and possibly an *address*. For an easier way to subscribe to NNTP groups (see "Browse Foreign Server" on page 34).

'G r' Rename the current group to something else (gnus-group-rename-group). This is valid only on some groups—mail groups mostly. This command might very well be quite slow on some back ends.

'G c' Customize the group parameters (gnus-group-customize).

'G e' Enter a buffer where you can edit the select method of the current group (gnus-group-edit-group-method).

'G p' Enter a buffer where you can edit the group parameters (gnus-group-edit-group-parameters).

'G E' Enter a buffer where you can edit the group info (gnus-group-edit-group).

'G d' Make a directory group (see "Directory Groups" on page 205). You will be prompted for a directory name (gnus-group-make-directory-group).

'G h' Make the Gnus help group (gnus-group-make-help-group).

'G a' Make a Gnus archive group (gnus-group-make-archive-group). By default a group pointing to the most recent articles will be created (gnus-group-recent-archive-directory), but given a prefix, a full group will be created from gnus-group-archive-directory.

'G k' Make a kiboze group. You will be prompted for a name, for a regexp to match groups to be "included" in the kiboze group, and a series of strings to match on headers (gnus-group-make-kiboze-group). See "Kibozed Groups" on page 215.

'G D' Read an arbitrary directory as if it were a newsgroup with the nneething back end (gnus-group-enter-directory). See "Anything Groups" on page 206.

'G f' Make a group based on some file or other (gnus-group-make-doc-group). If you give a prefix to this command, you will be prompted for a file name and a file type. Currently supported types are mbox, babyl, digest, news, rnews, mmdf, forward, rfc934, rfc822-forward, mime-parts, standard-digest,

slack-digest, clari-briefs, nsmail, outlook, oe-dbx, and mailman. If you run this command without a prefix, Gnus will guess at the file type. See "Document Groups" on page 207.

'G u' Create one of the groups mentioned in gnus-useful-groups (gnus-group-make-useful-group).

'G w' Make an ephemeral group based on a web search (gnus-group-make-web-group). If you give a prefix to this command, make a solid group instead. You will be prompted for the search engine type and the search string. Valid search engine types include google, dejanews, and gmane. See "Web Searches" on page 192.

If you use the google search engine, you can limit the search to a particular group by using a match string like "shaving group:alt.sysadmin.recovery".

'G DEL' This function will delete the current group (gnus-group-delete-group). If given a prefix, this function will actually delete all the articles in the group, and forcibly remove the group itself from the face of the Earth. Use a prefix only if you are absolutely sure of what you are doing. This command can't be used on read-only groups (like nntp group), though.

'G V' Make a new, fresh, empty nnvirtual group (gnus-group-make-empty-virtual). See "Virtual Groups" on page 214.

'G v' Add the current group to an nnvirtual group (gnus-group-add-to-virtual). Uses the process/prefix convention.

See "Select Methods" on page 144, for more information on the various select methods.

If gnus-activate-foreign-newsgroups is a positive number, Gnus will check all foreign groups with this level or lower at startup. This might take quite a while, especially if you subscribe to lots of groups from different NNTP servers. Also see "Group Levels" on page 21; gnus-activate-level also affects activation of foreign newsgroups.

## 2.10 Group Parameters

The group parameters store information local to a particular group. Here's an example group parameter list:

```
((to-address . "ding@gnus.org")
 (auto-expire . t))
```

We see that each element consists of a "dotted pair"—the thing before the dot is the key, while the thing after the dot is the value. All the parameters have this form *except* local variable specs, which are not dotted pairs, but proper lists.

Some parameters have correspondent customizable variables, each of which is an alist of regexps and values.

The following group parameters can be used:

to-address Address used by when doing followups and new posts.

```
(to-address . "some@where.com")
```

This is primarily useful in mail groups that represent closed mailing lists—mailing lists where it's expected that everybody that writes to the mailing list is subscribed to it. Since using this parameter ensures that the mail only goes to the mailing list itself, it means that members won't receive two copies of your followups.

Using to-address will actually work whether the group is foreign or not. Let's say there's a group on the server that is called "fa.4ad-l". This is a real newsgroup, but the server has gotten the articles from a mail-to-news gateway. Posting directly to this group is therefore impossible—you have to send mail to the mailing list address instead.

See also gnus-parameter-to-address-alist.

to-list Address used when doing 'a' in that group.

```
(to-list . "some@where.com")
```

It is totally ignored when doing a followup—except that if it is present in a news group, you'll get mail group semantics when doing 'f'.

If you do an 'a' command in a mail group and you have neither a to-list group parameter nor a to-address group parameter, then a to-list group parameter will be added automatically upon sending the message if gnus-add-to-list is set to t.

If you do an 'a' command in a mail group and you don't have a to-list group parameter, one will be added automatically upon sending the message.

If this variable is set, gnus-mailing-list-mode is turned on when entering summary buffer.

See also gnus-parameter-to-list-alist.

subscribed If this parameter is set to t, Gnus will consider the to-address and to-list parameters for this group as addresses of mailing lists you are subscribed to. Giving Gnus this information is (only) a first step in getting it to generate correct Mail-Followup-To headers for your posts to these lists. See "Mailing Lists, ,Mailing Lists, message, The Message Manual" on page ??, for a complete treatment of available MFT support.

See also gnus-find-subscribed-addresses, the function that directly uses this group parameter.

visible If the group parameter list has the element (visible . t), that group will always be visible in the Group buffer, regardless of whether it has any unread articles.

broken-reply-to Elements like (broken-reply-to . t) signals that Reply-To headers in this group are to be ignored, and for the header to be hidden if reply-to is part of gnus-boring-article-headers. This can be useful if you're reading a mailing list group where the listserv has inserted Reply-To headers that point back to the listserv itself. That is broken behavior. So there!

to-group Elements like (to-group . "some.group.name") means that all posts in that group will be sent to some.group.name.

newsgroup If you have (newsgroup . t) in the group parameter list, Gnus will treat all responses as if they were responses to news articles. This can be useful if you have a mail group that's really a mirror of a news group.

gcc-self If (gcc-self . t) is present in the group parameter list, newly composed messages will be Gcc'd to the current group. If (gcc-self . none) is present, no Gcc: header will be generated, if (gcc-self . "string") is present, this string will be inserted literally as a gcc header. This parameter takes precedence over any default Gcc rules as described later (see "Archived Messages" on page 138).

**Caveat**: It yields an error putting (gcc-self . t) in groups of an nntp server or so, because an nntp server doesn't accept articles.

auto-expire If the group parameter has an element that looks like (auto-expire . t), all articles read will be marked as expirable. For an alternative approach, see "Expiring Mail" on page 175.

See also gnus-auto-expirable-newsgroups.

total-expire If the group parameter has an element that looks like (total-expire . t), all read articles will be put through the expiry process, even if they are not marked as expirable. Use with caution. Unread, ticked and dormant articles are not eligible for expiry.

See also gnus-total-expirable-newsgroups.

expiry-wait If the group parameter has an element that looks like (expiry-wait . 10), this value will override any nnmail-expiry-wait and nnmail-expiry-wait-function (see "Expiring Mail" on page 175) when expiring expirable messages. The value can either be a number of days (not necessarily an integer) or the symbols never or immediate.

expiry-target Where expired messages end up. This parameter overrides nnmail-expiry-target.

score-file Elements that look like (score-file . "file") will make 'file' into the current score file for the group in question. All interactive score entries will be put into this file.

adapt-file Elements that look like (adapt-file . "file") will make 'file' into the current adaptive file for the group in question. All adaptive score entries will be put into this file.

admin-address When unsubscribing from a mailing list you should never send the unsubscription notice to the mailing list itself. Instead, you'd send messages to the administrative address. This parameter allows you to put the admin address somewhere convenient.

display Elements that look like (display . MODE) say which articles to display on entering the group. Valid values are:

all Display all articles, both read and unread.

an integer Display the last integer articles in the group. This is the same as entering the group with 'C-u integer'.

default Display the default visible articles, which normally includes unread and ticked articles.

an array Display articles that satisfy a predicate.

Here are some examples:

[unread] Display only unread articles.

[not expire] Display everything except expirable articles.

[and (not reply) (not expire)] Display everything except expirable and articles you've already responded to.

The available operators are not, and and or. Predicates include tick, unsend, undownload, unread, dormant, expire, reply, killed, bookmark, score, save, cache, forward, unseen and recent.

The display parameter works by limiting the summary buffer to the subset specified. You can pop the limit by using the '/ w' command (see "Limiting" on page 70).

comment Elements that look like (comment . "This is a comment") are arbitrary comments on the group. You can display comments in the group line (see "Group Line Specification" on page 14).

charset Elements that look like (charset . iso-8859-1) will make iso-8859-1 the default charset; that is, the charset that will be used for all articles that do not specify a charset.

See also gnus-group-charset-alist.

ignored-charsets Elements that look like (ignored-charsets x-unknown iso-8859-1) will make iso-8859-1 and x-unknown ignored; that is, the default charset will be used for decoding articles.

See also gnus-group-ignored-charsets-alist.

posting-style You can store additional posting style information for this group here (see "Posting Styles" on page 140). The format is that of an entry in the gnus-posting-styles alist, except that there's no regexp matching the group name (of course). Style elements in this group parameter will take precedence over the ones found in gnus-posting-styles.

For instance, if you want a funky name and signature in this group only, instead of hacking gnus-posting-styles, you could put something like this in the group parameters:

```
(posting-style
  (name "Funky Name")
  ("X-My-Header" "Funky Value")
  (signature "Funky Signature"))
```

post-method If it is set, the value is used as the method for posting message instead of gnus-post-method.

banner An item like (banner . regexp) causes any part of an article that matches the regular expression regexp to be stripped. Instead of regexp, you can also use the symbol signature which strips the last signature or any of the elements of the alist gnus-article-banner-alist.

sieve This parameter contains a Sieve test that should match incoming mail that should be placed in this group. From this group parameter, a Sieve "IF" control structure is generated, having the test as the condition and "fileinto "group.name";" as the body.

For example, if the "INBOX.list.sieve" group has the (sieve address "sender" "sieve-admin@extundo.com") group parameter, when translating the group parameter into a Sieve script (see "Sieve Commands" on page 46) the following Sieve code is generated:

```
if address \"sender\" \"sieve-admin@extundo.com\" {
        fileinto \"INBOX.list.sieve\";
}
```

The Sieve language is described in RFC 3028. See "Top, Emacs Sieve, Top, sieve, Emacs Sieve" on page ??.

(variable form) You can use the group parameters to set variables local to the group you are entering. If you want to turn threading off in "news.answers", you could put (gnus-show-threads nil) in the group parameters of that group. gnus-show-threads will be made into a local variable in the summary buffer you enter, and the form nil will be evaled there.

Note that this feature sets the variable locally to the summary buffer. But some variables are evaluated in the article buffer, or in the message buffer (of a reply or followup or otherwise newly created message). As a workaround, it might help to add the variable in question to gnus-newsgroup-variables. See "Various Summary Stuff" on page 116. So if you want to set message-from-style via the group parameters, then you may need the following statement elsewhere in your '~/.gnus' file:

```
(add-to-list 'gnus-newsgroup-variables 'message-from-style)
```

A use for this feature is to remove a mailing list identifier tag in the subject fields of articles. E.g. if the news group

```
nntp+news.gnus.org:gmane.text.docbook.apps
```

has the tag "DOC-BOOK-APPS:" in the subject of all articles, this tag can be removed from the article subjects in the summary buffer for the group by putting (gnus-list-identifiers "DOCBOOK-APPS:") into the group parameters for the group.

This can also be used as a group-specific hook function, if you'd like. If you want to hear a beep when you enter a group, you could put something like (dummy-variable (ding)) in the parameters of that group. dummy-variable will be set to the result of the (ding) form, but who cares?

Use the 'G p' or the 'G c' command to edit group parameters of a group. ('G p' presents you with a Lisp-based interface, 'G c' presents you with a Customize-like interface. The latter helps avoid silly Lisp errors.) You might also be interested in reading about topic parameters (see "Topic Parameters" on page 41).

Group parameters can be set via the gnus-parameters variable too. But some variables, such as visible, have no effect. For example:

```
(setq gnus-parameters
      '(("mail\\..*"
         (gnus-show-threads nil)
         (gnus-use-scoring nil)
         (gnus-summary-line-format
          "%U%R%z%I%(%[%d:%ub%-23,23f%]%) %s\n")
         (gcc-self . t)
         (display . all))

        ("^nnimap:\\(foo.bar\\)$"
         (to-group . "\\1"))
```

```
("mail\\.me"
 (gnus-use-scoring  t))

("list\\..*"
 (total-expire . t)
 (broken-reply-to . t))))
```

String value of parameters will be subjected to regexp substitution, as the to-group example shows.

## 2.11 Listing Groups

These commands all list various slices of the groups available.

'l'

'A s' List all groups that have unread articles (gnus-group-list-groups). If the numeric prefix is used, this command will list only groups of level ARG and lower. By default, it only lists groups of level five (i.e., gnus-group-default-list-level) or lower (i.e., just subscribed groups).

'L'

'A u' List all groups, whether they have unread articles or not (gnus-group-list-all-groups). If the numeric prefix is used, this command will list only groups of level ARG and lower. By default, it lists groups of level seven or lower (i.e., just subscribed and unsubscribed groups).

'A l' List all unread groups on a specific level (gnus-group-list-level). If given a prefix, also list the groups with no unread articles.

'A k' List all killed groups (gnus-group-list-killed). If given a prefix argument, really list all groups that are available, but aren't currently (un)subscribed. This could entail reading the active file from the server.

'A z' List all zombie groups (gnus-group-list-zombies).

'A m' List all unread, subscribed groups with names that match a regexp (gnus-group-list-matching).

'A M' List groups that match a regexp (gnus-group-list-all-matching).

'A A' List absolutely all groups in the active file(s) of the server(s) you are connected to (gnus-group-list-active). This might very well take quite a while. It might actually be a better idea to do a 'A M' to list all matching, and just give "." as the thing to match on. Also note that this command may list groups that don't exist (yet)—these will be listed as if they were killed groups. Take the output with some grains of salt.

'A a' List all groups that have names that match a regexp (gnus-group-apropos).

'A d' List all groups that have names or descriptions that match a regexp (gnus-group-description-apropos).

'A c' List all groups with cached articles (gnus-group-list-cached).

'A ?' List all groups with dormant articles (gnus-group-list-dormant).

'A /' List groups limited within the current selection (gnus-group-list-limit).

'A f' Flush groups from the current selection (gnus-group-list-flush).

'A p' List groups plus the current selection (gnus-group-list-plus).

Groups that match the gnus-permanently-visible-groups regexp will always be shown, whether they have unread articles or not. You can also add the visible element to the group parameters in question to get the same effect.

Groups that have just ticked articles in it are normally listed in the group buffer. If gnus-list-groups-with-ticked-articles is nil, these groups will be treated just like totally empty groups. It is t by default.

## 2.12 Sorting Groups

The 'C-c C-s' (gnus-group-sort-groups) command sorts the group buffer according to the function(s) given by the gnus-group-sort-function variable. Available sorting functions include:

gnus-group-sort-by-alphabet Sort the group names alphabetically. This is the default.

gnus-group-sort-by-real-name Sort the group alphabetically on the real (unprefixed) group names.

gnus-group-sort-by-level Sort by group level.

gnus-group-sort-by-score Sort by group score. See "Group Score" on page 22.

gnus-group-sort-by-rank Sort by group score and then the group level. The level and the score are, when taken together, the group's *rank*. See "Group Score" on page 22.

gnus-group-sort-by-unread Sort by number of unread articles.

gnus-group-sort-by-method Sort alphabetically on the select method.

gnus-group-sort-by-server Sort alphabetically on the Gnus server name.

gnus-group-sort-function can also be a list of sorting functions. In that case, the most significant sort key function must be the last one.

There are also a number of commands for sorting directly according to some sorting criteria:

'G S a' Sort the group buffer alphabetically by group name (gnus-group-sort-groups-by-alphabet).

'G S u' Sort the group buffer by the number of unread articles (gnus-group-sort-groups-by-unread).

'G S l' Sort the group buffer by group level (gnus-group-sort-groups-by-level).

'G S v' Sort the group buffer by group score (gnus-group-sort-groups-by-score). See "Group Score" on page 22.

'G S r' Sort the group buffer by group rank (gnus-group-sort-groups-by-rank). See "Group Score" on page 22.

'G S m' Sort the group buffer alphabetically by back end name (gnus-group-sort-groups-by-method).

'G S n' Sort the group buffer alphabetically by real (unprefixed) group name (gnus-group-sort-groups-by-real-name).

All the commands below obey the process/prefix convention (see "Process/Prefix" on page 324).

When given a symbolic prefix (see "Symbolic Prefixes" on page 325), all these commands will sort in reverse order.

You can also sort a subset of the groups:

'G P a' Sort the groups alphabetically by group name (gnus-group-sort-selected-groups-by-alphabet).

'G P u' Sort the groups by the number of unread articles (gnus-group-sort-selected-groups-by-unread).

'G P l' Sort the groups by group level (gnus-group-sort-selected-groups-by-level).

'G P v' Sort the groups by group score (gnus-group-sort-selected-groups-by-score). See "Group Score" on page 22.

'G P r' Sort the groups by group rank (gnus-group-sort-selected-groups-by-rank). See "Group Score" on page 22.

'G P m' Sort the groups alphabetically by back end name (gnus-group-sort-selected-groups-by-method).

'G P n' Sort the groups alphabetically by real (unprefixed) group name (gnus-group-sort-selected-groups-by-real-name).

'G P s' Sort the groups according to gnus-group-sort-function.

And finally, note that you can use 'C-k' and 'C-y' to manually move groups around.

## 2.13 Group Maintenance

'b' Find bogus groups and delete them (gnus-group-check-bogus-groups).

'F' Find new groups and process them (gnus-group-find-new-groups). With 1 'C-u', use the ask-server method to query the server for new groups. With 2 'C-u''s, use most complete method possible to query the server for new groups, and subscribe the new groups as zombies.

'C-c C-x' Run all expirable articles in the current group through the expiry process (if any) (gnus-group-expire-articles). That is, delete all expirable articles in the group that have been around for a while. (see "Expiring Mail" on page 175).

'C-c C-M-x' Run all expirable articles in all groups through the expiry process (gnus-group-expire-all-groups).

## 2.14 Browse Foreign Server

'B' You will be queried for a select method and a server name. Gnus will then attempt to contact this server and let you browse the groups there (gnus-group-browse-foreign-server).

A new buffer with a list of available groups will appear. This buffer will use the gnus-browse-mode. This buffer looks a bit (well, a lot) like a normal group buffer.

Here's a list of keystrokes available in the browse mode:

'n' Go to the next group (gnus-group-next-group).

'p' Go to the previous group (gnus-group-prev-group).

'SPACE' Enter the current group and display the first article (gnus-browse-read-group).

'RET' Enter the current group (gnus-browse-select-group).

'u' Unsubscribe to the current group, or, as will be the case here, subscribe to it (gnus-browse-unsubscribe-current-group).

'l'

'q' Exit browse mode (gnus-browse-exit).

'd' Describe the current group (gnus-browse-describe-group).

'?' Describe browse mode briefly (well, there's not much to describe, is there) (gnus-browse-describe-briefly).

## 2.15 Exiting Gnus

Yes, Gnus is ex(c)iting.

'z' Suspend Gnus (gnus-group-suspend). This doesn't really exit Gnus, but it kills all buffers except the Group buffer. I'm not sure why this is a gain, but then who am I to judge?

'q' Quit Gnus (gnus-group-exit).

'Q' Quit Gnus without saving the '.newsrc' files (gnus-group-quit). The dribble file will be saved, though (see "Auto Save" on page 9).

gnus-suspend-gnus-hook is called when you suspend Gnus and gnus-exit-gnus-hook is called when you quit Gnus, while gnus-after-exiting-gnus-hook is called as the final item when exiting Gnus.

Note:

> Miss Lisa Cannifax, while sitting in English class, felt her feet go numbly heavy and herself fall into a hazy trance as the boy sitting behind her drew repeated lines with his pencil across the back of her plastic chair.

## 2.16 Group Topics

If you read lots and lots of groups, it might be convenient to group them hierarchically according to topics. You put your Emacs groups over here, your sex groups over there, and the rest (what, two groups or so?) you put in some misc section that you never bother with anyway. You can even group the Emacs sex groups as a sub-topic to either the Emacs groups or the sex groups—or both! Go wild!

Here's an example:

```
Gnus
  Emacs -- I wuw it!
     3: comp.emacs
     2: alt.religion.emacs
```

```
emacs@proletcult.slip.ifi.uio.no
Buffers Files Tools Search Misc Groups Group Agent Topics Help
[ Gnus -- 2828 ]
  [ Stuff -- 6 ]
*         0: gnu.emacs.gnus
*         0: nnml:ding
*         0: nnml:gnus-bug
*         0: nnml:misc
          6: nnvirtual:cartoons
*         0: nnml:sisci
  [ Norske saker -- 0 ]
*         0: no.typografi
  [ Misk. -- 2664 ]
        394: alt.folklore.computers
        323: alt.sysadmin.recovery
         81: bofh.general
          1: comp.risks
         64: news.admin.net-abuse.misc
        131: nnml:idm
          1: nnml:subbacultcha
          6: nnml:www-stats
         93: rec.arts.sf.written
         55: rec.music.industrial
       1515: soc.motss
  [ Test -- 8 ]...
  [ Archive -- 96 ]...
  [ Ifismer -- 0 ]
  [ News -- 54 ]...

----- Gnus: *Group* {nntp:glitnir3}    (Group Topic Unplugged)--All----------
Garbage collecting...
```

Figure 2.2: Group Topics

```
    Naughty Emacs
     452: alt.sex.emacs
       0: comp.talk.emacs.recovery
  Misc
     8: comp.binaries.fractals
    13: comp.sources.unix
```

To get this *fab* functionality you simply turn on (ooh!) the gnus-topic minor mode—type 't' in the group buffer. (This is a toggling command.)

Go ahead, just try it. I'll still be here when you get back. La de dum... Nice tune, that... la la la... What, you're back? Yes, and now press 'l'. There. All your groups are now listed under "misc". Doesn't that make you feel all warm and fuzzy? Hot and bothered?

If you want this permanently enabled, you should add that minor mode to the hook for the group mode. Put the following line in your '~/.gnus.el' file:

```
(add-hook 'gnus-group-mode-hook 'gnus-topic-mode)
```

### 2.16.1 Topic Commands

When the topic minor mode is turned on, a new 'T' submap will be available. In addition, a few of the standard keys change their definitions slightly.

In general, the following kinds of operations are possible on topics. First of all, you want to create topics. Secondly, you want to put groups in topics and to move them around until you have an order you like. The third kind of operation is to show/hide parts of the whole shebang. You might want to hide a topic including its subtopics and groups, to get a better overview of the other groups.

Here is a list of the basic keys that you might need to set up topics the way you like.

'T n' Prompt for a new topic name and create it (gnus-topic-create-topic).

'T TAB'
'TAB' "Indent" the current topic so that it becomes a sub-topic of the previous topic (gnus-topic-indent). If given a prefix, "un-indent" the topic instead.

'M-TAB' "Un-indent" the current topic so that it becomes a sub-topic of the parent of its current parent (gnus-topic-unindent).

The following two keys can be used to move groups and topics around. They work like the well-known cut and paste. 'C-k' is like cut and 'C-y' is like paste. Of course, this being Emacs, we use the terms kill and yank rather than cut and paste.

'C-k' Kill a group or topic (gnus-topic-kill-group). All groups in the topic will be removed along with the topic.

'C-y' Yank the previously killed group or topic (gnus-topic-yank-group). Note that all topics will be yanked before all groups.

So, to move a topic to the beginning of the list of topics, just hit 'C-k' on it. This is like the "cut" part of cut and paste. Then, move the cursor to the beginning of the buffer (just below the "Gnus" topic) and hit 'C-y'. This is like the "paste" part of cut and paste. Like I said – E-Z.

You can use 'C-k' and 'C-y' on groups as well as on topics. So you can move topics around as well as groups.

After setting up the topics the way you like them, you might wish to hide a topic, or to show it again. That's why we have the following key.

'RET'
'SPACE' Either select a group or fold a topic (gnus-topic-select-group). When you perform this command on a group, you'll enter the group, as usual. When done on a topic line, the topic will be folded (if it was visible) or unfolded (if it was folded already). So it's basically a toggling command on topics. In addition, if you give a numerical prefix, group on that level (and lower) will be displayed.

Now for a list of other commands, in no particular order.

'T m' Move the current group to some other topic (gnus-topic-move-group). This command uses the process/prefix convention (see "Process/Prefix" on page 324).

'T j' Go to a topic (gnus-topic-jump-to-topic).

'T c' Copy the current group to some other topic (gnus-topic-copy-group). This command uses the process/prefix convention (see "Process/Prefix" on page 324).

'T h' Hide the current topic (gnus-topic-hide-topic). If given a prefix, hide the topic permanently.

'T s' Show the current topic (gnus-topic-show-topic). If given a prefix, show the topic permanently.

'T D' Remove a group from the current topic (gnus-topic-remove-group). This command is mainly useful if you have the same group in several topics and wish to remove it from one of the topics. You may also remove a group from all topics, but in that case, Gnus will add it to the root topic the next time you start Gnus. In fact, all new groups (which, naturally, don't belong to any topic) will show up in the root topic.

This command uses the process/prefix convention (see "Process/Prefix" on page 324).

'T M' Move all groups that match some regular expression to a topic (gnus-topic-move-matching).

'T C' Copy all groups that match some regular expression to a topic (gnus-topic-copy-matching).

'T H' Toggle hiding empty topics (gnus-topic-toggle-display-empty-topics).

'T #' Mark all groups in the current topic with the process mark (gnus-topic-mark-topic). This command works recursively on sub-topics unless given a prefix.

'T M-#' Remove the process mark from all groups in the current topic (gnus-topic-unmark-topic). This command works recursively on sub-topics unless given a prefix.

'C-c C-x' Run all expirable articles in the current group or topic through the expiry process (if any) (gnus-topic-expire-articles). (see "Expiring Mail" on page 175).

'T r' Rename a topic (gnus-topic-rename).

'T DEL' Delete an empty topic (gnus-topic-delete).

'A T' List all groups that Gnus knows about in a topics-ified way (gnus-topic-list-active).

'T M-n' Go to the next topic (gnus-topic-goto-next-topic).

'T M-p' Go to the next topic (gnus-topic-goto-previous-topic).

'G p' Edit the topic parameters (gnus-topic-edit-parameters). See "Topic Parameters" on page 41.

### 2.16.2 Topic Variables

The previous section told you how to tell Gnus which topics to display. This section explains how to tell Gnus what to display about each topic.

The topic lines themselves are created according to the gnus-topic-line-format variable (see "Formatting Variables" on page 325). Valid elements are:

"i" Indentation.

"n" Topic name.

"v" Visibility.

"l" Level.

"g" Number of groups in the topic.

"a" Number of unread articles in the topic.

"A" Number of unread articles in the topic and all its subtopics.

Each sub-topic (and the groups in the sub-topics) will be indented with gnus-topic-indent-level times the topic level number of spaces. The default is 2.

gnus-topic-mode-hook is called in topic minor mode buffers.

The gnus-topic-display-empty-topics says whether to display even topics that have no unread articles in them. The default is t.

### 2.16.3 Topic Sorting

You can sort the groups in each topic individually with the following commands:

'T S a' Sort the current topic alphabetically by group name (gnus-topic-sort-groups-by-alphabet).

'T S u' Sort the current topic by the number of unread articles (gnus-topic-sort-groups-by-unread).

'T S l' Sort the current topic by group level (gnus-topic-sort-groups-by-level).

'T S v' Sort the current topic by group score (gnus-topic-sort-groups-by-score). See "Group Score" on page 22.

'T S r' Sort the current topic by group rank (gnus-topic-sort-groups-by-rank). See "Group Score" on page 22.

'T S m' Sort the current topic alphabetically by back end name (gnus-topic-sort-groups-by-method).

'T S e' Sort the current topic alphabetically by server name (gnus-topic-sort-groups-by-server).

'T S s' Sort the current topic according to the function(s) given by the gnus-group-sort-function variable (gnus-topic-sort-groups).

When given a prefix argument, all these commands will sort in reverse order. See "Sorting Groups" on page 32, for more information about group sorting.

### 2.16.4 Topic Topology

So, let's have a look at an example group buffer:

```
Gnus
  Emacs -- I wuw it!
     3: comp.emacs
     2: alt.religion.emacs
    Naughty Emacs
     452: alt.sex.emacs
       0: comp.talk.emacs.recovery
  Misc
     8: comp.binaries.fractals
    13: comp.sources.unix
```

So, here we have one top-level topic ("Gnus"), two topics under that, and one sub-topic under one of the sub-topics. (There is always just one (1) top-level topic). This topology can be expressed as follows:

```
(("Gnus" visible)
 (("Emacs -- I wuw it!" visible)
  (("Naughty Emacs" visible)))
 (("Misc" visible)))
```

This is in fact how the variable gnus-topic-topology would look for the display above. That variable is saved in the '.newsrc.eld' file, and shouldn't be messed with manually—unless you really want to. Since this variable is read from the '.newsrc.eld' file, setting it in any other startup files will have no effect.

This topology shows what topics are sub-topics of what topics (right), and which topics are visible. Two settings are currently allowed—visible and invisible.

### 2.16.5 Topic Parameters

All groups in a topic will inherit group parameters from the parent (and ancestor) topic parameters. All valid group parameters are valid topic parameters (see "Group Parameters" on page 25).

In addition, the following parameters are only valid as topic parameters:

subscribe When subscribing new groups by topic (see "Subscription Methods" on page 5), the subscribe topic parameter says what groups go in what topic. Its value should be a regexp to match the groups that should go in that topic.

subscribe-level When subscribing new groups by topic (see the subscribe parameter), the group will be subscribed with the level specified in the subscribe-level instead of gnus-level-default-subscribed.

Group parameters (of course) override topic parameters, and topic parameters in sub-topics override topic parameters in super-topics. You know. Normal inheritance rules. (*Rules* is here a noun, not a verb, although you may feel free to disagree with me here.)

```
Gnus
  Emacs
     3: comp.emacs
     2: alt.religion.emacs
   452: alt.sex.emacs
    Relief
     452: alt.sex.emacs
       0: comp.talk.emacs.recovery
  Misc
     8: comp.binaries.fractals
    13: comp.sources.unix
   452: alt.sex.emacs
```

The "Emacs" topic has the topic parameter (score-file . "emacs.SCORE"); the "Relief" topic has the topic parameter (score-file . "relief.SCORE"); and the "Misc" topic has the topic parameter (score-file . "emacs.SCORE"). In addition, "alt.religion.emacs" has the group parameter (score-file . "religion.SCORE").

Now, when you enter "alt.sex.emacs" in the "Relief" topic, you will get the 'relief.SCORE' home score file. If you enter the same group in the "Emacs" topic, you'll get the 'emacs.SCORE' home score file. If you enter the group "alt.religion.emacs", you'll get the 'religion.SCORE' home score file.

This seems rather simple and self-evident, doesn't it? Well, yes. But there are some problems, especially with the total-expiry parameter. Say you have a mail group in two topics; one with total-expiry and one without. What happens when you do 'M-x gnus-expire-all-expirable-groups'? Gnus has no way of telling which one of these topics you mean to expire articles from, so anything may happen. In fact, I hereby declare that it is *undefined* what happens. You just have to be careful if you do stuff like that.

## 2.17 Misc Group Stuff

'^' Enter the server buffer (gnus-group-enter-server-mode). See "Server Buffer" on page 146.

'a' Start composing a message (a news by default) (gnus-group-post-news). If given a prefix, post to the group under the point. If the prefix is 1, prompt for a group to post to. Contrary to what the name of this function suggests, the prepared article might be a mail instead of a news, if a mail group is specified with the prefix argument. See "Composing Messages" on page 134.

'm' Mail a message somewhere (gnus-group-mail). If given a prefix, use the posting style of the group under the point. If the prefix is 1, prompt for a group name to find the posting style. See "Composing Messages" on page 134.

'i' Start composing a news (gnus-group-news). If given a prefix, post to the group under the point. If the prefix is 1, prompt for group to post to. See "Composing Messages" on page 134.

This function actually prepares a news even when using mail groups. This is useful for "posting" messages to mail groups without actually sending them over the network: they're just saved directly to the group in question. The corresponding back end must have a request-post method for this to work though.

Variables for the group buffer:

gnus-group-mode-hook is called after the group buffer has been created.

gnus-group-prepare-hook is called after the group buffer is generated. It may be used to modify the buffer in some strange, unnatural way.

gnus-group-prepared-hook is called as the very last thing after the group buffer has been generated. It may be used to move point around, for instance.

gnus-permanently-visible-groups Groups matching this regexp will always be listed in the group buffer, whether they are empty or not.

gnus-group-name-charset-method-alist An alist of method and the charset for group names. It is used to show non-ASCII group names.

For example:

```
(setq gnus-group-name-charset-method-alist
    '(((nntp "news.com.cn") . cn-gb-2312)))
```

gnus-group-name-charset-group-alist An alist of regexp of group name and the charset for group names. It is used to show non-ASCII group names. (((".*" utf-8)) is the default value if UTF-8 is supported, otherwise the default is nil.

For example:

```
(setq gnus-group-name-charset-group-alist
    '(("\\.com\\.cn:" . cn-gb-2312)))
```

### 2.17.1 Scanning New Messages

'g' Check the server(s) for new articles. If the numerical prefix is used, this command will check only groups of level arg and lower (gnus-group-get-new-news). If given a non-numerical prefix, this command will force a total re-reading of the active file(s) from the back end(s).

'M-g' Check whether new articles have arrived in the current group (gnus-group-get-new-news-this-group). gnus-goto-next-group-when-activating says whether this command is to move point to the next group or not. It is t by default.

'C-c M-g' Activate absolutely all groups (gnus-activate-all-groups).

'R' Restart Gnus (gnus-group-restart). This saves the '.newsrc' file(s), closes the connection to all servers, clears up all run-time Gnus variables, and then starts Gnus all over again.

gnus-get-new-news-hook is run just before checking for new news.
gnus-after-getting-new-news-hook is run after checking for new news.

### 2.17.2 Group Information

'H f' Try to fetch the FAQ for the current group (gnus-group-fetch-faq). Gnus will try to get the FAQ from gnus-group-faq-directory, which is usually a directory on a remote machine. This variable can also be a list of directories. In that case, giving a prefix to this command will allow you to choose between the various sites. ange-ftp (or efs) will be used for fetching the file.

If fetching from the first site is unsuccessful, Gnus will attempt to go through gnus-group-faq-directory and try to open them one by one.

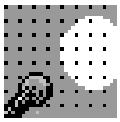
'H c' Try to open the charter for the current group in a web browser (gnus-group-fetch-charter). Query for a group if given a prefix argument.

Gnus will use gnus-group-charter-alist to find the location of the charter. If no location is known, Gnus will fetch the control messages for the group, which in some cases includes the charter.

'H C' Fetch the control messages for the group from the archive at ftp.isc.org (gnus-group-fetch-control). Query for a group if given a prefix argument.

If gnus-group-fetch-control-use-browse-url is non-nil, Gnus will open the control messages in a browser using browse-url. Otherwise they are fetched using ange-ftp and displayed in an ephemeral group.

Note that the control messages are compressed. To use this command you need to turn on auto-compression-mode (see "Compressed Files, ,Compressed Files, emacs, The Emacs Manual" on page ??).



'H d'
'C-c C-d' Describe the current group (gnus-group-describe-group). If given a prefix, force Gnus to re-read the description from the server.

'M-d' Describe all groups (gnus-group-describe-all-groups). If given a prefix, force Gnus to re-read the description file from the server.

'H v'
'V' Display current Gnus version numbers (gnus-version).

'?' Give a very short help message (gnus-group-describe-briefly).

'C-c C-i' Go to the Gnus info node (gnus-info-find-node).

### 2.17.3 Group Timestamp

It can be convenient to let Gnus keep track of when you last read a group. To set the ball rolling, you should add gnus-group-set-timestamp to gnus-select-group-hook:

```
(add-hook 'gnus-select-group-hook 'gnus-group-set-timestamp)
```

After doing this, each time you enter a group, it'll be recorded.

This information can be displayed in various ways—the easiest is to use the "%d" spec in the group line format:

```
(setq gnus-group-line-format
      "%M\%S\%p\%P\%5y: %(%-40,40g%) %d\n")
```

This will result in lines looking like:

```
*        0: mail.ding                                19961002T012943
         0: custom                                   19961002T012713
```

As you can see, the date is displayed in compact ISO 8601 format. This may be a bit too much, so to just display the date, you could say something like:

```
(setq gnus-group-line-format
      "%M\%S\%p\%P\%5y: %(%-40,40g%) %6,6~(cut 2)d\n")
```

If you would like greater control of the time format, you can use a user-defined format spec. Something like the following should do the trick:

```
(setq gnus-group-line-format
      "%M\%S\%p\%P\%5y: %(%-40,40g%) %ud\n")
(defun gnus-user-format-function-d (headers)
  (let ((time (gnus-group-timestamp gnus-tmp-group)))
    (if time
        (format-time-string "%b %d  %H:%M" time)
      "")))
```

### 2.17.4 File Commands

'r' Re-read the init file (gnus-init-file, which defaults to '~/.gnus.el') (gnus-group-read-init-file).

's' Save the '.newsrc.eld' file (and '.newsrc' if wanted) (gnus-group-save-newsrc). If given a prefix, force saving the file(s) whether Gnus thinks it is necessary or not.

### 2.17.5 Sieve Commands

Sieve is a server-side mail filtering language. In Gnus you can use the sieve group parameter (see "Group Parameters" on page 25) to specify sieve rules that should apply to each group. Gnus provides two commands to translate all these group parameters into a proper Sieve script that can be transfered to the server somehow.

The generated Sieve script is placed in gnus-sieve-file (by default '~/.sieve'). The Sieve code that Gnus generate is placed between two delimiters, gnus-sieve-region-start and gnus-sieve-region-end, so you may write additional Sieve code outside these delimiters that will not be removed the next time you regenerate the Sieve script.

The variable gnus-sieve-crosspost controls how the Sieve script is generated. If it is non-nil (the default) articles is placed in all groups that have matching rules, otherwise the article is only placed in the group with the first matching rule. For example, the group parameter "(sieve address "sender" "owner-ding@hpc.uh.edu")" will generate the following piece of Sieve code if gnus-sieve-crosspost is nil. (When gnus-sieve-crosspost is non-nil, it looks the same except that the line containing the call to stop is removed.)

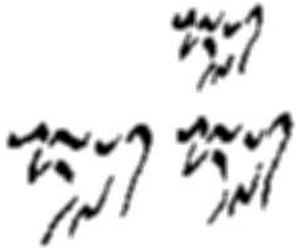
```
if address "sender" "owner-ding@hpc.uh.edu" {
        fileinto "INBOX.ding";
        stop;
}
```

See "Top, Emacs Sieve, Top, sieve, Emacs Sieve" on page ??.

'D g' Regenerate a Sieve script from the sieve group parameters and put you into the gnus-sieve-file without saving it.

'D u' Regenerates the Gnus managed part of gnus-sieve-file using the sieve group parameters, save the file and upload it to the server using the sieveshell program.

# Summary Buffer



```
emacs@proletcult.slip.ifi.uio.no
Buffers Files Tools Search Misc Post Threads Article Score Agent Help
  [   3: admriker@wt.net      ] Brewers
      [  12: that bitch         ]
          [  14: XAOS            ]
 +        [  26: Jess Anderson       ]
 +            [  29: a flying squirrel   ]
                  [  32: Ned Delly           ]
                  [  16: Mark Roberts        ]
 +                    [  30: Jess Anderson       ]
  [  83: Scott A. Safier     ] Re: Intelligent systems (was Re: Homo on Sudden$
      [  49: Gene Ward Smith     ]
 +        [  87: Michael Thomas      ]
 +            [   9: Ken Rudolph         ]
          [  43: Greg Parkinson      ]
 +            [  64: Michael Thomas      ]
      [  13: Mike Reaser         ]
  [  18: beth (s)linker       ] Re: qua
      <  15: Kenji Andrew Matsuok>
 +        [  17: Ellen Evans         ]
 +        [  26: Arne Adolfsen       ]
          [  46: Brian Vogel         ]
 +                [  15: Ellen Evans         ]
                      [  29: Brian Vogel         ]
 +                        [  11: Ellen Evans         ]
 +            [  17: Kristin Bergen      ]
          [  23: Astro Boy           ]
              [  12: Robert S. Coren     ]
                  [  20: Gwendolyn Alden Dean]
 +                    [  14: Ken Rudolph         ]
 +                    [  20: Jess Anderson       ]
                          [  15: Gwendolyn Alden Dean]
 +        [  16: Kristin Bergen      ]
      <  34: Kenji Andrew Matsuok>
      <  19: Clayton Colwell     >
          [  24: James Walker        ]
      <  14: FRAJM               >
 +    <   9: Kristin Bergen      >
-- Gnus: *Summary soc.motss* [0] ∫466(+1025) more}       (Summary Unplugged)--49
```

```
emacs@proletcult.slip.ifi.uio.no
Buffers Files Tools Search Misc Post Threads Article Score Agent Help
  [  18: beth (s)linker       ] Re: qua
      <  15: Kenji Andrew Matsuok>
R +       [  17: Ellen Evans         ]
  +       [  26: Arne Adolfsen       ]
              [  46: Brian Vogel         ]
  +                [  15: Ellen Evans         ]
                       [  29: Brian Vogel         ]
  +                        [  11: Ellen Evans         ]
-- Gnus: *Summary soc.motss* [433493] ∫465(+1025) ...    (Summary Unplugged)--52
From: jeev@netcom.com (Ellen Evans)
Subject: Re: qua
Newsgroups: soc.motss
Organization: The Butler's Pantry
X-Sent: 1 day, 22 hours, 24 minutes, 44 seconds ago

In article <5n7sg7$l6r@panix2.panix.com>,
Kenji Andrew Matsuoka <kenji@panix.com> wrote:

>They didn't in my (rather highly regarded) high school.  I did
>see the play when I was in college, but I can't say I remember
>the qua.  The one thing I got from it was that the experience of
>watching the play was meant to draw me directly into the boredom,
>frustration and hopelessness being felt by the characters.

Not being felt by the characters.

Being posited as an actual description of the state of the world.

HTH.
--
Ellen Evans              17 Across: The "her" of "Leave Her to Heaven"
jeev@netcom.com                          New York Times, 7/14/96

-- Gnus: *Article soc.motss* Re: qua                    (Article)--All---------
```

Figure 3.1: The Summary Buffer

A line for each article is displayed in the summary buffer. You can move around, read articles, post articles and reply to articles.

The most common way to a summary buffer is to select a group from the group buffer (see "Selecting a Group" on page 18).

You can have as many summary buffers open as you wish.

## 3.1 Summary Buffer Format

Gnus will use the value of the gnus-extract-address-components variable as a function for getting the name and address parts of a From header. Two pre-defined functions exist: gnus-extract-address-components, which is the default, quite fast, and too simplistic solution; and mail-extract-address-components, which works very nicely, but is slower. The default function will return the wrong answer in 5% of the cases. If this is unacceptable to you, use the other function instead:

```
(setq gnus-extract-address-components
      'mail-extract-address-components)
```

gnus-summary-same-subject is a string indicating that the current article has the same subject as the previous. This string will be used with those specs that require it. The default is "".

### 3.1.1 Summary Buffer Lines

You can change the format of the lines in the summary buffer by changing the gnus-summary-line-format variable. It works along the same lines as a normal format string, with some extensions (see "Formatting Variables" on page 325).

There should always be a colon or a point position marker on the line; the cursor always moves to the point position marker or the colon after performing an operation. (Of course, Gnus wouldn't be Gnus if it wasn't possible to change this. Just write a new function gnus-goto-colon which does whatever you like with the cursor.) See "Positioning Point" on page 328.

The default string is "%U%R%z%I%(%[%4L: %-23,23f%]%) %s/n".

The following format specification characters and extended format specification(s) are understood:

"N" Article number.

"S" Subject string. List identifiers stripped, gnus-list-identifies. See "Article Hiding" on page 93.

"s" Subject if the article is the root of the thread or the previous article had a different subject, gnus-summary-same-subject otherwise. (gnus-summary-same-subject defaults to "".)

"F" Full From header.

"n" The name (from the From header).

"f" The name, To header or the Newsgroups header (see "To From Newsgroups" on page 51).

"a" The name (from the From header). This differs from the n spec in that it uses the function designated by the gnus-extract-address-components variable, which is slower, but may be more thorough.

"A" The address (from the From header). This works the same way as the a spec.

"L" Number of lines in the article.

"c" Number of characters in the article. This specifier is not supported in some methods (like nnfolder).

"k" Pretty-printed version of the number of characters in the article; for example, "1.2k" or "0.4M".

"I" Indentation based on thread level (see "Customizing Threading" on page 72).

"B" A complex trn-style thread tree, showing response-connecting trace lines. A thread could be drawn like this:

```
>
+->
| +->
| | \->
```

```
| |    \->
| \->
+->
\->
```

You can customize the appearance with the following options. Note that it is possible to make the thread display look really neat by replacing the default ASCII characters with graphic line-drawing glyphs.

gnus-sum-thread-tree-root Used for the root of a thread. If nil, use subject instead. The default is "> ".

gnus-sum-thread-tree-false-root Used for the false root of a thread (see "Loose Threads" on page 72). If nil, use subject instead. The default is "> ".

gnus-sum-thread-tree-single-indent Used for a thread with just one message. If nil, use subject instead. The default is "".

gnus-sum-thread-tree-vertical Used for drawing a vertical line. The default is "— ".

gnus-sum-thread-tree-indent Used for indenting. The default is " ".

gnus-sum-thread-tree-leaf-with-other Used for a leaf with brothers. The default is "+-> ".

gnus-sum-thread-tree-single-leaf Used for a leaf without brothers. The default is "> "

"T" Nothing if the article is a root and lots of spaces if it isn't (it pushes everything after it off the screen).

"[" Opening bracket, which is normally "[", but can also be "<" for adopted articles (see "Customizing Threading" on page 72).

"]" Closing bracket, which is normally "]", but can also be ">" for adopted articles.

">" One space for each thread level.

"<" Twenty minus thread level spaces.

"U" Unread. See "Read Articles" on page 64.

"R" This misleadingly named specifier is the *secondary mark*. This mark will say whether the article has been replied to, has been cached, or has been saved. See "Other Marks" on page 65.

"i" Score as a number (see "Scoring" on page 232).

"z" Zcore, "+" if above the default level and "-" if below the default level. If the difference between gnus-summary-default-score and the score is less than gnus-summary-zcore-fuzz, this spec will not be used.

"V" Total thread score.

"x" Xref.

"D" Date.

"d" The Date in DD-MMM format.

"o" The Date in YYYYMMDDTHHMMSS format.

"M" Message-ID.

"r" References.

"t" Number of articles in the current sub-thread. Using this spec will slow down summary buffer generation somewhat.

"e" An "=" (gnus-not-empty-thread-mark) will be displayed if the article has any children.

"P" The line number.

"O" Download mark.

"&user-date;" Age sensitive date format. Various date format is defined in gnus-user-date-format-alist.

"u" User defined specifier. The next character in the format string should be a letter. Gnus will call the function gnus-user-format-function-x, where x is the letter following "%u". The function will be passed the current header as argument. The function should return a string, which will be inserted into the summary just like information from any other summary specifier.

Text between "%(" and "%)" will be highlighted with gnus-mouse-face when the mouse point is placed inside the area. There can only be one such area.

The "%U" (status), "%R" (replied) and "%z" (zcore) specs have to be handled with care. For reasons of efficiency, Gnus will compute what column these characters will end up in, and "hard-code" that. This means that it is invalid to have these specs after a variable-length spec. Well, you might not be arrested, but your summary buffer will look strange, which is bad enough.

The smart choice is to have these specs as far to the left as possible. (Isn't that the case with everything, though? But I digress.)

This restriction may disappear in later versions of Gnus.

### 3.1.2 To From Newsgroups

In some groups (particularly in archive groups), the From header isn't very interesting, since all the articles there are written by you. To display the information in the To or Newsgroups headers instead, you need to decide three things: What information to gather; where to display it; and when to display it.

1. The reading of extra header information is controlled by the gnus-extra-headers. This is a list of header symbols. For instance:

   ```
   (setq gnus-extra-headers
         '(To Newsgroups X-Newsreader))
   ```

   This will result in Gnus trying to obtain these three headers, and storing it in header structures for later easy retrieval.

2. The value of these extra headers can be accessed via the gnus-extra-header function. Here's a format line spec that will access the X-Newsreader header:

   ```
   "%~(form (gnus-extra-header 'X-Newsreader))@"
   ```

3. The gnus-ignored-from-addresses variable says when the "%f" summary line spec returns the To, Newsreader or From header. If this regexp matches the contents of the From header, the value of the To or Newsreader headers are used instead.

A related variable is nnmail-extra-headers, which controls when to include extra headers when generating overview (NOV) files. If you have old overview files, you should regenerate them after changing this variable, by entering the server buffer using '^', and then 'g' on the appropriate mail server (e.g. nnml) to cause regeneration.

You also have to instruct Gnus to display the data by changing the %n spec to the %f spec in the gnus-summary-line-format variable.

In summary, you'd typically put something like the following in '~/.gnus.el':

```
(setq gnus-extra-headers
      '(To Newsgroups))
(setq nnmail-extra-headers gnus-extra-headers)
(setq gnus-summary-line-format
      "%U%R%z%I%(%[%4L: %-23,23f%]%) %s\n")
(setq gnus-ignored-from-addresses
      "Your Name Here")
```

(The values listed above are the default values in Gnus. Alter them to fit your needs.)

A note for news server administrators, or for users who wish to try to convince their news server administrator to provide some additional support:

The above is mostly useful for mail groups, where you have control over the NOV files that are created. However, if you can persuade your nntp admin to add (in the usual implementation, notably INN):

```
Newsgroups:full
```

to the end of her 'overview.fmt' file, then you can use that just as you would the extra headers from the mail groups.

### 3.1.3 Summary Buffer Mode Line

You can also change the format of the summary mode bar (see "Mode Line Formatting" on page 326). Set gnus-summary-mode-line-format to whatever you like. The default is "Gnus: %%b [%A] %Z".

Here are the elements you can play with:

"G" Group name.

"p" Unprefixed group name.

"A" Current article number.

"z" Current article score.

"V" Gnus version.

"U" Number of unread articles in this group.

"e" Number of unread articles in this group that aren't displayed in the summary buffer.

"Z" A string with the number of unread and unselected articles represented either as "<%U(+%e) more>" if there are both unread and unselected articles, and just as "<%U more>" if there are just unread articles and no unselected ones.

"g" Shortish group name. For instance, "rec.arts.anime" will be shortened to "r.a.anime".

"S" Subject of the current article.

"u" User-defined spec (see "User-Defined Specs" on page 327).

"s" Name of the current score file (see "Scoring" on page 232).

"d" Number of dormant articles (see "Unread Articles" on page 64).

"t" Number of ticked articles (see "Unread Articles" on page 64).

"r" Number of articles that have been marked as read in this session.

"E" Number of articles expunged by the score files.

### 3.1.4 Summary Highlighting

gnus-visual-mark-article-hook This hook is run after selecting an article. It is meant to be used for highlighting the article in some way. It is not run if gnus-visual is nil.

gnus-summary-update-hook This hook is called when a summary line is changed. It is not run if gnus-visual is nil.

gnus-summary-selected-face This is the face (or *font* as some people call it) used to highlight the current article in the summary buffer.

gnus-summary-highlight Summary lines are highlighted according to this variable, which is a list where the elements are of the format (form . face). If you would, for instance, like ticked articles to be italic and high-scored articles to be bold, you could set this variable to something like

```
(((eq mark gnus-ticked-mark) . italic)
 ((> score default) . bold))
```

As you may have guessed, if form returns a non-nil value, face will be applied to the line.

## 3.2 Summary Maneuvering

All the straight movement commands understand the numeric prefix and behave pretty much as you'd expect.

None of these commands select articles.

'G M-n'
'M-n' Go to the next summary line of an unread article (gnus-summary-next-unread-subject).

'G M-p'
'M-p' Go to the previous summary line of an unread article (gnus-summary-prev-unread-subject).

'G g' Ask for an article number and then go to the summary line of that article without displaying the article (gnus-summary-goto-subject).

If Gnus asks you to press a key to confirm going to the next group, you can use the 'C-n' and 'C-p' keys to move around the group buffer, searching for the next group to read without actually returning to the group buffer.

Variables related to summary movement:

gnus-auto-select-next If you issue one of the movement commands (like 'n') and there are no more unread articles after the current one, Gnus will offer to go to the next group. If this variable is t and the next group is empty, Gnus will exit summary mode and return to the group buffer. If this variable is neither t nor nil, Gnus will select the next group with unread articles. As a special case, if this variable is quietly, Gnus will select the next group without asking for confirmation. If this variable is almost-quietly, the same will happen only if you are located on the last article in the group. Finally, if this variable is slightly-quietly, the 'Z n' command will go to the next group without confirmation. Also see "Group Levels" on page 21.

gnus-auto-select-same If non-nil, all the movement commands will try to go to the next article with the same subject as the current. (*Same* here might mean *roughly equal*. See gnus-summary-gather-subject-limit for details (see "Customizing Threading" on page 72).) If there are no more articles with the same subject, go to the first unread article.

This variable is not particularly useful if you use a threaded display.

gnus-summary-check-current If non-nil, all the "unread" movement commands will not proceed to the next (or previous) article if the current article is unread. Instead, they will choose the current article.

gnus-auto-center-summary If non-nil, Gnus will keep the point in the summary buffer centered at all times. This makes things quite tidy, but if you have a slow network connection, or simply do not like this un-Emacsism, you can set this variable to nil to get the normal Emacs scrolling action. This will also inhibit horizontal re-centering of the summary buffer, which might make it more inconvenient to read extremely long threads.

This variable can also be a number. In that case, center the window at the given number of lines from the top.

## 3.3 Choosing Articles

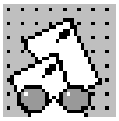
### 3.3.1 Choosing Commands

None of the following movement commands understand the numeric prefix, and they all select and display an article.

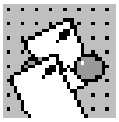
If you want to fetch new articles or redisplay the group, see "Exiting the Summary Buffer" on page 118.

'SPACE' Select the current article, or, if that one's read already, the next unread article (gnus-summary-next-page).

If you have an article window open already and you press 'SPACE' again, the article will be scrolled. This lets you conveniently 'SPACE' through an entire newsgroup. See "Paging the Article" on page 57.



'G n'
'n' Go to next unread article (gnus-summary-next-unread-article).



'G p'
'p' Go to previous unread article (gnus-summary-prev-unread-article).

'G N'
'N' Go to the next article (gnus-summary-next-article).

'G P'
'P' Go to the previous article (gnus-summary-prev-article).

'G C-n' Go to the next article with the same subject (gnus-summary-next-same-subject).

'G C-p' Go to the previous article with the same subject (gnus-summary-prev-same-subject).

'G f'
'.' Go to the first unread article (gnus-summary-first-unread-article).

'G b'
',' Go to the unread article with the highest score (gnus-summary-best-unread-article). If given a prefix argument, go to the first unread article that has a score over the default score.

'G l'
'l' Go to the previous article read (gnus-summary-goto-last-article).

'G o' Pop an article off the summary history and go to this article (gnus-summary-pop-article). This command differs from the command above in that you can pop as many previous articles off the history as you like, while 'l' toggles the two last read articles. For a somewhat related issue (if you use these commands a lot), see "Article Backlog" on page 83.

'G j'
'j' Ask for an article number or Message-ID, and then go to that article (gnus-summary-goto-article).

### 3.3.2 Choosing Variables

Some variables relevant for moving and selecting articles:

gnus-auto-extend-newsgroup All the movement commands will try to go to the previous (or next) article, even if that article isn't displayed in the Summary buffer if this variable is non-nil. Gnus will then fetch the article from the server and display it in the article buffer.

gnus-select-article-hook This hook is called whenever an article is selected. By default it exposes any threads hidden under the selected article. If you would like each article to be saved in the Agent as you read it, putting gnus-agent-fetch-selected-article on this hook will do so.

gnus-mark-article-hook This hook is called whenever an article is selected. It is intended to be used for marking articles as read. The default value is gnus-summary-mark-read-and-unread-as-read, and will change the mark of almost any article you read to gnus-unread-mark. The only articles not affected by this function are ticked, dormant, and expirable articles. If you'd instead like to just have unread articles marked as read, you can use gnus-summary-mark-unread-as-read instead. It will leave marks like gnus-low-score-mark, gnus-del-mark (and so on) alone.

## 3.4 Scrolling the Article

'SPACE' Pressing 'SPACE' will scroll the current article forward one page, or, if you have come to the end of the current article, will choose the next article (gnus-summary-next-page).

If gnus-article-skip-boring is non-nil and the rest of the article consists only of citations and signature, then it will be skipped; the next article will be shown instead. You can customize what is considered uninteresting with gnus-article-boring-faces. You can manually view the article's pages, no matter how boring, using 'C-M-v'.

'DEL' Scroll the current article back one page (gnus-summary-prev-page).

'RET' Scroll the current article one line forward (gnus-summary-scroll-up).

'M-RET' Scroll the current article one line backward (gnus-summary-scroll-down).

'A g'
'g' (Re)fetch the current article (gnus-summary-show-article). If given a prefix, fetch the current article, but don't run any of the article treatment functions. This will give you a "raw" article, just the way it came from the server.

If given a numerical prefix, you can do semi-manual charset stuff. 'C-u 0 g cn-gb-2312 RET' will decode the message as if it were encoded in the cn-gb-2312 charset. If you have

```
(setq gnus-summary-show-article-charset-alist
      '((1 . cn-gb-2312)
        (2 . big5)))
```

then you can say 'C-u 1 g' to get the same effect.

'A <'
'<' Scroll to the beginning of the article (gnus-summary-beginning-of-article).

'A >'
'>' Scroll to the end of the article (gnus-summary-end-of-article).

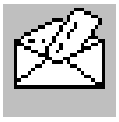
'A s'
's' Perform an isearch in the article buffer (gnus-summary-isearch-article).

'h' Select the article buffer (gnus-summary-select-article-buffer).

## 3.5 Reply, Followup and Post

### 3.5.1 Summary Mail Commands

Commands for composing a mail message:



'S r'
'r' Mail a reply to the author of the current article (gnus-summary-reply).

'S R'
'R' Mail a reply to the author of the current article and include the original message (gnus-summary-reply-with-original). This command uses the process/prefix convention.

'S w' Mail a wide reply to the author of the current article (gnus-summary-wide-reply). A *wide reply* is a reply that goes out to all people listed in the To, From (or Reply-to) and Cc headers. If Mail-Followup-To is present, that's used instead.

'S W' Mail a wide reply to the current article and include the original message (gnus-summary-wide-reply-with-original). This command uses the process/prefix convention.

'S v' Mail a very wide reply to the author of the current article (gnus-summary-wide-reply). A *very wide reply* is a reply that goes out to all people listed in the To, From (or Reply-to) and Cc headers in all the process/prefixed articles. This command uses the process/prefix convention.

'S V' Mail a very wide reply to the author of the current article and include the original message (gnus-summary-very-wide-reply-with-original). This command uses the process/prefix convention.

'S B r' Mail a reply to the author of the current article but ignore the Reply-To field (gnus-summary-reply-broken-reply-to). If you need this because a mailing list incorrectly sets a Reply-To header pointing to the list, you probably want to set the broken-reply-to group parameter instead, so things will work correctly. See "Group Parameters" on page 25.

'S B R' Mail a reply to the author of the current article and include the original message but ignore the Reply-To field (gnus-summary-reply-broken-reply-to-with-original).

'S o m'
'C-c C-f' Forward the current article to some other person (gnus-summary-mail-forward). If no prefix is given, the message is forwarded according to the value of (message-forward-as-mime) and (message-forward-show-mml); if the prefix is 1, decode the message and forward directly inline; if the prefix is 2, forward message as an rfc822 MIME section; if the prefix is 3, decode message and forward as an rfc822 MIME section; if the prefix is 4, forward message directly inline; otherwise, the message is forwarded as no prefix given but use the flipped value of (message-forward-as-mime). By default, the message is decoded and forwarded as an rfc822 MIME section.

'S m'
'm' Prepare a mail (gnus-summary-mail-other-window). By default, use the posting style of the current group. If given a prefix, disable that. If the prefix is 1, prompt for a group name to find the posting style.

'S i'
'i' Prepare a news (gnus-summary-news-other-window). By default, post to the current group. If given a prefix, disable that. If the prefix is 1, prompt for a group to post to.

This function actually prepares a news even when using mail groups. This is useful for "posting" messages to mail groups without actually sending them over the network: they're just saved directly to the group in question. The corresponding back end must have a request-post method for this to work though.

'S D b' If you have sent a mail, but the mail was bounced back to you for some reason (wrong address, transient failure), you can use this command to resend that bounced mail (gnus-summary-resend-bounced-mail). You will be popped into a mail buffer where you can edit the headers before sending the mail off again. If you give a prefix to this command, and the bounced mail is a reply to some other mail, Gnus will try to fetch that mail and display it for easy perusal of its headers. This might very well fail, though.

'S D r' Not to be confused with the previous command, gnus-summary-resend-message will prompt you for an address to send the current message off to, and then send it to that place. The headers of the message won't be altered—but lots of headers that say Resent-To, Resent-From and so on will be added. This means that you actually send a mail to someone that has a To header that (probably) points to yourself. This will confuse people. So, natcherly you'll only do that if you're really eVIl.

This command is mainly used if you have several accounts and want to ship a mail to a different account of yours. (If you're both root and postmaster and get a mail for postmaster to the root account, you may want to resend it to postmaster. Ordnung muss sein!

This command understands the process/prefix convention (see "Process/Prefix" on page 324).

'S O m' Digest the current series (see "Decoding Articles" on page 87) and forward the result using mail (gnus-uu-digest-mail-forward). This command uses the process/prefix convention (see "Process/Prefix" on page 324).

'S M-c' Send a complaint about excessive crossposting to the author of the current article (gnus-summary-mail-crosspost-complaint).

This command is provided as a way to fight back against the current crossposting pandemic that's sweeping Usenet. It will compose a reply using the gnus-crosspost-complaint variable as a preamble. This command understands the process/prefix convention (see "Process/Prefix" on page 324) and will prompt you before sending each mail.

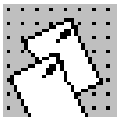
Also See "Header Commands, ,Header Commands, message, The Message Manual" on page ??, for more information.

### 3.5.2 Summary Post Commands

Commands for posting a news article:

'S p'

'a' Prepare for posting an article (gnus-summary-post-news). By default, post to the current group. If given a prefix, disable that. If the prefix is 1, prompt for another group instead.



'S f'
'f' Post a followup to the current article (gnus-summary-followup).

'S F'
'F' Post a followup to the current article and include the original message (gnus-summary-followup-with-original). This command uses the process/prefix convention.

'S n' Post a followup to the current article via news, even if you got the message through mail (gnus-summary-followup-to-mail).

'S N' Post a followup to the current article via news, even if you got the message through mail and include the original message (gnus-summary-followup-to-mail-with-original). This command uses the process/prefix convention.

'S o p' Forward the current article to a newsgroup (gnus-summary-post-forward). If no prefix is given, the message is forwarded according to the value of (message-forward-as-mime) and (message-forward-show-mml); if the prefix is 1, decode the message and forward directly inline; if the prefix is 2, forward message as an rfc822 MIME section; if the prefix is 3, decode message and forward as an rfc822 MIME section; if the prefix is 4, forward message directly inline; otherwise, the message is forwarded as no prefix given but use the flipped value of (message-forward-as-mime). By default, the message is decoded and forwarded as an rfc822 MIME section.

'S O p' Digest the current series and forward the result to a newsgroup (gnus-uu-digest-mail-forward). This command uses the process/prefix convention.

'S u' Uuencode a file, split it into parts, and post it as a series (gnus-uu-post-news). (see "Uuencoding and Posting" on page 90).

Also See "Header Commands, ,Header Commands, message, The Message Manual" on page ??, for more information.

### 3.5.3 Summary Message Commands

'S y' Yank the current article into an already existing Message composition buffer (gnus-summary-yank-message). This command prompts for what message buffer you want to yank into, and understands the process/prefix convention (see "Process/Prefix" on page 324).

### 3.5.4 Canceling Articles

Have you ever written something, and then decided that you really, really, really wish you hadn't posted that?

Well, you can't cancel mail, but you can cancel posts.

Find the article you wish to cancel (you can only cancel your own articles, so don't try any funny stuff). Then press 'C' or 'S c' (gnus-summary-cancel-article). Your article will be canceled—machines all over the world will be deleting your article. This command uses the process/prefix convention (see "Process/Prefix" on page 324).

Be aware, however, that not all sites honor cancels, so your article may live on here and there, while most sites will delete the article in question.

Gnus will use the "current" select method when canceling. If you want to use the standard posting method, use the "a" symbolic prefix (see "Symbolic Prefixes" on page 325).

If you discover that you have made some mistakes and want to do some corrections, you can post a *superseding* article that will replace your original article.

Go to the original article and press 'S s' (gnus-summary-supersede-article). You will be put in a buffer where you can edit the article all you want before sending it off the usual way.

The same goes for superseding as for canceling, only more so: Some sites do not honor superseding. On those sites, it will appear that you have posted almost the same article twice.

If you have just posted the article, and change your mind right away, there is a trick you can use to cancel/supersede the article without waiting for the article to appear on your site first. You simply return to the post buffer (which is called *sent ...*). There you will find the article you just posted, with all the headers intact. Change the Message-ID header to a Cancel or Supersedes header by substituting one of those words for the word Message-ID. Then just press 'C-c C-c' to send the article as you would do normally. The previous article will be canceled/superseded.

Just remember, kids: There is no 'c' in 'supersede'.

## 3.6 Delayed Articles

Sometimes, you might wish to delay the sending of a message. For example, you might wish to arrange for a message to turn up just in time to remind your about the birthday of your Significant Other. For this, there is the gnus-delay package. Setup is simple:

```
(gnus-delay-initialize)
```

Normally, to send a message you use the 'C-c C-c' command from Message mode. To delay a message, use 'C-c C-j' (gnus-delay-article) instead. This will ask you for how long the message should be delayed. Possible answers are:

- A time span. Consists of an integer and a letter. For example, 42d means to delay for 42 days. Available letters are m (minutes), h (hours), d (days), w (weeks), M (months) and Y (years).

- A specific date. Looks like YYYY-MM-DD. The message will be delayed until that day, at a specific time (eight o'clock by default). See also gnus-delay-default-hour.
- A specific time of day. Given in hh:mm format, 24h, no am/pm stuff. The deadline will be at that time today, except if that time has already passed, then it's at the given time tomorrow. So if it's ten o'clock in the morning and you specify 11:15, then the deadline is one hour and fifteen minutes hence. But if you specify 9:20, that means a time tomorrow.

The action of the gnus-delay-article command is influenced by a couple of variables:

gnus-delay-default-hour When you specify a specific date, the message will be due on that hour on the given date. Possible values are integers 0 through 23.

gnus-delay-default-delay This is a string and gives the default delay. It can be of any of the formats described above.

gnus-delay-group Delayed articles will be kept in this group on the drafts server until they are due. You probably don't need to change this. The default value is "delayed".

gnus-delay-header The deadline for each article will be stored in a header. This variable is a string and gives the header name. You probably don't need to change this. The default value is "X-Gnus-Delayed".

The way delaying works is like this: when you use the gnus-delay-article command, you give a certain delay. Gnus calculates the deadline of the message and stores it in the X-Gnus-Delayed header and puts the message in the nndraft:delayed group.

And whenever you get new news, Gnus looks through the group for articles which are due and sends them. It uses the gnus-delay-send-queue function for this. By default, this function is added to the hook gnus-get-new-news-hook. But of course, you can change this. Maybe you want to use the demon to send drafts? Just tell the demon to execute the gnus-delay-send-queue function.

gnus-delay-initialize By default, this function installs gnus-delay-send-queue in gnus-get-new-news-hook. But it accepts the optional second argument no-check. If it is non-nil, gnus-get-new-news-hook is not changed. The optional first argument is ignored.

For example, (gnus-delay-initialize nil t) means to do nothing. Presumably, you want to use the demon for sending due delayed articles. Just don't forget to set that up :-)

## 3.7 Marking Articles

There are several marks you can set on an article.

You have marks that decide the *readedness* (whoo, neato-keano neologism ohoy!) of the article. Alphabetic marks generally mean *read*, while non-alphabetic characters generally mean *unread*.

In addition, you also have marks that do not affect readedness.

### 3.7.1 Unread Articles

The following marks mark articles as (kinda) unread, in one form or other.

"!" Marked as ticked (gnus-ticked-mark).

*Ticked articles* are articles that will remain visible always. If you see an article that you find interesting, or you want to put off reading it, or replying to it, until sometime later, you'd typically tick it. However, articles can be expired (from news servers by the news server software, Gnus itself never expires ticked messages), so if you want to keep an article forever, you'll have to make it persistent (see "Persistent Articles" on page 83).

"?" Marked as dormant (gnus-dormant-mark).

*Dormant articles* will only appear in the summary buffer if there are followups to it. If you want to see them even if they don't have followups, you can use the '/ D' command (see "Limiting" on page 70). Otherwise (except for the visibility issue), they are just like ticked messages.

"SPACE" Marked as unread (gnus-unread-mark).

*Unread articles* are articles that haven't been read at all yet.

### 3.7.2 Read Articles

All the following marks mark articles as read.

"r" These are articles that the user has marked as read with the 'd' command manually, more or less (gnus-del-mark).

"R" Articles that have actually been read (gnus-read-mark).

"O" Articles that were marked as read in previous sessions and are now *old* (gnus-ancient-mark).

"K" Marked as killed (gnus-killed-mark).

"X" Marked as killed by kill files (gnus-kill-file-mark).

"Y" Marked as read by having too low a score (gnus-low-score-mark).

"C" Marked as read by a catchup (gnus-catchup-mark).

"G" Canceled article (gnus-canceled-mark)

"F" SOUPed article (gnus-souped-mark). See "SOUP" on page 210.

"Q" Sparsely reffed article (gnus-sparse-mark). See "Customizing Threading" on page 72.

"M" Article marked as read by duplicate suppression (gnus-duplicate-mark). See "Duplicate Suppression" on page 120.

All these marks just mean that the article is marked as read, really. They are interpreted differently when doing adaptive scoring, though.

One more special mark, though:

"E" Marked as expirable (gnus-expirable-mark).

Marking articles as *expirable* (or have them marked as such automatically) doesn't make much sense in normal groups—a user doesn't control expiring of news articles, but in mail groups, for instance, articles marked as *expirable* can be deleted by Gnus at any time.

### 3.7.3 Other Marks

There are some marks that have nothing to do with whether the article is read or not.

- You can set a bookmark in the current article. Say you are reading a long thesis on cats' urinary tracts, and have to go home for dinner before you've finished reading the thesis. You can then set a bookmark in the article, and Gnus will jump to this bookmark the next time it encounters the article. See "Setting Marks" on page 66.

- All articles that you have replied to or made a followup to (i.e., have answered) will be marked with an "A" in the second column (gnus-replied-mark).

- All articles that you have forwarded will be marked with an "F" in the second column (gnus-forwarded-mark).

- Articles stored in the article cache will be marked with an "*" in the second column (gnus-cached-mark). See "Article Caching" on page 81.

- Articles "saved" (in some manner or other; not necessarily religiously) are marked with an "S" in the second column (gnus-saved-mark).

- Articles that according to the server haven't been shown to the user before are marked with a "N" in the second column (gnus-recent-mark). Note that not all servers support this mark, in which case it simply never appears. Compare with gnus-unseen-mark.
- Articles that haven't been seen before in Gnus by the user are marked with a "." in the second column (gnus-unseen-mark). Compare with gnus-recent-mark.
- When using the Gnus agent (see "Agent Basics" on page 216), articles may be downloaded for unplugged (offline) viewing. If you are using the "%O" spec, these articles get the "+" mark in that spec. (The variable gnus-downloaded-mark controls which character to use.)
- When using the Gnus agent (see "Agent Basics" on page 216), some articles might not have been downloaded. Such articles cannot be viewed while you are unplugged (offline). If you are using the "%O" spec, these articles get the "-" mark in that spec. (The variable gnus-undownloaded-mark controls which character to use.)
- The Gnus agent (see "Agent Basics" on page 216) downloads some articles automatically, but it is also possible to explicitly mark articles for download, even if they would not be downloaded automatically. Such explicitly-marked articles get the "%" mark in the first column. (The variable gnus-downloadable-mark controls which character to use.)
- If the "%e" spec is used, the presence of threads or not will be marked with gnus-not-empty-thread-mark and gnus-empty-thread-mark in the third column, respectively.
- Finally we have the *process mark* (gnus-process-mark). A variety of commands react to the presence of the process mark. For instance, 'X u' (gnus-uu-decode-uu) will uudecode and view all articles that have been marked with the process mark. Articles marked with the process mark have a "#" in the second column.

You might have noticed that most of these "non-readedness" marks appear in the second column by default. So if you have a cached, saved, replied article that you have process-marked, what will that look like?

Nothing much. The precedence rules go as follows: process -> cache -> replied -> saved. So if the article is in the cache and is replied, you'll only see the cache mark and not the replied mark.

### 3.7.4 Setting Marks

All the marking commands understand the numeric prefix.

'M c'
'M-u' Clear all readedness-marks from the current article (gnus-summary-clear-mark-forward). In other words, mark the article as unread.

'M t'
'!' Tick the current article (gnus-summary-tick-article-forward). See "Article Caching" on page 81.

'M ?'
'?' Mark the current article as dormant (gnus-summary-mark-as-dormant). See "Article Caching" on page 81.

'M d'
'd' Mark the current article as read (gnus-summary-mark-as-read-forward).

'D' Mark the current article as read and move point to the previous line (gnus-summary-mark-as-read-backward).

'M k'
'k' Mark all articles that have the same subject as the current one as read, and then select the next unread article (gnus-summary-kill-same-subject-and-select).

'M K'
'C-k' Mark all articles that have the same subject as the current one as read (gnus-summary-kill-same-subject).

'M C' Mark all unread articles as read (gnus-summary-catchup).

'M C-c' Mark all articles in the group as read—even the ticked and dormant articles (gnus-summary-catchup-all).

'M H' Catchup the current group to point (before the point) (gnus-summary-catchup-to-here).

'M h' Catchup the current group from point (after the point) (gnus-summary-catchup-from-here).

'C-w' Mark all articles between point and mark as read (gnus-summary-mark-region-as-read).

'M V k' Kill all articles with scores below the default score (or below the numeric prefix) (gnus-summary-kill-below).

'M e'
'E' Mark the current article as expirable (gnus-summary-mark-as-expirable).

'M b' Set a bookmark in the current article (gnus-summary-set-bookmark).

'M B' Remove the bookmark from the current article (gnus-summary-remove-bookmark).

'M V c' Clear all marks from articles with scores over the default score (or over the numeric prefix) (gnus-summary-clear-above).

'M V u' Tick all articles with scores over the default score (or over the numeric prefix) (gnus-summary-tick-above).

'M V m' Prompt for a mark, and mark all articles with scores over the default score (or over the numeric prefix) with this mark (gnus-summary-clear-above).

The gnus-summary-goto-unread variable controls what action should be taken after setting a mark. If non-nil, point will move to the next/previous unread article. If nil, point will just move one line up or down. As a special case, if this variable is never, all the marking commands as well as other commands (like 'SPACE') will move to the next article, whether it is unread or not. The default is t.

### 3.7.5 Generic Marking Commands

Some people would like the command that ticks an article ('!') go to the next article. Others would like it to go to the next unread article. Yet others would like it to stay on the current article. And even though I haven't heard of anybody wanting it to go to the previous (unread) article, I'm sure there are people that want that as well.

Multiply these five behaviors with five different marking commands, and you get a potentially complex set of variable to control what each command should do.

To sidestep that mess, Gnus provides commands that do all these different things. They can be found on the 'M M' map in the summary buffer. Type 'M M C-h' to see them all—there are too many of them to list in this manual.

While you can use these commands directly, most users would prefer altering the summary mode keymap. For instance, if you would like the '!' command to go to the next article instead of the next unread article, you could say something like:

```
(add-hook 'gnus-summary-mode-hook 'my-alter-summary-map)
(defun my-alter-summary-map ()
  (local-set-key "!" 'gnus-summary-put-mark-as-ticked-next))
```

or

```
(defun my-alter-summary-map ()
  (local-set-key "!" "MM!n"))
```

### 3.7.6 Setting Process Marks

Process marks are displayed as # in the summary buffer, and are used for marking articles in such a way that other commands will process these articles. For instance, if you process mark four articles and then use the '*' command, Gnus will enter these four commands into the cache. For more information, see "Process/Prefix" on page 324.

'M P p'
'#' Mark the current article with the process mark (gnus-summary-mark-as-processable).

'M P u'
'M-#' Remove the process mark, if any, from the current article (gnus-summary-unmark-as-processable).

'M P U' Remove the process mark from all articles (gnus-summary-unmark-all-processable).

'M P i' Invert the list of process marked articles (gnus-uu-invert-processable).

'M P R' Mark articles that have a Subject header that matches a regular expression (gnus-uu-mark-by-regexp).

'M P G' Unmark articles that have a Subject header that matches a regular expression (gnus-uu-unmark-by-regexp).

'M P r' Mark articles in region (gnus-uu-mark-region).

'M P g' Unmark articles in region (gnus-uu-unmark-region).

'M P t' Mark all articles in the current (sub)thread (gnus-uu-mark-thread).

'M P T' Unmark all articles in the current (sub)thread (gnus-uu-unmark-thread).

'M P v' Mark all articles that have a score above the prefix argument (gnus-uu-mark-over).

'M P s' Mark all articles in the current series (gnus-uu-mark-series).

'M P S' Mark all series that have already had some articles marked (gnus-uu-mark-sparse).

'M P a' Mark all articles in series order (gnus-uu-mark-series).

'M P b' Mark all articles in the buffer in the order they appear (gnus-uu-mark-buffer).

'M P k' Push the current process mark set onto the stack and unmark all articles (gnus-summary-kill-process-mark).

'M P y' Pop the previous process mark set from the stack and restore it (gnus-summary-yank-process-mark).

'M P w' Push the current process mark set onto the stack (gnus-summary-save-process-mark).

Also see the '&' command in "Searching for Articles" on page 117, for how to set process marks based on article body contents.

## 3.8 Limiting

It can be convenient to limit the summary buffer to just show some subset of the articles currently in the group. The effect most limit commands have is to remove a few (or many) articles from the summary buffer.

All limiting commands work on subsets of the articles already fetched from the servers. None of these commands query the server for additional articles.

'/ /'
'/ s' Limit the summary buffer to articles that match some subject (gnus-summary-limit-to-subject). If given a prefix, exclude matching articles.

'/ a' Limit the summary buffer to articles that match some author (gnus-summary-limit-to-author). If given a prefix, exclude matching articles.

'/ x' Limit the summary buffer to articles that match one of the "extra" headers (see "To From Newsgroups" on page 51) (gnus-summary-limit-to-extra). If given a prefix, exclude matching articles.

'/ u'
'x' Limit the summary buffer to articles not marked as read (gnus-summary-limit-to-unread). If given a prefix, limit the buffer to articles strictly unread. This means that ticked and dormant articles will also be excluded.

'/ m' Ask for a mark and then limit to all articles that have been marked with that mark (gnus-summary-limit-to-marks).

'/ t' Ask for a number and then limit the summary buffer to articles older than (or equal to) that number of days (gnus-summary-limit-to-age). If given a prefix, limit to articles younger than that number of days.

'/ n' Limit the summary buffer to the current article (gnus-summary-limit-to-articles). Uses the process/prefix convention (see "Process/Prefix" on page 324).

'/ w' Pop the previous limit off the stack and restore it (gnus-summary-pop-limit). If given a prefix, pop all limits off the stack.

'/ .' Limit the summary buffer to the unseen articles (gnus-summary-limit-to-unseen).

'/ v' Limit the summary buffer to articles that have a score at or above some score (gnus-summary-limit-to-score).

'/ p' Limit the summary buffer to articles that satisfy the display group parameter predicate (gnus-summary-limit-to-display-predicate). See "Group Parameters" on page 25, for more on this predicate.

'/ E'
'M S' Include all expunged articles in the limit (gnus-summary-limit-include-expunged).

'/ D' Include all dormant articles in the limit (gnus-summary-limit-include-dormant).

'/ *' Include all cached articles in the limit (gnus-summary-limit-include-cached).

'/ d' Exclude all dormant articles from the limit (gnus-summary-limit-exclude-dormant).

'/ M' Exclude all marked articles (gnus-summary-limit-exclude-marks).

'/ T' Include all the articles in the current thread in the limit.

'/ c' Exclude all dormant articles that have no children from the limit (gnus-summary-limit-exclude-childless-dormant).

'/ C' Mark all excluded unread articles as read (gnus-summary-limit-mark-excluded-as-read). If given a prefix, also mark excluded ticked and dormant articles as read.

'/ N' Insert all new articles in the summary buffer. It scans for new emails if back-end-get-new-mail is non-nil.

'/ o' Insert all old articles in the summary buffer. If given a numbered prefix, fetch this number of articles.

## 3.9 Threading

Gnus threads articles by default. *To thread* is to put responses to articles directly after the articles they respond to—in a hierarchical fashion.

Threading is done by looking at the References headers of the articles. In a perfect world, this would be enough to build pretty trees, but unfortunately, the References header is often broken or simply missing. Weird news propagation exacerbates the problem, so one has to employ other heuristics to get pleasing results. A

plethora of approaches exists, as detailed in horrible detail in "Customizing Threading" on page 72.

First, a quick overview of the concepts:

*root* The top-most article in a thread; the first article in the thread.

*thread* A tree-like article structure.

*sub-thread* A small(er) section of this tree-like structure.

*loose threads* Threads often lose their roots due to article expiry, or due to the root already having been read in a previous session, and not displayed in the summary buffer. We then typically have many sub-threads that really belong to one thread, but are without connecting roots. These are called loose threads.

*thread gathering* An attempt to gather loose threads into bigger threads.

*sparse threads* A thread where the missing articles have been "guessed" at, and are displayed as empty lines in the summary buffer.

## 3.9.1 Customizing Threading

### 3.9.1.1 Loose Threads

gnus-summary-make-false-root If non-nil, Gnus will gather all loose subtrees into one big tree and create a dummy root at the top. (Wait a minute. Root at the top? Yup.) Loose subtrees occur when the real root has expired, or you've read or killed the root in a previous session.

When there is no real root of a thread, Gnus will have to fudge something. This variable says what fudging method Gnus should use. There are four possible values:

adopt Gnus will make the first of the orphaned articles the parent. This parent will adopt all the other articles. The adopted articles will be marked as such by pointy brackets ("<>") instead of the standard square brackets ("[]"). This is the default method.

dummy Gnus will create a dummy summary line that will pretend to be the parent. This dummy line does not correspond to any real article, so selecting it will just select the first real article after the dummy article. gnus-summary-dummy-line-format is used to specify the format of the dummy roots. It accepts only one format spec: "S", which is the subject of the article. See "Formatting Variables" on page 325. If you want all threads to have a dummy root, even the non-gathered ones, set gnus-summary-make-false-root-always to t.

```
emacs@proletcult.slip.ifi.uio.no
Buffers Files Tools Search Misc Post Threads Article Score Agent Help
 +[  55:Ellen Evans          ] Re: Homo on Suddenly Susan [LONG]
     [ 115: Kenneth Ashton Calli]
 +       [ 121: Ellen Evans          ] Re: Suddenly Susan [LONG - REALLY]
  [  24: Tony Sarris          ] Re: Homo on Suddenly Susan [LONG]
  [  24: Ned Deily            ] Re: Homo on Suddenly Susan [LONG]
  [  22: Dean A. Brink        ] seek other gay poets
  [  17: Greg Havican         ] Re: Homo on Suddenly Susan
 +[  18: Ellen Evans          ] Re: Homo on Suddenly Susan
 +[  91: Ellen Evans          ] Re: Homo on Suddenly Susan
 +[  14: Michael Thomas       ] Re: Homo on Suddenly Susan
 +    [  27: Arne Adolfsen        ]
  [  16: Sim Aberson          ] Re: Homo on Suddenly Susan
      [  61: Jim Moore            ]
  [  36: Kenji Andrew Matsuok] Re: Homo on Suddenly Susan
 +    [  39: Ellen Evans          ]
           [  43: Kenji Andrew Matsuok]
 +          [  16: Ellen Evans          ]
                [  11: Jeffrey William Sand]
                    [  17: Gwendolyn Alden Dean]
                [  26: Kenji Andrew Matsuok]
 +                  [  16: Ellen Evans          ]
 +                      [  25: Melinda Shore        ]
 +          [  12: Melinda Shore        ]
 +          [  46: Ayana Craven         ]
 +                  [  17: Charlie Fulton       ]
 +    [  44: Ayana Craven         ]
  [   6: Gene Ward Smith      ] Re: Homo on Suddenly Susan
 +[  20: Charlie Fulton       ] Re: Homo on Suddenly Susan
 +[  12: Charlie Fulton       ] Re: Homo on Suddenly Susan
 +[  14: Charlie Fulton       ] Re: Homo on Suddenly Susan
  [  11: Gene Ward Smith      ] Re: Homo on Suddenly Susan
  [  31: David W. Fenton      ] Re: Homo on Suddenly Susan
  [  34: David W. Fenton      ] Re: Homo on Suddenly Susan
      [  14: Sim Aberson          ]
 +    [  23: Ellen Evans          ]
 +          [  11: Ellen Evans          ]
-- Gnus: *Summary soc.motss* [433493] %468(+1025) ....    (Summary Unplugged)--10
```

```
emacs@proletcult.slip.ifi.uio.no
Buffers Files Tools Search Misc Post Threads Article Score Agent Help
*  :                                : Re: Homo on Suddenly Susan [LONG]
 +    [  55:Ellen Evans          ]
      [ 115: Kenneth Ashton Calli]
 +       [ 121: Ellen Evans          ] Re: Suddenly Susan [LONG - REALLY]
      [  24: Tony Sarris          ] Re: Homo on Suddenly Susan [LONG]
      [  24: Ned Deily            ]
  [  22: Dean A. Brink        ] seek other gay poets
*  :                                : Re: Homo on Suddenly Susan
      [  17: Greg Havican         ]
 +    [  18: Ellen Evans          ]
 +    [  91: Ellen Evans          ]
 +    [  14: Michael Thomas       ]
 +        [  27: Arne Adolfsen        ]
      [  16: Sim Aberson          ]
          [  61: Jim Moore            ]
      [  36: Kenji Andrew Matsuok]
 +        [  39: Ellen Evans          ]
               [  43: Kenji Andrew Matsuok]
 +              [  16: Ellen Evans          ]
                    [  11: Jeffrey William Sand]
                        [  17: Gwendolyn Alden Dean]
                    [  26: Kenji Andrew Matsuok]
 +                      [  16: Ellen Evans          ]
 +                          [  25: Melinda Shore        ]
 +              [  12: Melinda Shore        ]
 +              [  46: Ayana Craven         ]
 +                      [  17: Charlie Fulton       ]
 +        [  44: Ayana Craven         ]
      [   6: Gene Ward Smith      ]
 +    [  20: Charlie Fulton       ]
 +    [  12: Charlie Fulton       ]
 +    [  14: Charlie Fulton       ]
      [  11: Gene Ward Smith      ]
      [  31: David W. Fenton      ]
      [  34: David W. Fenton      ]
          [  14: Sim Aberson          ]
-- Gnus: *Summary soc.motss* [433493] %468(+1025) ....    (Summary Unplugged)-- 9
nil
```

```
emacs@proletcult.slip.ifi.uio.no
Buffers Files Tools Search Misc Post Threads Article Score Agent Help
 +[  55:Ellen Evans          ] Re: Homo on Suddenly Susan [LONG]
     [ 115: Kenneth Ashton Calli]
 +       [ 121: Ellen Evans          ] Re: Suddenly Susan [LONG - REALLY]
     <  24: Tony Sarris          > Re: Homo on Suddenly Susan [LONG]
     <  24: Ned Deily            >
  [  22: Dean A. Brink        ] seek other gay poets
  [  17: Greg Havican         ] Re: Homo on Suddenly Susan
 +    <  18: Ellen Evans          >
 +    <  91: Ellen Evans          >
 +    <  14: Michael Thomas       >
 +        [  27: Arne Adolfsen        ]
     <  16: Sim Aberson          >
          [  61: Jim Moore            ]
     <  36: Kenji Andrew Matsuok>
 +        [  39: Ellen Evans          ]
               [  43: Kenji Andrew Matsuok]
 +              [  16: Ellen Evans          ]
                    [  11: Jeffrey William Sand]
                        [  17: Gwendolyn Alden Dean]
                    [  26: Kenji Andrew Matsuok]
 +                      [  16: Ellen Evans          ]
 +                          [  25: Melinda Shore        ]
 +              [  12: Melinda Shore        ]
 +              [  46: Ayana Craven         ]
 +                      [  17: Charlie Fulton       ]
 +        [  44: Ayana Craven         ]
     <   6: Gene Ward Smith      >
 +    <  20: Charlie Fulton       >
 +    <  12: Charlie Fulton       >
 +    <  14: Charlie Fulton       >
     <  11: Gene Ward Smith      >
     <  31: David W. Fenton      >
     <  34: David W. Fenton      >
          [  14: Sim Aberson          ]
 +        [  23: Ellen Evans          ]
 +              [  11: Ellen Evans          ]
-- Gnus: *Summary soc.motss* [433493] %468(+1025) ....    (Summary Unplugged)-- 9
```

```
emacs@proletcult.slip.ifi.uio.no
Buffers Files Tools Search Misc Post Threads Article Score Agent Help
 +[  55:Ellen Evans          ] Re: Homo on Suddenly Susan [LONG]
     [ 115: Kenneth Ashton Calli]
 +       [ 121: Ellen Evans          ] Re: Suddenly Susan [LONG - REALLY]
  [  24: Tony Sarris          ] Re: Homo on Suddenly Susan [LONG]
  [  24: Ned Deily            ]
  [  22: Dean A. Brink        ] seek other gay poets
  [  17: Greg Havican         ] Re: Homo on Suddenly Susan
 +[  18: Ellen Evans          ]
 +[  91: Ellen Evans          ]
 +[  14: Michael Thomas       ]
 +    [  27: Arne Adolfsen        ]
  [  16: Sim Aberson          ]
      [  61: Jim Moore            ]
  [  36: Kenji Andrew Matsuok]
 +    [  39: Ellen Evans          ]
           [  43: Kenji Andrew Matsuok]
 +          [  16: Ellen Evans          ]
                [  11: Jeffrey William Sand]
                    [  17: Gwendolyn Alden Dean]
                [  26: Kenji Andrew Matsuok]
 +                  [  16: Ellen Evans          ]
 +                      [  25: Melinda Shore        ]
 +          [  12: Melinda Shore        ]
 +          [  46: Ayana Craven         ]
 +                  [  17: Charlie Fulton       ]
 +    [  44: Ayana Craven         ]
  [   6: Gene Ward Smith      ]
 +[  20: Charlie Fulton       ]
 +[  12: Charlie Fulton       ]
 +[  14: Charlie Fulton       ]
  [  11: Gene Ward Smith      ]
  [  31: David W. Fenton      ]
  [  34: David W. Fenton      ]
      [  14: Sim Aberson          ]
 +    [  23: Ellen Evans          ]
 +          [  11: Ellen Evans          ]
-- Gnus: *Summary soc.motss* [433493] %468(+1025) ....    (Summary Unplugged)-- 9
```

Figure 3.2: The Summary Buffer

empty Gnus won't actually make any article the parent, but simply leave the subject field of all orphans except the first empty. (Actually, it will use gnus-summary-same-subject as the subject (see "Summary Buffer Format" on page 48).)

none Don't make any article parent at all. Just gather the threads and display them after one another.

nil Don't gather loose threads.

gnus-summary-gather-subject-limit Loose threads are gathered by comparing subjects of articles. If this variable is nil, Gnus requires an exact match between the subjects of the loose threads before gathering them into one big super-thread. This might be too strict a requirement, what with the presence of stupid newsreaders that chop off long subject lines. If you think so, set this variable to, say, 20 to require that only the first 20 characters of the subjects have to match. If you set this variable to a really low number, you'll find that Gnus will gather everything in sight into one thread, which isn't very helpful.

If you set this variable to the special value fuzzy, Gnus will use a fuzzy string comparison algorithm on the subjects (see "Fuzzy Matching" on page 345).

gnus-simplify-subject-fuzzy-regexp This can either be a regular expression or list of regular expressions that match strings that will be removed from subjects if fuzzy subject simplification is used.

gnus-simplify-ignored-prefixes If you set gnus-summary-gather-subject-limit to something as low as 10, you might consider setting this variable to something sensible:

```
(setq gnus-simplify-ignored-prefixes
      (concat
       "\\`\[?\\("
       (mapconcat
        'identity
        '("looking"
          "wanted" "followup" "summary\\( of\\)?"
          "help" "query" "problem" "question"
          "answer" "reference" "announce"
          "How can I" "How to" "Comparison of"
          ;; ...
          )
        "\\|")
       "\\)\\s *\\("
       (mapconcat 'identity
                  '("for" "for reference" "with" "about")
                  "\\|")
```

```
"\\)?\]?:?[ \t]*"))
```

All words that match this regexp will be removed before comparing two subjects.

gnus-simplify-subject-functions If non-nil, this variable overrides gnus-summary-gather-subject-limit. This variable should be a list of functions to apply to the Subject string iteratively to arrive at the simplified version of the string.

Useful functions to put in this list include:

gnus-simplify-subject-re Strip the leading "Re:".

gnus-simplify-subject-fuzzy Simplify fuzzily.

gnus-simplify-whitespace Remove excessive whitespace.

gnus-simplify-all-whitespace Remove all whitespace.

You may also write your own functions, of course.

gnus-summary-gather-exclude-subject Since loose thread gathering is done on subjects only, that might lead to many false hits, especially with certain common subjects like "" and "(none)". To make the situation slightly better, you can use the regexp gnus-summary-gather-exclude-subject to say what subjects should be excluded from the gathering process.
The default is "^ *$/—^(none)$".

gnus-summary-thread-gathering-function Gnus gathers threads by looking at Subject headers. This means that totally unrelated articles may end up in the same "thread", which is confusing. An alternate approach is to look at all the Message-IDs in all the References headers to find matches. This will ensure that no gathered threads ever include unrelated articles, but it also means that people who have posted with broken newsreaders won't be gathered properly. The choice is yours—plague or cholera:

gnus-gather-threads-by-subject This function is the default gathering function and looks at Subjects exclusively.

gnus-gather-threads-by-references This function looks at References headers exclusively.

If you want to test gathering by References, you could say something like:

```
(setq gnus-summary-thread-gathering-function
      'gnus-gather-threads-by-references)
```

#### 3.9.1.2 Filling In Threads

gnus-fetch-old-headers If non-nil, Gnus will attempt to build old threads by fetching more old headers—headers to articles marked as read. If you would like to display as few summary lines as possible, but still connect as many loose threads as possible, you should set this variable to some or a number. If you set it to a number, no more than that number of extra old headers will be fetched. In either case, fetching old headers only works if the back end you are using carries overview files—this would normally be nntp, nnspool, nnml, and nnmaildir. Also remember that if the root of the thread has been expired by the server, there's not much Gnus can do about that.

This variable can also be set to invisible. This won't have any visible effects, but is useful if you use the 'A T' command a lot (see "Finding the Parent" on page 109).

gnus-fetch-old-ephemeral-headers Same as gnus-fetch-old-headers, but only used for ephemeral newsgroups.

gnus-build-sparse-threads Fetching old headers can be slow. A low-rent similar effect can be gotten by setting this variable to some. Gnus will then look at the complete References headers of all articles and try to string together articles that belong in the same thread. This will leave *gaps* in the threading display where Gnus guesses that an article is missing from the thread. (These gaps appear like normal summary lines. If you select a gap, Gnus will try to fetch the article in question.) If this variable is t, Gnus will display all these "gaps" without regard for whether they are useful for completing the thread or not. Finally, if this variable is more, Gnus won't cut off sparse leaf nodes that don't lead anywhere. This variable is nil by default.

gnus-read-all-available-headers This is a rather obscure variable that few will find useful. It's intended for those non-news newsgroups where the back end has to fetch quite a lot to present the summary buffer, and where it's impossible to go back to parents of articles. This is mostly the case in the web-based groups, like the nnultimate groups.

If you don't use those, then it's safe to leave this as the default nil. If you want to use this variable, it should be a regexp that matches the group name, or t for all groups.

#### 3.9.1.3 More Threading

gnus-show-threads If this variable is nil, no threading will be done, and all of the rest of the variables here will have no effect. Turning threading off will speed group selection up a bit, but it is sure to make reading slower and more awkward.

gnus-thread-hide-subtree If non-nil, all threads will be hidden when the summary buffer is generated.

This can also be a predicate specifier (see "Predicate Specifiers" on page 340). Available predicates are gnus-article-unread-p and gnus-article-unseen-p.

Here's an example:

```
(setq gnus-thread-hide-subtree
      '(or gnus-article-unread-p
           gnus-article-unseen-p))
```

(It's a pretty nonsensical example, since all unseen articles are also unread, but you get my drift.)

gnus-thread-expunge-below All threads that have a total score (as defined by gnus-thread-score-function) less than this number will be expunged. This variable is nil by default, which means that no threads are expunged.

gnus-thread-hide-killed if you kill a thread and this variable is non-nil, the subtree will be hidden.

gnus-thread-ignore-subject Sometimes somebody changes the subject in the middle of a thread. If this variable is non-nil, which is the default, the subject change is ignored. If it is nil, a change in the subject will result in a new thread.

gnus-thread-indent-level This is a number that says how much each sub-thread should be indented. The default is 4.

gnus-sort-gathered-threads-function Sometimes, particularly with mailing lists, the order in which mails arrive locally is not necessarily the same as the order in which they arrived on the mailing list. Consequently, when sorting sub-threads using the default gnus-thread-sort-by-number, responses can end up appearing before the article to which they are responding to. Setting this variable to an alternate value (e.g. gnus-thread-sort-by-date), in a group's parameters or in an appropriate hook (e.g. gnus-summary-generate-hook) can produce a more logical sub-thread ordering in such instances.

#### 3.9.1.4 Low-Level Threading

gnus-parse-headers-hook Hook run before parsing any headers.

gnus-alter-header-function If non-nil, this function will be called to allow alteration of article header structures. The function is called with one parameter, the article header vector, which it may alter in any way. For instance, if you have a mail-to-news gateway which alters the Message-IDs in systematic ways (by adding prefixes and such), you can use this variable to un-scramble the Message-IDs so that they are more meaningful. Here's one example:

```
(setq gnus-alter-header-function 'my-alter-message-id)

(defun my-alter-message-id (header)
  (let ((id (mail-header-id header)))
    (when (string-match
           "\\(<[^<>@]*\\)\\.?cygnus\\..*@\\([^<>@]*>\\)" id)
      (mail-header-set-id
       (concat (match-string 1 id) "@" (match-string 2 id))
       header))))
```

### 3.9.2 Thread Commands

'T k'
'C-M-k' Mark all articles in the current (sub-)thread as read (gnus-summary-kill-thread). If the prefix argument is positive, remove all marks instead. If the prefix argument is negative, tick articles instead.

'T l'
'C-M-l' Lower the score of the current (sub-)thread (gnus-summary-lower-thread).

'T i' Increase the score of the current (sub-)thread (gnus-summary-raise-thread).

'T #' Set the process mark on the current (sub-)thread (gnus-uu-mark-thread).

'T M-#' Remove the process mark from the current (sub-)thread (gnus-uu-unmark-thread).

'T T' Toggle threading (gnus-summary-toggle-threads).

'T s' Expose the (sub-)thread hidden under the current article, if any (gnus-summary-show-thread).

'T h' Hide the current (sub-)thread (gnus-summary-hide-thread).

'T S' Expose all hidden threads (gnus-summary-show-all-threads).

'T H' Hide all threads (gnus-summary-hide-all-threads).

'T t' Re-thread the current article's thread (gnus-summary-rethread-current). This works even when the summary buffer is otherwise unthreaded.

'T ^' Make the current article the child of the marked (or previous) article (gnus-summary-reparent-thread).

The following commands are thread movement commands. They all understand the numeric prefix.

'T n'

'C-M-f'
'M-down' Go to the next thread (gnus-summary-next-thread).

'T p'
'C-M-b'
'M-up' Go to the previous thread (gnus-summary-prev-thread).

'T d' Descend the thread (gnus-summary-down-thread).

'T u' Ascend the thread (gnus-summary-up-thread).

'T o' Go to the top of the thread (gnus-summary-top-thread).

If you ignore subject while threading, you'll naturally end up with threads that have several different subjects in them. If you then issue a command like 'T k' (gnus-summary-kill-thread) you might not wish to kill the entire thread, but just those parts of the thread that have the same subject as the current article. If you like this idea, you can fiddle with gnus-thread-operation-ignore-subject. If it is non-nil (which it is by default), subjects will be ignored when doing thread commands. If this variable is nil, articles in the same thread with different subjects will not be included in the operation in question. If this variable is fuzzy, only articles that have subjects fuzzily equal will be included (see "Fuzzy Matching" on page 345).

## 3.10 Sorting the Summary Buffer

If you are using a threaded summary display, you can sort the threads by setting gnus-thread-sort-functions, which can be either a single function, a list of functions, or a list containing functions and (not some-function) elements.

By default, sorting is done on article numbers. Ready-made sorting predicate functions include gnus-thread-sort-by-number, gnus-thread-sort-by-author, gnus-thread-sort-by-subject, gnus-thread-sort-by-date, gnus-thread-sort-by-score, gnus-thread-sort-by-most-recent-number, gnus-thread-sort-by-most-recent-date, gnus-thread-sort-by-random and gnus-thread-sort-by-total-score.

Each function takes two threads and returns non-nil if the first thread should be sorted before the other. Note that sorting really is normally done by looking only at the roots of each thread.

If you use more than one function, the primary sort key should be the last function in the list. You should probably always include gnus-thread-sort-by-number in the list of sorting functions—preferably first. This will ensure that threads that are equal with respect to the other sort criteria will be displayed in ascending article order.

If you would like to sort by reverse score, then by subject, and finally by number, you could do something like:

```
(setq gnus-thread-sort-functions
```

```
      '(gnus-thread-sort-by-number
        gnus-thread-sort-by-subject
        (not gnus-thread-sort-by-total-score)))
```

The threads that have highest score will be displayed first in the summary buffer. When threads have the same score, they will be sorted alphabetically. The threads that have the same score and the same subject will be sorted by number, which is (normally) the sequence in which the articles arrived.

If you want to sort by score and then reverse arrival order, you could say something like:

```
(setq gnus-thread-sort-functions
      '((lambda (t1 t2)
          (not (gnus-thread-sort-by-number t1 t2)))
        gnus-thread-sort-by-score))
```

The function in the gnus-thread-score-function variable (default +) is used for calculating the total score of a thread. Useful functions might be max, min, or squared means, or whatever tickles your fancy.

If you are using an unthreaded display for some strange reason or other, you have to fiddle with the gnus-article-sort-functions variable. It is very similar to the gnus-thread-sort-functions, except that it uses slightly different functions for article comparison. Available sorting predicate functions are gnus-article-sort-by-number, gnus-article-sort-by-author, gnus-article-sort-by-subject, gnus-article-sort-by-date, gnus-article-sort-by-random, and gnus-article-sort-by-score.

If you want to sort an unthreaded summary display by subject, you could say something like:

```
(setq gnus-article-sort-functions
      '(gnus-article-sort-by-number
        gnus-article-sort-by-subject))
```

## 3.11 Asynchronous Article Fetching

If you read your news from an NNTP server that's far away, the network latencies may make reading articles a chore. You have to wait for a while after pressing 'n' to go to the next article before the article appears. Why can't Gnus just go ahead and fetch the article while you are reading the previous one? Why not, indeed.

First, some caveats. There are some pitfalls to using asynchronous article fetching, especially the way Gnus does it.

Let's say you are reading article 1, which is short, and article 2 is quite long, and you are not interested in reading that. Gnus does not know this, so it goes ahead and fetches article 2. You decide to read article 3, but since Gnus is in the process of fetching article 2, the connection is blocked.

To avoid these situations, Gnus will open two (count 'em two) connections to the server. Some people may think this isn't a very nice thing to do, but I don't see any real alternatives. Setting up that extra connection takes some time, so Gnus startup will be slower.

Gnus will fetch more articles than you will read. This will mean that the link between your machine and the NNTP server will become more loaded than if you didn't use article pre-fetch. The server itself will also become more loaded—both with the extra article requests, and the extra connection.

Ok, so now you know that you shouldn't really use this thing... unless you really want to.

Here's how: Set gnus-asynchronous to t. The rest should happen automatically.

You can control how many articles are to be pre-fetched by setting gnus-use-article-prefetch. This is 30 by default, which means that when you read an article in the group, the back end will pre-fetch the next 30 articles. If this variable is t, the back end will pre-fetch all the articles it can without bound. If it is nil, no pre-fetching will be done.

There are probably some articles that you don't want to pre-fetch—read articles, for instance. The gnus-async-prefetch-article-p variable controls whether an article is to be pre-fetched. This function should return non-nil when the article in question is to be pre-fetched. The default is gnus-async-read-p, which returns nil on read articles. The function is called with an article data structure as the only parameter.

If, for instance, you wish to pre-fetch only unread articles shorter than 100 lines, you could say something like:

```
(defun my-async-short-unread-p (data)
  "Return non-nil for short, unread articles."
  (and (gnus-data-unread-p data)
       (< (mail-header-lines (gnus-data-header data))
          100)))

(setq gnus-async-prefetch-article-p 'my-async-short-unread-p)
```

These functions will be called many, many times, so they should preferably be short and sweet to avoid slowing down Gnus too much. It's probably a good idea to byte-compile things like this.

Articles have to be removed from the asynch buffer sooner or later. The gnus-prefetched-article-deletion-strategy says when to remove articles. This is a list that may contain the following elements:

read Remove articles when they are read.

exit Remove articles when exiting the group.

The default value is (read exit).

## 3.12 Article Caching

If you have an *extremely* slow NNTP connection, you may consider turning article caching on. Each article will then be stored locally under your home directory. As you may surmise, this could potentially use *huge* amounts of disk space, as well as eat up all your inodes so fast it will make your head swim. In vodka.

Used carefully, though, it could be just an easier way to save articles.

To turn caching on, set gnus-use-cache to t. By default, all articles ticked or marked as dormant will then be copied over to your local cache (gnus-cache-directory). Whether this cache is flat or hierarchical is controlled by the gnus-use-long-file-name variable, as usual.

When re-selecting a ticked or dormant article, it will be fetched from the cache instead of from the server. As articles in your cache will never expire, this might serve as a method of saving articles while still keeping them where they belong. Just mark all articles you want to save as dormant, and don't worry.

When an article is marked as read, is it removed from the cache.

The entering/removal of articles from the cache is controlled by the gnus-cache-enter-articles and gnus-cache-remove-articles variables. Both are lists of symbols. The first is (ticked dormant) by default, meaning that ticked and dormant articles will be put in the cache. The latter is (read) by default, meaning that articles marked as read are removed from the cache. Possibly symbols in these two lists are ticked, dormant, unread and read.

So where does the massive article-fetching and storing come into the picture? The gnus-jog-cache command will go through all subscribed newsgroups, request all unread articles, score them, and store them in the cache. You should only ever, ever ever ever, use this command if 1) your connection to the NNTP server is really, really, really slow and 2) you have a really, really, really huge disk. Seriously. One way to cut down on the number of articles downloaded is to score unwanted articles down and have them marked as read. They will not then be downloaded by this command.

It is likely that you do not want caching on all groups. For instance, if your nnml mail is located under your home directory, it makes no sense to cache it somewhere else under your home directory. Unless you feel that it's neat to use twice as much space.

To limit the caching, you could set gnus-cacheable-groups to a regexp of groups to cache, "^nntp" for instance, or set the gnus-uncacheable-groups regexp to "^nnml", for instance. Both variables are nil by default. If a group matches both variables, the group is not cached.

The cache stores information on what articles it contains in its active file (gnus-cache-active-file). If this file (or any other parts of the cache) becomes all messed up for some reason or other, Gnus offers two functions that will try to set things right. 'M-x gnus-cache-generate-nov-databases' will (re)build all the NOV files, and 'gnus-cache-generate-active' will (re)generate the active file.

gnus-cache-move-cache will move your whole gnus-cache-directory to some

other location. You get asked to where, isn't that cool?

## 3.13 Persistent Articles

Closely related to article caching, we have *persistent articles*. In fact, it's just a different way of looking at caching, and much more useful in my opinion.

Say you're reading a newsgroup, and you happen on to some valuable gem that you want to keep and treasure forever. You'd normally just save it (using one of the many saving commands) in some file. The problem with that is that it's just, well, yucky. Ideally you'd prefer just having the article remain in the group where you found it forever; untouched by the expiry going on at the news server.

This is what a *persistent article* is—an article that just won't be deleted. It's implemented using the normal cache functions, but you use two explicit commands for managing persistent articles:

'*' Make the current article persistent (gnus-cache-enter-article).

'M-*' Remove the current article from the persistent articles (gnus-cache-remove-article). This will normally delete the article.

Both these commands understand the process/prefix convention.

To avoid having all ticked articles (and stuff) entered into the cache, you should set gnus-use-cache to passive if you're just interested in persistent articles:

```
(setq gnus-use-cache 'passive)
```

## 3.14 Article Backlog

If you have a slow connection, but the idea of using caching seems unappealing to you (and it is, really), you can help the situation some by switching on the *backlog*. This is where Gnus will buffer already read articles so that it doesn't have to re-fetch articles you've already read. This only helps if you are in the habit of re-selecting articles you've recently read, of course. If you never do that, turning the backlog on will slow Gnus down a little bit, and increase memory usage some.

If you set gnus-keep-backlog to a number n, Gnus will store at most n old articles in a buffer for later re-fetching. If this variable is non-nil and is not a number, Gnus will store *all* read articles, which means that your Emacs will grow without bound before exploding and taking your machine down with you. I put that in there just to keep y'all on your toes.

The default value is 20.

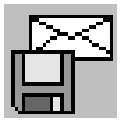
## 3.15 Saving Articles

Gnus can save articles in a number of ways. Below is the documentation for saving articles in a fairly straight-forward fashion (i.e., little processing of the article is done before it is saved). For a different approach (uudecoding, unsharing) you should use gnus-uu (see "Decoding Articles" on page 87).

For the commands listed here, the target is a file. If you want to save to a group, see the 'B c' (gnus-summary-copy-article) command (see "Mail Group Commands" on page 114).

If gnus-save-all-headers is non-nil, Gnus will not delete unwanted headers before saving the article.

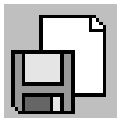
If the preceding variable is nil, all headers that match the gnus-saved-headers regexp will be kept, while the rest will be deleted before saving.



'O o'
'o' Save the current article using the default article saver (gnus-summary-save-article).

'O m' Save the current article in mail format (gnus-summary-save-article-mail).

'O r' Save the current article in Rmail format (gnus-summary-save-article-rmail).



'O f' Save the current article in plain file format (gnus-summary-save-article-file).

'O F' Write the current article in plain file format, overwriting any previous file contents (gnus-summary-write-article-file).

'O b' Save the current article body in plain file format (gnus-summary-save-article-body-file).

'O h' Save the current article in mh folder format (gnus-summary-save-article-folder).

'O v' Save the current article in a VM folder (gnus-summary-save-article-vm).

'O p'
'—' Save the current article in a pipe. Uhm, like, what I mean is—Pipe the current article to a process (gnus-summary-pipe-output). If given a symbolic prefix (see "Symbolic Prefixes" on page 325), include the complete headers in the piped output.

'O P' Save the current article into muttprint. That is, print it using the external program http://muttprint.sourceforge.net/, Muttprint. The program name and options to use is controlled by the variable gnus-summary-muttprint-program. (gnus-summary-muttprint).

All these commands use the process/prefix convention (see "Process/Prefix" on page 324). If you save bunches of articles using these functions, you might get tired of being prompted for files to save each and every article in. The prompting action is controlled by the gnus-prompt-before-saving variable, which is always by default, giving you that excessive prompting action you know and loathe. If you set this variable to t instead, you'll be prompted just once for each series of articles you save. If you like to really have Gnus do all your thinking for you, you can even set this variable to nil, which means that you will never be prompted for files to save articles in. Gnus will simply save all the articles in the default files.

You can customize the gnus-default-article-saver variable to make Gnus do what you want it to. You can use any of the six ready-made functions below, or you can create your own.

gnus-summary-save-in-rmail This is the default format, *Babyl*. Uses the function in the gnus-rmail-save-name variable to get a file name to save the article in. The default is gnus-plain-save-name.

gnus-summary-save-in-mail Save in a Unix mail (mbox) file. Uses the function in the gnus-mail-save-name variable to get a file name to save the article in. The default is gnus-plain-save-name.

gnus-summary-save-in-file Append the article straight to an ordinary file. Uses the function in the gnus-file-save-name variable to get a file name to save the article in. The default is gnus-numeric-save-name.

gnus-summary-write-to-file Write the article straight to an ordinary file. The file is overwritten if it exists. Uses the function in the gnus-file-save-name variable to get a file name to save the article in. The default is gnus-numeric-save-name.

gnus-summary-save-body-in-file Append the article body to an ordinary file. Uses the function in the gnus-file-save-name variable to get a file name to save the article in. The default is gnus-numeric-save-name.

gnus-summary-save-in-folder Save the article to an MH folder using rcvstore from the MH library. Uses the function in the gnus-folder-save-name variable to get a file name to save the article in. The default is gnus-folder-save-name, but you can also use gnus-Folder-save-name, which creates capitalized names.

gnus-summary-save-in-vm Save the article in a VM folder. You have to have the VM mail reader to use this setting.

All of these functions, except for the last one, will save the article in the gnus-article-save-directory, which is initialized from the SAVEDIR environment variable. This is '~/News/' by default.

As you can see above, the functions use different functions to find a suitable name of a file to save the article in. Below is a list of available functions that generate names:

gnus-Numeric-save-name File names like '~/News/Alt.andrea-dworkin/45'.

gnus-numeric-save-name File names like '~/News/alt.andrea-dworkin/45'.

gnus-Plain-save-name File names like '~/News/Alt.andrea-dworkin'.

gnus-plain-save-name File names like '~/News/alt.andrea-dworkin'.

gnus-sender-save-name File names like '~/News/larsi'.

You can have Gnus suggest where to save articles by plonking a regexp into the gnus-split-methods alist. For instance, if you would like to save articles related to Gnus in the file 'gnus-stuff', and articles related to VM in 'vm-stuff', you could set this variable to something like:

```
(("^Subject:.*gnus\\|^Newsgroups:.*gnus" "gnus-stuff")
 ("^Subject:.*vm\\|^Xref:.*vm" "vm-stuff")
 (my-choosing-function "../other-dir/my-stuff")
 ((equal gnus-newsgroup-name "mail.misc") "mail-stuff"))
```

We see that this is a list where each element is a list that has two elements—the *match* and the *file*. The match can either be a string (in which case it is used as a regexp to match on the article head); it can be a symbol (which will be called as a function with the group name as a parameter); or it can be a list (which will be eval ed). If any of these actions have a non-nil result, the *file* will be used as a default prompt. In addition, the result of the operation itself will be used if the function or form called returns a string or a list of strings.

You basically end up with a list of file names that might be used when saving the current article. (All "matches" will be used.) You will then be prompted for what you really want to use as a name, with file name completion over the results from applying this variable.

This variable is ((gnus-article-archive-name)) by default, which means that Gnus will look at the articles it saves for an Archive-name line and use that as a suggestion for the file name.

Here's an example function to clean up file names somewhat. If you have lots of mail groups called things like "nnml:mail.whatever", you may want to chop off the beginning of these group names before creating the file name to save to. The following will do just that:

```
(defun my-save-name (group)
  (when (string-match "^nnml:mail." group)
    (substring group (match-end 0))))
```

```
(setq gnus-split-methods
      '((gnus-article-archive-name)
        (my-save-name)))
```

Finally, you have the gnus-use-long-file-name variable. If it is nil, all the preceding functions will replace all periods (".") in the group names with slashes ("/")—which means that the functions will generate hierarchies of directories instead of having all the files in the top level directory ('~/News/alt/andrea-dworkin' instead of '~/News/alt.andrea-dworkin'.) This variable is t by default on most systems. However, for historical reasons, this is nil on Xenix and usg-unix-v machines by default.

This function also affects kill and score file names. If this variable is a list, and the list contains the element not-score, long file names will not be used for score files, if it contains the element not-save, long file names will not be used for saving, and if it contains the element not-kill, long file names will not be used for kill files.

If you'd like to save articles in a hierarchy that looks something like a spool, you could

```
(setq gnus-use-long-file-name '(not-save)) ; \gnusr{to get a hierarchy}
(setq gnus-default-article-saver
      'gnus-summary-save-in-file)          ; \gnusr{no encoding}
```

Then just save with 'o'. You'd then read this hierarchy with ephemeral nneething groups—'G D' in the group buffer, and the top level directory as the argument ('~/News/'). Then just walk around to the groups/directories with nneething.

## 3.16 Decoding Articles

Sometime users post articles (or series of articles) that have been encoded in some way or other. Gnus can decode them for you.

All these functions use the process/prefix convention (see "Process/Prefix" on page 324) for finding out what articles to work on, with the extension that a "single article" means "a single series". Gnus can find out by itself what articles belong to a series, decode all the articles and unpack/view/save the resulting file(s).

Gnus guesses what articles are in the series according to the following simplish rule: The subjects must be (nearly) identical, except for the last two numbers of the line. (Spaces are largely ignored, however.)

For example: If you choose a subject called "cat.gif (2/3)", Gnus will find all the articles that match the regexp "^cat.gif ([0-9]+/[0-9]+).*$".

Subjects that are non-standard, like "cat.gif (2/3) Part 6 of a series", will not be properly recognized by any of the automatic viewing commands, and you have to mark the articles manually with '#'.

### 3.16.1 Uuencoded Articles

'X u' Uudecodes the current series (gnus-uu-decode-uu).

'X U' Uudecodes and saves the current series (gnus-uu-decode-uu-and-save).

'X v u' Uudecodes and views the current series (gnus-uu-decode-uu-view).

'X v U' Uudecodes, views and saves the current series (gnus-uu-decode-uu-and-save-view).

Remember that these all react to the presence of articles marked with the process mark. If, for instance, you'd like to decode and save an entire newsgroup, you'd typically do 'M P a' (gnus-uu-mark-all) and then 'X U' (gnus-uu-decode-uu-and-save).

All this is very much different from how gnus-uu worked with GNUS 4.1, where you had explicit keystrokes for everything under the sun. This version of gnus-uu generally assumes that you mark articles in some way (see "Setting Process Marks" on page 68) and then press 'X u'.

Note: When trying to decode articles that have names matching gnus-uu-notify-files, which is hard-coded to "[Cc][Ii][Nn][Dd][Yy][0-9]+./(gif/—jpg/)", gnus-uu will automatically post an article on "comp.unix.wizards" saying that you have just viewed the file in question. This feature can't be turned off.

### 3.16.2 Shell Archives

Shell archives ("shar files") used to be a popular way to distribute sources, but it isn't used all that much today. In any case, we have some commands to deal with these:

'X s' Unshars the current series (gnus-uu-decode-unshar).

'X S' Unshars and saves the current series (gnus-uu-decode-unshar-and-save).

'X v s' Unshars and views the current series (gnus-uu-decode-unshar-view).

'X v S' Unshars, views and saves the current series (gnus-uu-decode-unshar-and-save-view).

### 3.16.3 PostScript Files

'X p' Unpack the current PostScript series (gnus-uu-decode-postscript).

'X P' Unpack and save the current PostScript series (gnus-uu-decode-postscript-and-save).

'X v p' View the current PostScript series (gnus-uu-decode-postscript-view).

'X v P' View and save the current PostScript series (gnus-uu-decode-postscript-and-save-view).

### 3.16.4 Other Files

'X o' Save the current series (gnus-uu-decode-save).

'X b' Unbinhex the current series (gnus-uu-decode-binhex). This doesn't really work yet.

### 3.16.5 Decoding Variables

Adjective, not verb.

#### 3.16.5.1 Rule Variables

Gnus uses *rule variables* to decide how to view a file. All these variables are of the form

```
(list '(regexp1 command2)
      '(regexp2 command2)
      ...)
```

gnus-uu-user-view-rules This variable is consulted first when viewing files. If you wish to use, for instance, sox to convert an '.au' sound file, you could say something like:

```
(setq gnus-uu-user-view-rules
      (list '("\\\\.au$" "sox %s -t .aiff > /dev/audio")))
```

gnus-uu-user-view-rules-end This variable is consulted if Gnus couldn't make any matches from the user and default view rules.

gnus-uu-user-archive-rules This variable can be used to say what commands should be used to unpack archives.

#### 3.16.5.2 Other Decode Variables

gnus-uu-grabbed-file-functions All functions in this list will be called right after each file has been successfully decoded—so that you can move or view files right away, and don't have to wait for all files to be decoded before you can do anything. Ready-made functions you can put in this list are:

gnus-uu-grab-view View the file.

gnus-uu-grab-move Move the file (if you're using a saving function.)

gnus-uu-be-dangerous Specifies what to do if unusual situations arise during decoding. If nil, be as conservative as possible. If t, ignore things that didn't work, and overwrite existing files. Otherwise, ask each time.

gnus-uu-ignore-files-by-name Files with name matching this regular expression won't be viewed.

gnus-uu-ignore-files-by-type Files with a MIME type matching this variable won't be viewed. Note that Gnus tries to guess what type the file is based on the name. gnus-uu is not a MIME package (yet), so this is slightly kludgey.

gnus-uu-tmp-dir Where gnus-uu does its work.

gnus-uu-do-not-unpack-archives Non-nil means that gnus-uu won't peek inside archives looking for files to display.

gnus-uu-view-and-save Non-nil means that the user will always be asked to save a file after viewing it.

gnus-uu-ignore-default-view-rules Non-nil means that gnus-uu will ignore the default viewing rules.

gnus-uu-ignore-default-archive-rules Non-nil means that gnus-uu will ignore the default archive unpacking commands.

gnus-uu-kill-carriage-return Non-nil means that gnus-uu will strip all carriage returns from articles.

gnus-uu-unmark-articles-not-decoded Non-nil means that gnus-uu will mark unsuccessfully decoded articles as unread.

gnus-uu-correct-stripped-uucode Non-nil means that gnus-uu will *try* to fix uuencoded files that have had trailing spaces deleted.

gnus-uu-pre-uudecode-hook Hook run before sending a message to uudecode.

gnus-uu-view-with-metamail Non-nil means that gnus-uu will ignore the viewing commands defined by the rule variables and just fudge a MIME content type based on the file name. The result will be fed to metamail for viewing.

gnus-uu-save-in-digest Non-nil means that gnus-uu, when asked to save without decoding, will save in digests. If this variable is nil, gnus-uu will just save everything in a file without any embellishments. The digesting almost conforms to RFC 1153—no easy way to specify any meaningful volume and issue numbers were found, so I simply dropped them.

#### 3.16.5.3 Uuencoding and Posting

gnus-uu-post-include-before-composing Non-nil means that gnus-uu will ask for a file to encode before you compose the article. If this variable is t, you can either include an encoded file with 'C-c C-i' or have one included for you when you post the article.

gnus-uu-post-length Maximum length of an article. The encoded file will be split into how many articles it takes to post the entire file.

gnus-uu-post-threaded Non-nil means that gnus-uu will post the encoded file in a thread. This may not be smart, as no other decoder I have seen is able to follow threads when collecting uuencoded articles. (Well, I have seen one package that does that—gnus-uu, but somehow, I don't think that counts...) Default is nil.

gnus-uu-post-separate-description Non-nil means that the description will be posted in a separate article. The first article will typically be numbered (0/x). If this variable is nil, the description the user enters will be included at the beginning of the first article, which will be numbered (1/x). Default is t.

### 3.16.6 Viewing Files

After decoding, if the file is some sort of archive, Gnus will attempt to unpack the archive and see if any of the files in the archive can be viewed. For instance, if you have a gzipped tar file 'pics.tar.gz' containing the files 'pic1.jpg' and 'pic2.gif', Gnus will uncompress and de-tar the main file, and then view the two pictures. This unpacking process is recursive, so if the archive contains archives of archives, it'll all be unpacked.

Finally, Gnus will normally insert a *pseudo-article* for each extracted file into the summary buffer. If you go to these "articles", you will be prompted for a command to run (usually Gnus will make a suggestion), and then the command will be run.

If gnus-view-pseudo-asynchronously is nil, Emacs will wait until the viewing is done before proceeding.

If gnus-view-pseudos is automatic, Gnus will not insert the pseudo-articles into the summary buffer, but view them immediately. If this variable is not-confirm, the user won't even be asked for a confirmation before viewing is done.

If gnus-view-pseudos-separately is non-nil, one pseudo-article will be created for each file to be viewed. If nil, all files that use the same viewing command will be given as a list of parameters to that command.

If gnus-insert-pseudo-articles is non-nil, insert pseudo-articles when decoding. It is t by default.

So; there you are, reading your *pseudo-articles* in your *virtual newsgroup* from the *virtual server*; and you think: Why isn't anything real anymore? How did we get here?

## 3.17 Article Treatment

Reading through this huge manual, you may have quite forgotten that the object of newsreaders is to actually, like, read what people have written. Reading articles.

Unfortunately, people are quite bad at writing, so there are tons of functions and variables to make reading these articles easier.

### 3.17.1 Article Highlighting

Not only do you want your article buffer to look like fruit salad, but you want it to look like technicolor fruit salad.

'W H a' Do much highlighting of the current article (gnus-article-highlight). This function highlights header, cited text, the signature, and adds buttons to the body and the head.

'W H h' Highlight the headers (gnus-article-highlight-headers). The highlighting will be done according to the gnus-header-face-alist variable, which is a list where each element has the form (regexp name content). regexp is a regular expression for matching the header, name is the face used for highlighting the header name (see "Faces and Fonts" on page 334) and content is the face for highlighting the header value. The first match made will be used. Note that regexp shouldn't have "^" prepended—Gnus will add one.

'W H c' Highlight cited text (gnus-article-highlight-citation).

Some variables to customize the citation highlights:

gnus-cite-parse-max-size If the article size if bigger than this variable (which is 25000 by default), no citation highlighting will be performed.

gnus-cite-max-prefix Maximum possible length for a citation prefix (default 20).

gnus-cite-face-list List of faces used for highlighting citations (see "Faces and Fonts" on page 334). When there are citations from multiple articles in the same message, Gnus will try to give each citation from each article its own face. This should make it easier to see who wrote what.

gnus-supercite-regexp Regexp matching normal Supercite attribution lines.

gnus-supercite-secondary-regexp Regexp matching mangled Supercite attribution lines.

gnus-cite-minimum-match-count Minimum number of identical prefixes we have to see before we believe that it's a citation.

gnus-cite-attribution-prefix Regexp matching the beginning of an attribution line.

gnus-cite-attribution-suffix Regexp matching the end of an attribution line.

gnus-cite-attribution-face Face used for attribution lines. It is merged with the face for the cited text belonging to the attribution.

'W H s' Highlight the signature (gnus-article-highlight-signature). Everything after gnus-signature-separator (see "Article Signature" on page 103) in an article will be considered a signature and will be highlighted with gnus-signature-face, which is italic by default.

See "Customizing Articles" on page 129, for how to highlight articles automatically.

### 3.17.2 Article Fontisizing

People commonly add emphasis to words in news articles by writing things like "˙this˙" or "*this*" or "/this/". Gnus can make this look nicer by running the article through the 'W e' (gnus-article-emphasize) command.

How the emphasis is computed is controlled by the gnus-emphasis-alist variable. This is an alist where the first element is a regular expression to be matched. The second is a number that says what regular expression grouping is used to find the entire emphasized word. The third is a number that says what regexp grouping should be displayed and highlighted. (The text between these two groupings will be hidden.) The fourth is the face used for highlighting.

```
(setq gnus-emphasis-alist
      '(("_\\(\\w+\\)_" 0 1 gnus-emphasis-underline)
        ("\\*\\(\\w+\\)\\*" 0 1 gnus-emphasis-bold)))
```

By default, there are seven rules, and they use the following faces: gnus-emphasis-bold, gnus-emphasis-italic, gnus-emphasis-underline, gnus-emphasis-bold-italic, gnus-emphasis-underline-italic, gnus-emphasis-underline-bold, and gnus-emphasis-underline-bold-italic.

If you want to change these faces, you can either use 'M-x customize', or you can use copy-face. For instance, if you want to make gnus-emphasis-italic use a red face instead, you could say something like:

```
(copy-face 'red 'gnus-emphasis-italic)
```

If you want to highlight arbitrary words, you can use the gnus-group-highlight-words-alist variable, which uses the same syntax as gnus-emphasis-alist. The highlight-words group parameter (see "Group Parameters" on page 25) can also be used.

See "Customizing Articles" on page 129, for how to fontize articles automatically.

### 3.17.3 Article Hiding

Or rather, hiding certain things in each article. There usually is much too much cruft in most articles.

'W W a' Do quite a lot of hiding on the article buffer ('gnus-article-hide'). In particular, this function will hide headers, PGP, cited text and the signature.

'W W h' Hide headers (gnus-article-hide-headers). See "Hiding Headers" on page 126.

'W W b' Hide headers that aren't particularly interesting (gnus-article-hide-boring-headers). See "Hiding Headers" on page 126.

'W W s' Hide signature (gnus-article-hide-signature). See "Article Signature" on page 103.

'W W l' Strip list identifiers specified in gnus-list-identifiers. These are strings some mailing list servers add to the beginning of all Subject headers—for example, "[zebra 4711]". Any leading "Re: " is skipped before stripping. gnus-list-identifiers may not contain /(../).

gnus-list-identifiers A regular expression that matches list identifiers to be removed from subject. This can also be a list of regular expressions.

'W W P' Hide PEM (privacy enhanced messages) cruft (gnus-article-hide-pem).

'W W B' Strip the banner specified by the banner group parameter (gnus-article-strip-banner). This is mainly used to hide those annoying banners and/or signatures that some mailing lists and moderated groups adds to all the messages. The way to use this function is to add the banner group parameter (see "Group Parameters" on page 25) to the group you want banners stripped from. The parameter either be a string, which will be interpreted as a regular expression matching text to be removed, or the symbol signature, meaning that the (last) signature should be removed, or other symbol, meaning that the corresponding regular expression in gnus-article-banner-alist is used.

Regardless of a group, you can hide things like advertisements only when the sender of an article has a certain mail address specified in gnus-article-address-banner-alist.

gnus-article-address-banner-alist Alist of mail addresses and banners. Each element has the form (address . banner), where address is a regexp matching a mail address in the From header, banner is one of a symbol signature, an item in gnus-article-banner-alist, a regexp and nil. If address matches author's mail address, it will remove things like advertisements. For example, if a sender has the mail address "hail@yoo-hoo.co.jp" and there is a banner something like "Do You Yoo-hoo!?" in all articles he sends, you can use the following element to remove them:

```
("@yoo-hoo\\.co\\.jp\\'" .
 "\n_+\nDo You Yoo-hoo!\\?\n.*\n.*\n")
```

'W W c' Hide citation (gnus-article-hide-citation). Some variables for customizing the hiding:

gnus-cited-opened-text-button-line-format
gnus-cited-closed-text-button-line-format Gnus adds buttons to show where the cited text has been hidden, and to allow toggle hiding the text. The format of the variable is specified by these format-like variable (see "Formatting Variables" on page 325). These specs are valid:

"b" Starting point of the hidden text.
"e" Ending point of the hidden text.
"l" Number of characters in the hidden region.
"n" Number of lines of hidden text.

gnus-cited-lines-visible The number of lines at the beginning of the cited text to leave shown. This can also be a cons cell with the number of lines at the top and bottom of the text, respectively, to remain visible.

'W W C-c' Hide citation (gnus-article-hide-citation-maybe) depending on the following two variables:

gnus-cite-hide-percentage If the cited text is of a bigger percentage than this variable (default 50), hide the cited text.

gnus-cite-hide-absolute The cited text must have at least this length (default 10) before it is hidden.

'W W C' Hide cited text in articles that aren't roots (gnus-article-hide-citation-in-followups). This isn't very useful as an interactive command, but might be a handy function to stick have happen automatically (see "Customizing Articles" on page 129).

All these "hiding" commands are toggles, but if you give a negative prefix to these commands, they will show what they have previously hidden. If you give a positive prefix, they will always hide.

Also see "Article Highlighting" on page 92 for further variables for citation customization.

See "Customizing Articles" on page 129, for how to hide article elements automatically.

### 3.17.4 Article Washing

We call this "article washing" for a really good reason. Namely, the 'A' key was taken, so we had to use the 'W' key instead.

*Washing* is defined by us as "changing something from something to something else", but normally results in something looking better. Cleaner, perhaps.

See "Customizing Articles" on page 129, if you want to change how Gnus displays articles by default.

'C-u g' This is not really washing, it's sort of the opposite of washing. If you type this, you see the article exactly as it exists on disk or on the server.

'g' Force redisplaying of the current article (gnus-summary-show-article). This is also not really washing. If you type this, you see the article without any previously applied interactive Washing functions but with all default treatments (see "Customizing Articles" on page 129).

'W l' Remove page breaks from the current article (gnus-summary-stop-page-breaking). See "Misc Article" on page 133, for page delimiters.

'W r' Do a Caesar rotate (rot13) on the article buffer (gnus-summary-caesar-message). Unreadable articles that tell you to read them with Caesar rotate or rot13. (Typically offensive jokes and such.)

It's commonly called "rot13" because each letter is rotated 13 positions in the alphabet, e. g. "B" (letter #2) -> "O" (letter #15). It is sometimes referred to as "Caesar rotate" because Caesar is rumored to have employed this form of, uh, somewhat weak encryption.

'W m' Morse decode the article buffer (gnus-summary-morse-message).

'W t'

't' Toggle whether to display all headers in the article buffer (gnus-summary-toggle-header).

'W v' Toggle whether to display all headers in the article buffer permanently (gnus-summary-verbose-headers).

'W o' Treat overstrike (gnus-article-treat-overstrike).

'W d' Treat M****s*** sm*rtq**t*s according to gnus-article-dumbquotes-map (gnus-article-treat-dumbquotes). Note that this function guesses whether a character is a sm*rtq**t* or not, so it should only be used interactively.

Sm*rtq**t*s are M****s***'s unilateral extension to the character map in an attempt to provide more quoting characters. If you see something like /222 or /264 where you're expecting some kind of apostrophe or quotation mark, then try this wash.

'W Y f' Full deuglify of broken Outlook (Express) articles: Treat dumbquotes, unwrap lines, repair attribution and rearrange citation. (gnus-article-outlook-deuglify-article).

'W Y u' Unwrap lines that appear to be wrapped citation lines. You can control what lines will be unwrapped by frobbing gnus-outlook-deuglify-unwrap-min and gnus-outlook-deuglify-unwrap-max, indicating the minimum and maximum length of an unwrapped citation line. (gnus-article-outlook-unwrap-lines).

'W Y a' Repair a broken attribution line. (gnus-article-outlook-repair-attribution).

'W Y c' Repair broken citations by rearranging the text. (gnus-article-outlook-rearrange-citation).

'W w' Do word wrap (gnus-article-fill-cited-article).

You can give the command a numerical prefix to specify the width to use when filling.

'W Q' Fill long lines (gnus-article-fill-long-lines).

'W C' Capitalize the first word in each sentence (gnus-article-capitalize-sentences).

'W c' Translate CRLF pairs (i. e., "^M"s on the end of the lines) into LF (this takes care of DOS line endings), and then translate any remaining CRs into LF (this takes care of Mac line endings) (gnus-article-remove-cr).

'W q' Treat quoted-printable (gnus-article-de-quoted-unreadable). Quoted-Printable is one common MIME encoding employed when sending non-ASCII (i.e., 8-bit) articles. It typically makes strings like "déjà vu" look like "d=E9j=E0 vu", which doesn't look very readable to me. Note that this is usually done automatically by Gnus if the message in question has a Content-Transfer-Encoding header that says that this encoding has been done. If a prefix is given, a charset will be asked for.

'W 6' Treat base64 (gnus-article-de-base64-unreadable). Base64 is one common MIME encoding employed when sending non-ASCII (i.e., 8-bit) articles. Note that this is usually done automatically by Gnus if the message in question has a Content-Transfer-Encoding header that says that this encoding has been done. If a prefix is given, a charset will be asked for.

'W Z' Treat HZ or HZP (gnus-article-decode-HZ). HZ (or HZP) is one common encoding employed when sending Chinese articles. It typically makes strings look like "~@<:Ky2;S>#,NpJ)l6HK!#~@".

'W u' Remove newlines from within URLs. Some mailers insert newlines into outgoing email messages to keep lines short. This reformatting can split long URLs onto multiple lines. Repair those URLs by removing the newlines (gnus-article-unsplit-urls).

'W h' Treat HTML (gnus-article-wash-html). Note that this is usually done automatically by Gnus if the message in question has a Content-Type header that says that the message is HTML.

If a prefix is given, a charset will be asked for.

The default is to use the function specified by mm-text-html-renderer (see "Display Customization, ,Display Customization, emacs-mime, The Emacs

MIME Manual" on page ??) to convert the HTML, but this is controlled by the gnus-article-wash-function variable. Pre-defined functions you can use include:

- **w3** Use Emacs/w3.
- **w3m** Use http://emacs-w3m.namazu.org/, emacs-w3m.
- **links** Use http://links.sf.net/, Links.
- **lynx** Use http://lynx.isc.org/, Lynx.
- **html2text** Use html2text—a simple HTML converter included with Gnus.

'W b' Add clickable buttons to the article (gnus-article-add-buttons). See "Article Buttons" on page 99.

'W B' Add clickable buttons to the article headers (gnus-article-add-buttons-to-head).

'W p' Verify a signed control message (gnus-article-verify-x-pgp-sig). Control messages such as newgroup and checkgroups are usually signed by the hierarchy maintainer. You need to add the PGP public key of the maintainer to your keyring to verify the message.[1]

'W s' Verify a signed (PGP, PGP/MIME or S/MIME) message (gnus-summary-force-verify-and-decrypt). See "Security" on page 268.

'W a' Strip headers like the X-No-Archive header from the beginning of article bodies (gnus-article-strip-headers-in-body).

'W E l' Remove all blank lines from the beginning of the article (gnus-article-strip-leading-blank-lines).

'W E m' Replace all blank lines with empty lines and then all multiple empty lines with a single empty line. (gnus-article-strip-multiple-blank-lines).

'W E t' Remove all blank lines at the end of the article (gnus-article-remove-trailing-blank-lines).

'W E a' Do all the three commands above (gnus-article-strip-blank-lines).

'W E A' Remove all blank lines (gnus-article-strip-all-blank-lines).

'W E s' Remove all white space from the beginning of all lines of the article body (gnus-article-strip-leading-space).

'W E e' Remove all white space from the end of all lines of the article body (gnus-article-strip-trailing-space).

See "Customizing Articles" on page 129, for how to wash articles automatically.

[1] PGP keys for many hierarchies are available at ftp://ftp.isc.org/pub/pgpcontrol/README.html

### 3.17.5 Article Header

These commands perform various transformations of article header.

'W G u' Unfold folded header lines (gnus-article-treat-unfold-headers).

'W G n' Fold the Newsgroups and Followup-To headers (gnus-article-treat-fold-newsgroups).

'W G f' Fold all the message headers (gnus-article-treat-fold-headers).

'W E w' Remove excessive whitespace from all headers (gnus-article-remove-leading-whitespace).

### 3.17.6 Article Buttons

People often include references to other stuff in articles, and it would be nice if Gnus could just fetch whatever it is that people talk about with the minimum of fuzz when you hit 'RET' or use the middle mouse button on these references.

Gnus adds *buttons* to certain standard references by default: Well-formed URLs, mail addresses, Message-IDs, Info links, man pages and Emacs or Gnus related references. This is controlled by two variables, one that handles article bodies and one that handles article heads:

gnus-button-alist This is an alist where each entry has this form:

```
(\gnusvar{regexp} \gnusvar{button-par} \gnusvar{use-p} \gnusvar{function
```

regexp All text that match this regular expression (case insensitive) will be considered an external reference. Here's a typical regexp that matches embedded URLs: "<URL:/([^/n/r>]*/)>". This can also be a variable containing a regexp, useful variables to use include gnus-button-url-regexp and gnus-button-mid-or-mail-regexp.

button-par Gnus has to know which parts of the matches is to be highlighted. This is a number that says what sub-expression of the regexp is to be highlighted. If you want it all highlighted, you use 0 here.

use-p This form will be eval ed, and if the result is non-nil, this is considered a match. This is useful if you want extra sifting to avoid false matches. Often variables named gnus-button-*-level are used here, See "Article Button Levels" on page 101, but any other form may be used too.

function This function will be called when you click on this button.

data-par As with button-par, this is a sub-expression number, but this one says which part of the match is to be sent as data to function.

So the full entry for buttonizing URLs is then

```
("<URL:\\([^\n\r>]*\\)>" 0 t gnus-button-url 1)
```

gnus-header-button-alist This is just like the other alist, except that it is applied to the article head only, and that each entry has an additional element that is used to say what headers to apply the buttonize coding to:

```
(\gnusvar{header} \gnusvar{regexp} \gnusvar{button-par} \gnusvar{
```

header is a regular expression.

#### 3.17.6.1 Related variables and functions

gnus-button-*-level See "Article Button Levels" on page 101.

gnus-button-url-regexp A regular expression that matches embedded URLs. It is used in the default values of the variables above.

gnus-button-man-handler The function to use for displaying man pages. It must take at least one argument with a string naming the man page.

gnus-button-mid-or-mail-regexp Regular expression that matches a message ID or a mail address.

gnus-button-prefer-mid-or-mail This variable determines what to do when the button on a string as "foo123@bar.invalid" is pushed. Strings like this can be either a message ID or a mail address. If it is one of the symbols mid or mail, Gnus will always assume that the string is a message ID or a mail address, respectively. If this variable is set to the symbol ask, always query the user what do do. If it is a function, this function will be called with the string as its only argument. The function must return mid, mail, invalid or ask. The default value is the function gnus-button-mid-or-mail-heuristic.

gnus-button-mid-or-mail-heuristic Function that guesses whether its argument is a message ID or a mail address. Returns mid if it's a message IDs, mail if it's a mail address, ask if unsure and invalid if the string is invalid.

gnus-button-mid-or-mail-heuristic-alist An alist of (RATE . REGEXP) pairs used by the function gnus-button-mid-or-mail-heuristic.

gnus-button-ctan-handler The function to use for displaying CTAN links. It must take one argument, the string naming the URL.

gnus-ctan-url Top directory of a CTAN (Comprehensive TeX Archive Network) archive used by gnus-button-ctan-handler.

gnus-article-button-face Face used on buttons.

gnus-article-mouse-face Face used when the mouse cursor is over a button.

See "Customizing Articles" on page 129, for how to buttonize articles automatically.

### 3.17.7 Article button levels

The higher the value of the variables gnus-button-*-level, the more buttons will appear. If the level is zero, no corresponding buttons are displayed. With the default value (which is 5) you should already see quite a lot of buttons. With higher levels, you will see more buttons, but you may also get more false positives. To avoid them, you can set the variables gnus-button-*-level local to specific groups (see "Group Parameters" on page 25). Here's an example for the variable gnus-parameters:

```
;; \gnusr{increase \gnuscode{gnus-button-*-level} in some groups:}
(setq gnus-parameters
      '(("\\<\\(emacs\\|gnus\\)\\>" (gnus-button-emacs-level 10))
        ("\\<unix\\>"               (gnus-button-man-level 10))
        ("\\<tex\\>"                (gnus-button-tex-level 10))))
```

gnus-button-browse-level Controls the display of references to message IDs, mail addresses and news URLs. Related variables and functions include gnus-button-url-regexp, browse-url, and browse-url-browser-function.

gnus-button-emacs-level Controls the display of Emacs or Gnus references. Related functions are gnus-button-handle-custom, gnus-button-handle-describe-function, gnus-button-handle-describe-variable, gnus-button-handle-symbol, gnus-button-handle-describe-key, gnus-button-handle-apropos, gnus-button-handle-apropos-command, gnus-button-handle-apropos-variable, gnus-button-handle-apropos-documentation, and gnus-button-handle-library.

gnus-button-man-level Controls the display of references to (Unix) man pages. See gnus-button-man-handler.

gnus-button-message-level Controls the display of message IDs, mail addresses and news URLs. Related variables and functions include gnus-button-mid-or-mail-regexp, gnus-button-prefer-mid-or-mail, gnus-button-mid-or-mail-heuristic, and gnus-button-mid-or-mail-heuristic-alist.

gnus-button-tex-level Controls the display of references to TEX or LaTeX stuff, e.g. for CTAN URLs. See the variables gnus-ctan-url, gnus-button-ctan-handler, gnus-button-ctan-directory-regexp, and gnus-button-handle-ctan-bogus-regexp.

### 3.17.8 Article Date

The date is most likely generated in some obscure timezone you've never heard of, so it's quite nice to be able to find out what the time was when the article was sent.

'W T u' Display the date in UT (aka. GMT, aka ZULU) (gnus-article-date-ut).

'W T i' Display the date in international format, aka. ISO 8601 (gnus-article-date-iso8601).

'W T l' Display the date in the local timezone (gnus-article-date-local).

'W T p' Display the date in a format that's easily pronounceable in English (gnus-article-date-english).

'W T s' Display the date using a user-defined format (gnus-article-date-user). The format is specified by the gnus-article-time-format variable, and is a string that's passed to format-time-string. See the documentation of that variable for a list of possible format specs.

'W T e' Say how much time has elapsed between the article was posted and now (gnus-article-date-lapsed). It looks something like:

```
X-Sent: 6 weeks, 4 days, 1 hour, 3 minutes, 8 seconds ago
```

The value of gnus-article-date-lapsed-new-header determines whether this header will just be added below the old Date one, or will replace it.

An advantage of using Gnus to read mail is that it converts simple bugs into wonderful absurdities.

If you want to have this line updated continually, you can put

```
(gnus-start-date-timer)
```

in your '~/.gnus.el' file, or you can run it off of some hook. If you want to stop the timer, you can use the gnus-stop-date-timer command.

'W T o' Display the original date (gnus-article-date-original). This can be useful if you normally use some other conversion function and are worried that it might be doing something totally wrong. Say, claiming that the article was posted in 1854. Although something like that is *totally* impossible. Don't you trust me? *titter*

See "Customizing Articles" on page 129, for how to display the date in your preferred format automatically.

### 3.17.9 Article Display

These commands add various frivolous display gimmicks to the article buffer in Emacs versions that support them.

X-Face headers are small black-and-white images supplied by the message headers (see "X-Face" on page 341).

Face headers are small colored images supplied by the message headers (see "Face" on page 342).

Smileys are those little ":-)" symbols that people like to litter their messages with (see "Smileys" on page 343).

Picons, on the other hand, reside on your own system, and Gnus will try to match the headers to what you have (see "Picons" on page 343).

All these functions are toggles—if the elements already exist, they'll be removed.

'W D x' Display an X-Face in the From header. (gnus-article-display-x-face).

'W D d' Display a Face in the From header. (gnus-article-display-face).

'W D s' Display smileys (gnus-treat-smiley).

'W D f' Piconify the From header (gnus-treat-from-picon).

'W D m' Piconify all mail headers (i. e., Cc, To) (gnus-treat-mail-picon).

'W D n' Piconify all news headers (i. e., Newsgroups and Followup-To) (gnus-treat-newsgroups-picon).

'W D D' Remove all images from the article buffer (gnus-article-remove-images).

### 3.17.10 Article Signature

Each article is divided into two parts—the head and the body. The body can be divided into a signature part and a text part. The variable that says what is to be considered a signature is gnus-signature-separator. This is normally the standard "^-- $" as mandated by son-of-RFC 1036. However, many people use non-standard signature separators, so this variable can also be a list of regular expressions to be tested, one by one. (Searches are done from the end of the body towards the beginning.) One likely value is:

```
(setq gnus-signature-separator
      '("^-- $"          ; \gnusr{The standard}
        "^-- *$"         ; \gnusr{A common mangling}
        "^-------*$"     ; \gnusr{Many people just use a looong}
                         ; \gnusr{line of dashes.  Shame!}
        "^ *--------*$" ; \gnusr{Double-shame!}
        "^_________*$"   ; \gnusr{Underscores are also popular}
        "^========*$")) ; \gnusr{Pervert!}
```

The more permissive you are, the more likely it is that you'll get false positives.

gnus-signature-limit provides a limit to what is considered a signature when displaying articles.

1. If it is an integer, no signature may be longer (in characters) than that integer.
2. If it is a floating point number, no signature may be longer (in lines) than that number.
3. If it is a function, the function will be called without any parameters, and if it returns nil, there is no signature in the buffer.
4. If it is a string, it will be used as a regexp. If it matches, the text in question is not a signature.

This variable can also be a list where the elements may be of the types listed above. Here's an example:

```
(setq gnus-signature-limit
      '(200.0 "^---*Forwarded article"))
```

This means that if there are more than 200 lines after the signature separator, or the text after the signature separator is matched by the regular expression "^—*Forwarded article", then it isn't a signature after all.

### 3.17.11 Article Miscellanea

'A t' Translate the article from one language to another (gnus-article-babel).

## 3.18 MIME Commands

The following commands all understand the numerical prefix. For instance, '3 b' means "view the third MIME part".

'b'

'K v' View the MIME part.

'K o' Save the MIME part.

'K c' Copy the MIME part.

'K e' View the MIME part externally.

'K i' View the MIME part internally.

'K —' Pipe the MIME part to an external command.

The rest of these MIME commands do not use the numerical prefix in the same manner:

'K b' Make all the MIME parts have buttons in front of them. This is mostly useful if you wish to save (or perform other actions) on inlined parts.

'K m' Some multipart messages are transmitted with missing or faulty headers. This command will attempt to "repair" these messages so that they can be viewed in a more pleasant manner (gnus-summary-repair-multipart).

'X m' Save all parts matching a MIME type to a directory (gnus-summary-save-parts). Understands the process/prefix convention (see "Process/Prefix" on page 324).

'M-t' Toggle the buttonized display of the article buffer (gnus-summary-toggle-display-buttonized).

'W M w' Decode RFC 2047-encoded words in the article headers (gnus-article-decode-mime-words).

'W M c' Decode encoded article bodies as well as charsets (gnus-article-decode-charset).

This command looks in the Content-Type header to determine the charset. If there is no such header in the article, you can give it a prefix, which will prompt for the charset to decode as. In regional groups where people post using some common encoding (but do not include MIME headers), you can set the charset group/topic parameter to the required charset (see "Group Parameters" on page 25).

'W M v' View all the MIME parts in the current article (gnus-mime-view-all-parts).

Relevant variables:

gnus-ignored-mime-types This is a list of regexps. MIME types that match a regexp from this list will be completely ignored by Gnus. The default value is nil.

To have all Vcards be ignored, you'd say something like this:

```
(setq gnus-ignored-mime-types
      '("text/x-vcard"))
```

gnus-article-loose-mime If non-nil, Gnus won't require the "MIME-Version" header before interpreting the message as a MIME message. This helps when reading messages from certain broken mail user agents. The default is nil.

gnus-article-emulate-mime There are other, non-MIME encoding methods used. The most common is "uuencode", but yEncode is also getting to be popular. If this variable is non-nil, Gnus will look in message bodies to see if it finds these encodings, and if so, it'll run them through the Gnus MIME machinery. The default is t.

gnus-unbuttonized-mime-types This is a list of regexps. MIME types that match a regexp from this list won't have MIME buttons inserted unless they aren't displayed or this variable is overridden by gnus-buttonized-mime-types. The default value is (".*/.*"). This variable is only used when gnus-inhibit-mime-unbuttonizing is nil.

gnus-buttonized-mime-types This is a list of regexps. MIME types that match a regexp from this list will have MIME buttons inserted unless they aren't displayed. This variable overrides gnus-unbuttonized-mime-types. The default value is nil. This variable is only used when gnus-inhibit-mime-unbuttonizing is nil.

To see e.g. security buttons but no other buttons, you could set this variable to ("multipart/signed") and leave gnus-unbuttonized-mime-types at the default value.

gnus-inhibit-mime-unbuttonizing If this is non-nil, then all MIME parts get buttons. The default value is nil.

gnus-article-mime-part-function For each MIME part, this function will be called with the MIME handle as the parameter. The function is meant to be used to allow users to gather information from the article (e. g., add Vcard info to the bbdb database) or to do actions based on parts (e. g., automatically save all jpegs into some directory).

Here's an example function the does the latter:

```
(defun my-save-all-jpeg-parts (handle)
  (when (equal (car (mm-handle-type handle)) "image/jpeg")
    (with-temp-buffer
      (insert (mm-get-part handle))
      (write-region (point-min) (point-max)
                    (read-file-name "Save jpeg to: "))))
(setq gnus-article-mime-part-function
      'my-save-all-jpeg-parts)
```

gnus-mime-multipart-functions Alist of MIME multipart types and functions to handle them.

mm-file-name-rewrite-functions List of functions used for rewriting file names of MIME parts. Each function takes a file name as input and returns a file name.

Ready-made functions include mm-file-name-delete-whitespace, mm-file-name-trim-whitespace, mm-file-name-collapse-whitespace, and mm-file-name-replace-whitespace. The later uses the value of the variable mm-file-name-replace-whitespace to replace each whitespace character in a file name with that string; default value is "`" (a single underscore).

The standard functions capitalize, downcase, upcase, and upcase-initials may be useful, too.

Everybody knows that whitespace characters in file names are evil, except those who don't know. If you receive lots of attachments from such unenlightened users, you can make live easier by adding

```
(setq mm-file-name-rewrite-functions
      '(mm-file-name-trim-whitespace
        mm-file-name-collapse-whitespace
        mm-file-name-replace-whitespace))
```

to your '~/.gnus.el' file.

## 3.19 Charsets

People use different charsets, and we have MIME to let us know what charsets they use. Or rather, we wish we had. Many people use newsreaders and mailers that do not understand or use MIME, and just send out messages without saying what character sets they use. To help a bit with this, some local news hierarchies have policies that say what character set is the default. For instance, the "fj" hierarchy uses iso-2022-jp-2.

This knowledge is encoded in the gnus-group-charset-alist variable, which is an alist of regexps (use the first item to match full group names) and default charsets to be used when reading these groups.

In addition, some people do use soi-disant MIME-aware agents that aren't. These blithely mark messages as being in iso-8859-1 even if they really are in koi-8. To help here, the gnus-newsgroup-ignored-charsets variable can be used. The charsets that are listed here will be ignored. The variable can be set on a group-by-group basis using the group parameters (see "Group Parameters" on page 25). The default value is (unknown-8bit x-unknown), which includes values some agents insist on having in there.

When posting, gnus-group-posting-charset-alist is used to determine which charsets should not be encoded using the MIME encodings. For instance, some hierarchies discourage using quoted-printable header encoding.

This variable is an alist of regexps and permitted unencoded charsets for posting. Each element of the alist has the form (test header body-list), where:

test is either a regular expression matching the newsgroup header or a variable to query,

header is the charset which may be left unencoded in the header (nil means encode all charsets),

body-list is a list of charsets which may be encoded using 8bit content-transfer encoding in the body, or one of the special values nil (always encode using quoted-printable) or t (always use 8bit).

Other charset tricks that may be useful, although not Gnus-specific:

If there are several MIME charsets that encode the same Emacs charset, you can choose what charset to use by saying the following:

```
(put-charset-property 'cyrillic-iso8859-5
                      'preferred-coding-system 'koi8-r)
```

This means that Russian will be encoded using koi8-r instead of the default iso-8859-5 MIME charset.

If you want to read messages in koi8-u, you can cheat and say

```
(define-coding-system-alias 'koi8-u 'koi8-r)
```

This will almost do the right thing.

And finally, to read charsets like windows-1251, you can say something like

```
(codepage-setup 1251)
(define-coding-system-alias 'windows-1251 'cp1251)
```

## 3.20 Article Commands

'A P' Generate and print a PostScript image of the article buffer (gnus-summary-print-article). gnus-ps-print-hook will be run just before printing the buffer. An alternative way to print article is to use Muttprint (see "Saving Articles" on page 83).

## 3.21 Summary Sorting

You can have the summary buffer sorted in various ways, even though I can't really see why you'd want that.

'C-c C-s C-n' Sort by article number (gnus-summary-sort-by-number).

'C-c C-s C-a' Sort by author (gnus-summary-sort-by-author).

'C-c C-s C-s' Sort by subject (gnus-summary-sort-by-subject).

'C-c C-s C-d' Sort by date (gnus-summary-sort-by-date).

'C-c C-s C-l' Sort by lines (gnus-summary-sort-by-lines).

'C-c C-s C-c' Sort by article length (gnus-summary-sort-by-chars).

'C-c C-s C-i' Sort by score (gnus-summary-sort-by-score).

'C-c C-s C-r' Randomize (gnus-summary-sort-by-random).

'C-c C-s C-o' Sort using the default sorting method (gnus-summary-sort-by-original).

These functions will work both when you use threading and when you don't use threading. In the latter case, all summary lines will be sorted, line by line. In the former case, sorting will be done on a root-by-root basis, which might not be what you were looking for. To toggle whether to use threading, type 'T T' (see "Thread Commands" on page 78).

## 3.22 Finding the Parent

'^' If you'd like to read the parent of the current article, and it is not displayed in the summary buffer, you might still be able to. That is, if the current group is fetched by NNTP, the parent hasn't expired and the References in the current article are not mangled, you can just press '^' or 'A r' (gnus-summary-refer-parent-article). If everything goes well, you'll get the parent. If the parent is already displayed in the summary buffer, point will just move to this article.

If given a positive numerical prefix, fetch that many articles back into the ancestry. If given a negative numerical prefix, fetch just that ancestor. So if you say '3 ^', Gnus will fetch the parent, the grandparent and the grandgrandparent of the current article. If you say '-3 ^', Gnus will only fetch the grandgrandparent of the current article.

'A R (Summary)' Fetch all articles mentioned in the References header of the article (gnus-summary-refer-references).

'A T (Summary)' Display the full thread where the current article appears (gnus-summary-refer-thread). This command has to fetch all the headers in the current group to work, so it usually takes a while. If you do it often, you may consider setting gnus-fetch-old-headers to invisible (see "Filling In Threads" on page 75). This won't have any visible effects normally, but it'll make this command work a whole lot faster. Of course, it'll make group entry somewhat slow.

The gnus-refer-thread-limit variable says how many old (i. e., articles before the first displayed in the current group) headers to fetch when doing this command. The default is 200. If t, all the available headers will be fetched. This variable can be overridden by giving the 'A T' command a numerical prefix.

'M-^ (Summary)' You can also ask the NNTP server for an arbitrary article, no matter what group it belongs to. 'M-^' (gnus-summary-refer-article) will ask you for a Message-ID, which is one of those long, hard-to-read thingies that look something like "<38o6up$6f2@hymir.ifi.uio.no>". You have to get it all exactly right. No fuzzy searches, I'm afraid.

The current select method will be used when fetching by Message-ID from non-news select method, but you can override this by giving this command a prefix.

If the group you are reading is located on a back end that does not support fetching by Message-ID very well (like nnspool), you can set gnus-refer-article-method to an NNTP method. It would, perhaps, be best if the NNTP server you consult is the one updating the spool you are reading from, but that's not really necessary.

It can also be a list of select methods, as well as the special symbol current, which means to use the current select method. If it is a list, Gnus will try all the methods in the list until it finds a match.

Here's an example setting that will first try the current method, and then ask Google if that fails:

```
(setq gnus-refer-article-method
      '(current
        (nnweb "google" (nnweb-type google))))
```

Most of the mail back ends support fetching by Message-ID, but do not do a particularly excellent job at it. That is, nnmbox, nnbabyl, and nnmaildir are able to locate articles from any groups, while nnml, nnfolder, and nnimap are only able to locate articles that have been posted to the current group. (Anything else would be too time consuming.) nnmh does not support this at all.

## 3.23 Alternative Approaches

Different people like to read news using different methods. This being Gnus, we offer a small selection of minor modes for the summary buffers.

### 3.23.1 Pick and Read

Some newsreaders (like nn and, uhm, Netnews on VM/CMS) use a two-phased reading interface. The user first marks in a summary buffer the articles she wants to read. Then she starts reading the articles with just an article buffer displayed.

Gnus provides a summary buffer minor mode that allows this—gnus-pick-mode. This basically means that a few process mark commands become one-keystroke commands to allow easy marking, and it provides one additional command for switching to the summary buffer.

Here are the available keystrokes when using pick mode:

'.' Pick the article or thread on the current line (gnus-pick-article-or-thread). If the variable gnus-thread-hide-subtree is true, then this key selects the entire thread when used at the first article of the thread. Otherwise, it selects just the article. If given a numerical prefix, go to that thread or article and pick it. (The line number is normally displayed at the beginning of the summary pick lines.)

'SPACE' Scroll the summary buffer up one page (gnus-pick-next-page). If at the end of the buffer, start reading the picked articles.

'u' Unpick the thread or article (gnus-pick-unmark-article-or-thread). If the variable gnus-thread-hide-subtree is true, then this key unpicks the thread if used at the first article of the thread. Otherwise it unpicks just the article. You can give this key a numerical prefix to unpick the thread or article at that line.

'RET' Start reading the picked articles (gnus-pick-start-reading). If given a prefix, mark all unpicked articles as read first. If gnus-pick-display-summary is non-nil, the summary buffer will still be visible when you are reading.

All the normal summary mode commands are still available in the pick-mode, with the exception of 'u'. However '!' is available which is mapped to the same function gnus-summary-tick-article-forward.

If this sounds like a good idea to you, you could say:

```
(add-hook 'gnus-summary-mode-hook 'gnus-pick-mode)
```

gnus-pick-mode-hook is run in pick minor mode buffers.

If gnus-mark-unpicked-articles-as-read is non-nil, mark all unpicked articles as read. The default is nil.

The summary line format in pick mode is slightly different from the standard format. At the beginning of each line the line number is displayed. The pick mode line format is controlled by the gnus-summary-pick-line-format variable (see "Formatting Variables" on page 325). It accepts the same format specs that gnus-summary-line-format does (see "Summary Buffer Lines" on page 48).

### 3.23.2 Binary Groups

If you spend much time in binary groups, you may grow tired of hitting 'X u', 'n', 'RET' all the time. 'M-x gnus-binary-mode' is a minor mode for summary buffers

that makes all ordinary Gnus article selection functions uudecode series of articles and display the result instead of just displaying the articles the normal way.

The only way, in fact, to see the actual articles is the 'g' command, when you have turned on this mode (gnus-binary-show-article).

gnus-binary-mode-hook is called in binary minor mode buffers.

## 3.24 Tree Display

If you don't like the normal Gnus summary display, you might try setting gnus-use-trees to t. This will create (by default) an additional *tree buffer*. You can execute all summary mode commands in the tree buffer.

There are a few variables to customize the tree display, of course:

gnus-tree-mode-hook A hook called in all tree mode buffers.

gnus-tree-mode-line-format A format string for the mode bar in the tree mode buffers (see "Mode Line Formatting" on page 326). The default is "Gnus: %%b %S %Z". For a list of valid specs, see "Summary Buffer Mode Line" on page 53.

gnus-selected-tree-face Face used for highlighting the selected article in the tree buffer. The default is modeline.

gnus-tree-line-format A format string for the tree nodes. The name is a bit of a misnomer, though—it doesn't define a line, but just the node. The default value is "%(%[%3,3n%]%)", which displays the first three characters of the name of the poster. It is vital that all nodes are of the same length, so you *must* use "%4,4n"-like specifiers.

Valid specs are:

"n" The name of the poster.

"f" The From header.

"N" The number of the article.

"[" The opening bracket.

"]" The closing bracket.

"s" The subject.

See "Formatting Variables" on page 325.

Variables related to the display are:

gnus-tree-brackets This is used for differentiating between "real" articles and "sparse" articles. The format is

```
((\gnusvar{real-open} . \gnusvar{real-close})
 (\gnusvar{sparse-open} . \gnusvar{sparse-close})
 (\gnusvar{dummy-open} . \gnusvar{dummy-close}))
```

and the default is ((?[ . ?]) (?( . ?)) (?@ . ?@) (?< . ?>)).

gnus-tree-parent-child-edges This is a list that contains the characters used for connecting parent nodes to their children. The default is (?- ?/ ?—).

gnus-tree-minimize-window If this variable is non-nil, Gnus will try to keep the tree buffer as small as possible to allow more room for the other Gnus windows. If this variable is a number, the tree buffer will never be higher than that number. The default is t. Note that if you have several windows displayed side-by-side in a frame and the tree buffer is one of these, minimizing the tree window will also resize all other windows displayed next to it.

You may also wish to add the following hook to keep the window minimized at all times:

```
(add-hook 'gnus-configure-windows-hook
          'gnus-tree-perhaps-minimize)
```

gnus-generate-tree-function The function that actually generates the thread tree. Two predefined functions are available: gnus-generate-horizontal-tree and gnus-generate-vertical-tree (which is the default).

Here's an example from a horizontal tree buffer:

```
{***}-(***)-[odd]-[Gun]
     |      [Jan]
     |      [odd]-[Eri]
     |      \(***)-[Eri]
     |            [odd]-[Paa]
     [Bjo]
     [Gun]
     [Gun]-[Jor]
```

Here's the same thread displayed in a vertical tree buffer:

```
{***}
  |-------------------------\-----\-----\
(***)                         [Bjo] [Gun] [Gun]
  |--\-----\-----\                          |
[odd] [Jan] [odd] (***)                    [Jor]
  |           |     |--\
[Gun]       [Eri] [Eri] [odd]
                          |
                        [Paa]
```

If you're using horizontal trees, it might be nice to display the trees side-by-side with the summary buffer. You could add something like the following to your '~/.gnus.el' file:

```
(setq gnus-use-trees t
      gnus-generate-tree-function 'gnus-generate-horizontal-tree
      gnus-tree-minimize-window nil)
(gnus-add-configuration
 '(article
   (vertical 1.0
             (horizontal 0.25
                         (summary 0.75 point)
                         (tree 1.0))
             (article 1.0))))
```

See "Window Layout" on page 329.

## 3.25 Mail Group Commands

Some commands only make sense in mail groups. If these commands are invalid in the current group, they will raise a hell and let you know.

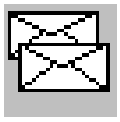
All these commands (except the expiry and edit commands) use the process/prefix convention (see "Process/Prefix" on page 324).

'B e' Run all expirable articles in the current group through the expiry process (gnus-summary-expire-articles). That is, delete all expirable articles in the group that have been around for a while. (see "Expiring Mail" on page 175).

'B C-M-e' Delete all the expirable articles in the group (gnus-summary-expire-articles-now). This means that **all** articles eligible for expiry in the current group will disappear forever into that big '/dev/null' in the sky.

'B DEL' Delete the mail article. This is "delete" as in "delete it from your disk forever and ever, never to return again." Use with caution. (gnus-summary-delete-article).

'B m' Move the article from one mail group to another (gnus-summary-move-article). Marks will be preserved if gnus-preserve-marks is non-nil (which is the default).



'B c' Copy the article from one group (mail group or not) to a mail group (gnus-summary-copy-article). Marks will be preserved if gnus-preserve-marks is non-nil (which is the default).

'B B' Crosspost the current article to some other group (gnus-summary-crosspost-article). This will create a new copy of the article in the other group, and the Xref headers of the article will be properly updated.

'B i' Import an arbitrary file into the current mail newsgroup (gnus-summary-import-article). You will be prompted for a file name, a From header and a Subject header.

'B l' Create an empty article in the current mail newsgroups (gnus-summary-create-article). You will be prompted for a From header and a Subject header.

'B r' Respool the mail article (gnus-summary-respool-article). gnus-summary-respool-default-method will be used as the default select method when re-spooling. This variable is nil by default, which means that the current group select method will be used instead. Marks will be preserved if gnus-preserve-marks is non-nil (which is the default).

'B w'
'e' Edit the current article (gnus-summary-edit-article). To finish editing and make the changes permanent, type 'C-c C-c' (gnus-summary-edit-article-done). If you give a prefix to the 'C-c C-c' command, Gnus won't re-highlight the article.

'B q' If you want to re-spool an article, you might be curious as to what group the article will end up in before you do the re-spooling. This command will tell you (gnus-summary-respool-query).

'B t' Similarly, this command will display all fancy splitting patterns used when respooling, if any (gnus-summary-respool-trace).

'B p' Some people have a tendency to send you "courtesy" copies when they follow up to articles you have posted. These usually have a Newsgroups header in them, but not always. This command (gnus-summary-article-posted-p) will try to fetch the current article from your news server (or rather, from gnus-refer-article-method or gnus-select-method) and will report back whether it found the article or not. Even if it says that it didn't find the article, it may have been posted anyway—mail propagation is much faster than news propagation, and the news copy may just not have arrived yet.

'K E' Encrypt the body of an article (gnus-article-encrypt-body). The body is encrypted with the encryption protocol specified by the variable gnus-article-encrypt-protocol.

If you move (or copy) articles regularly, you might wish to have Gnus suggest where to put the articles. gnus-move-split-methods is a variable that uses the same syntax as gnus-split-methods (see "Saving Articles" on page 83). You may customize that variable to create suggestions you find reasonable. (Note that gnus-move-split-methods uses group names where gnus-split-methods uses file names.)

```
(setq gnus-move-split-methods
      '(("^From:.*Lars Magne" "nnml:junk")
```

```
("^Subject:.*gnus" "nnfolder:important")
(".*" "nnml:misc")))
```

## 3.26 Various Summary Stuff

gnus-summary-display-while-building If non-nil, show and update the summary buffer as it's being built. If t, update the buffer after every line is inserted. If the value is an integer, n, update the display every n lines. The default is nil.

gnus-summary-display-arrow If non-nil, display an arrow in the fringe to indicate the current article.

gnus-summary-mode-hook This hook is called when creating a summary mode buffer.

gnus-summary-generate-hook This is called as the last thing before doing the threading and the generation of the summary buffer. It's quite convenient for customizing the threading variables based on what data the newsgroup has. This hook is called from the summary buffer after most summary buffer variables have been set.

gnus-summary-prepare-hook It is called after the summary buffer has been generated. You might use it to, for instance, highlight lines or modify the look of the buffer in some other ungodly manner. I don't care.

gnus-summary-prepared-hook A hook called as the very last thing after the summary buffer has been generated.

gnus-summary-ignore-duplicates When Gnus discovers two articles that have the same Message-ID, it has to do something drastic. No articles are allowed to have the same Message-ID, but this may happen when reading mail from some sources. Gnus allows you to customize what happens with this variable. If it is nil (which is the default), Gnus will rename the Message-ID (for display purposes only) and display the article as any other article. If this variable is t, it won't display the article—it'll be as if it never existed.

gnus-alter-articles-to-read-function This function, which takes two parameters (the group name and the list of articles to be selected), is called to allow the user to alter the list of articles to be selected.

For instance, the following function adds the list of cached articles to the list in one particular group:

```
(defun my-add-cached-articles (group articles)
  (if (string= group "some.group")
      (append gnus-newsgroup-cached articles)
    articles))
```

gnus-newsgroup-variables A list of newsgroup (summary buffer) local variables, or cons of variables and their default values (when the default values are not nil), that should be made global while the summary buffer is active. These variables can be used to set variables in the group parameters while still allowing them to affect operations done in other buffers. For example:

```
(setq gnus-newsgroup-variables
      '(message-use-followup-to
        (gnus-visible-headers .
 "^From:\\|^Newsgroups:\\|^Subject:\\|^Date:\\|^To:")))
```

### 3.26.1 Summary Group Information

'H f' Try to fetch the FAQ (list of frequently asked questions) for the current group (gnus-summary-fetch-faq). Gnus will try to get the FAQ from gnus-group-faq-directory, which is usually a directory on a remote machine. This variable can also be a list of directories. In that case, giving a prefix to this command will allow you to choose between the various sites. ange-ftp or efs will probably be used for fetching the file.

'H d' Give a brief description of the current group (gnus-summary-describe-group). If given a prefix, force rereading the description from the server.

'H h' Give an extremely brief description of the most important summary keystrokes (gnus-summary-describe-briefly).

'H i' Go to the Gnus info node (gnus-info-find-node).

### 3.26.2 Searching for Articles

'M-s' Search through all subsequent (raw) articles for a regexp (gnus-summary-search-article-forward).

'M-r' Search through all previous (raw) articles for a regexp (gnus-summary-search-article-backward).

'&' This command will prompt you for a header, a regular expression to match on this field, and a command to be executed if the match is made (gnus-summary-execute-command). If the header is an empty string, the match is done on the entire article. If given a prefix, search backward instead.

For instance, '& RET some.*string RET #' will put the process mark on all articles that have heads or bodies that match "some.*string".

'M-&' Perform any operation on all articles that have been marked with the process mark (gnus-summary-universal-argument).

### 3.26.3 Summary Generation Commands

'Y g' Regenerate the current summary buffer (gnus-summary-prepare).

'Y c' Pull all cached articles (for the current group) into the summary buffer (gnus-summary-insert-cached-articles).

'Y d' Pull all dormant articles (for the current group) into the summary buffer (gnus-summary-insert-dormant-articles).

### 3.26.4 Really Various Summary Commands

'A D'
'C-d' If the current article is a collection of other articles (for instance, a digest), you might use this command to enter a group based on the that article (gnus-summary-enter-digest-group). Gnus will try to guess what article type is currently displayed unless you give a prefix to this command, which forces a "digest" interpretation. Basically, whenever you see a message that is a collection of other messages of some format, you 'C-d' and read these messages in a more convenient fashion.

'C-M-d' This command is very similar to the one above, but lets you gather several documents into one biiig group (gnus-summary-read-document). It does this by opening several nndoc groups for each document, and then opening an nnvirtual group on top of these nndoc groups. This command understands the process/prefix convention (see "Process/Prefix" on page 324).

'C-t' Toggle truncation of summary lines (gnus-summary-toggle-truncation). This will probably confuse the line centering function in the summary buffer, so it's not a good idea to have truncation switched off while reading articles.

'=' Expand the summary buffer window (gnus-summary-expand-window). If given a prefix, force an article window configuration.

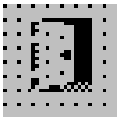
'C-M-e' Edit the group parameters (see "Group Parameters" on page 25) of the current group (gnus-summary-edit-parameters).

'C-M-a' Customize the group parameters (see "Group Parameters" on page 25) of the current group (gnus-summary-customize-parameters).

## 3.27 Exiting the Summary Buffer

Exiting from the summary buffer will normally update all info on the group and return you to the group buffer.

'Z Z'



'q' Exit the current group and update all information on the group (gnus-summary-exit). gnus-summary-prepare-exit-hook is called before doing much of the exiting, which calls gnus-summary-expire-articles by default. gnus-summary-exit-hook is called after finishing the exit process. gnus-group-no-more-groups-hook is run when returning to group mode having no more (unread) groups.

'Z E'
'Q' Exit the current group without updating any information on the group (gnus-summary-exit-no-update).

'Z c'
'c' Mark all unticked articles in the group as read and then exit (gnus-summary-catchup-and-exit).

'Z C' Mark all articles, even the ticked ones, as read and then exit (gnus-summary-catchup-all-and-exit).

'Z n' Mark all articles as read and go to the next group (gnus-summary-catchup-and-goto-next-group).

'Z R' Exit this group, and then enter it again (gnus-summary-reselect-current-group). If given a prefix, select all articles, both read and unread.

'Z G'
'M-g' Exit the group, check for new articles in the group, and select the group (gnus-summary-rescan-group). If given a prefix, select all articles, both read and unread.

'Z N' Exit the group and go to the next group (gnus-summary-next-group).

'Z P' Exit the group and go to the previous group (gnus-summary-prev-group).

'Z s' Save the current number of read/marked articles in the dribble buffer and then save the dribble buffer (gnus-summary-save-newsrc). If given a prefix, also save the '.newsrc' file(s). Using this command will make exit without updating (the 'Q' command) worthless.

gnus-exit-group-hook is called when you exit the current group with an "updating" exit. For instance 'Q' (gnus-summary-exit-no-update) does not call this hook.

If you're in the habit of exiting groups, and then changing your mind about it, you might set gnus-kill-summary-on-exit to nil. If you do that, Gnus won't kill the summary buffer when you exit it. (Quelle surprise!) Instead it will change the name of the buffer to something like "*Dead Summary ... *" and install a minor mode called gnus-dead-summary-mode. Now, if you switch back to this buffer, you'll find that all keys are mapped to a function called gnus-summary-wake-up-the-dead. So

tapping any keys in a dead summary buffer will result in a live, normal summary buffer.

There will never be more than one dead summary buffer at any one time.

The data on the current group will be updated (which articles you have read, which articles you have replied to, etc.) when you exit the summary buffer. If the gnus-use-cross-reference variable is t (which is the default), articles that are cross-referenced to this group and are marked as read, will also be marked as read in the other subscribed groups they were cross-posted to. If this variable is neither nil nor t, the article will be marked as read in both subscribed and unsubscribed groups (see "Crosspost Handling" on page 120).

## 3.28 Crosspost Handling

Marking cross-posted articles as read ensures that you'll never have to read the same article more than once. Unless, of course, somebody has posted it to several groups separately. Posting the same article to several groups (not cross-posting) is called *spamming*, and you are by law required to send nasty-grams to anyone who perpetrates such a heinous crime. You may want to try NoCeM handling to filter out spam (see "NoCeM" on page 338).

Remember: Cross-posting is kinda ok, but posting the same article separately to several groups is not. Massive cross-posting (aka. *velveeta*) is to be avoided at all costs, and you can even use the gnus-summary-mail-crosspost-complaint command to complain about excessive crossposting (see "Summary Mail Commands" on page 58).

One thing that may cause Gnus to not do the cross-posting thing correctly is if you use an NNTP server that supports XOVER (which is very nice, because it speeds things up considerably) which does not include the Xref header in its NOV lines. This is Evil, but all too common, alas, alack. Gnus tries to Do The Right Thing even with XOVER by registering the Xref lines of all articles you actually read, but if you kill the articles, or just mark them as read without reading them, Gnus will not get a chance to snoop the Xref lines out of these articles, and will be unable to use the cross reference mechanism.

To check whether your NNTP server includes the Xref header in its overview files, try "telnet your.nntp.server nntp", "MODE READER" on inn servers, and then say "LIST overview.fmt". This may not work, but if it does, and the last line you get does not read "Xref:full", then you should shout and whine at your news admin until she includes the Xref header in the overview files.

If you want Gnus to get the Xrefs right all the time, you have to set gnus-nov-is-evil to t, which slows things down considerably.

C'est la vie.

For an alternative approach, see "Duplicate Suppression" on page 120.

## 3.29 Duplicate Suppression

By default, Gnus tries to make sure that you don't have to read the same article more than once by utilizing the crossposting mechanism (see "Crosspost Handling" on page 120). However, that simple and efficient approach may not work satisfactory for some users for various reasons.

1. The NNTP server may fail to generate the Xref header. This is evil and not very common.
2. The NNTP server may fail to include the Xref header in the '.overview' data bases. This is evil and all too common, alas.
3. You may be reading the same group (or several related groups) from different NNTP servers.
4. You may be getting mail that duplicates articles posted to groups.

I'm sure there are other situations where Xref handling fails as well, but these four are the most common situations.

If, and only if, Xref handling fails for you, then you may consider switching on *duplicate suppression*. If you do so, Gnus will remember the Message-IDs of all articles you have read or otherwise marked as read, and then, as if by magic, mark them as read all subsequent times you see them—in *all* groups. Using this mechanism is quite likely to be somewhat inefficient, but not overly so. It's certainly preferable to reading the same articles more than once.

Duplicate suppression is not a very subtle instrument. It's more like a sledge hammer than anything else. It works in a very simple fashion—if you have marked an article as read, it adds this Message-ID to a cache. The next time it sees this Message-ID, it will mark the article as read with the "M" mark. It doesn't care what group it saw the article in.

gnus-suppress-duplicates If non-nil, suppress duplicates.

gnus-save-duplicate-list If non-nil, save the list of duplicates to a file. This will make startup and shutdown take longer, so the default is nil. However, this means that only duplicate articles read in a single Gnus session are suppressed.

gnus-duplicate-list-length This variable says how many Message-IDs to keep in the duplicate suppression list. The default is 10000.

gnus-duplicate-file The name of the file to store the duplicate suppression list in. The default is '~/News/suppression'.

If you have a tendency to stop and start Gnus often, setting gnus-save-duplicate-list to t is probably a good idea. If you leave Gnus running for weeks on end, you may have it nil. On the other hand, saving the list makes startup and shutdown much slower, so that means that if you stop and start Gnus often, you should set gnus-save-duplicate-list to nil. Uhm. I'll leave this up to you to figure out, I think.

## 3.30 Security

Gnus is able to verify signed messages or decrypt encrypted messages. The formats that are supported are PGP, PGP/MIME and S/MIME, however you need some external programs to get things to work:

1. To handle PGP and PGP/MIME messages, you have to install an OpenPGP implementation such as GnuPG. The Lisp interface to GnuPG included with Gnus is called PGG (see "Top, ,PGG, pgg, PGG Manual" on page ??), but Mailcrypt and gpg.el are also supported.

2. To handle S/MIME message, you need to install OpenSSL. OpenSSL 0.9.6 or newer is recommended.

More information on how to set things up can be found in the message manual (see "Security, ,Security, message, Message Manual" on page ??).

mm-verify-option Option of verifying signed parts. never, not verify; always, always verify; known, only verify known protocols. Otherwise, ask user.

mm-decrypt-option Option of decrypting encrypted parts. never, no decryption; always, always decrypt; known, only decrypt known protocols. Otherwise, ask user.

mml1991-use Symbol indicating elisp interface to OpenPGP implementation for PGP messages. The default is pgg, but mailcrypt and gpg are also supported although deprecated.

mml2015-use Symbol indicating elisp interface to OpenPGP implementation for PGP/MIME messages. The default is pgg, but mailcrypt and gpg are also supported although deprecated.

Snarfing OpenPGP keys (i.e., importing keys from articles into your key ring) is not supported explicitly through a menu item or command, rather Gnus do detect and label keys as "application/pgp-keys", allowing you to specify whatever action you think is appropriate through the usual MIME infrastructure. You can use a '~/.mailcap' entry (see "mailcap, , mailcap, emacs-mime, The Emacs MIME Manual" on page ??) such as the following to import keys using GNU Privacy Guard when you click on the MIME button (see "Using MIME" on page 127).

```
application/pgp-keys; gpg --import --interactive --verbose; needsterm
```

This happens to also be the default action defined in mailcap-mime-data.

## 3.31 Mailing List

Gnus understands some mailing list fields of RFC 2369. To enable it, add a to-list group parameter (see "Group Parameters" on page 25), possibly using 'A M' (gnus-mailing-list-insinuate) in the summary buffer.

That enables the following commands to the summary buffer:

'C-c C-n h' Send a message to fetch mailing list help, if List-Help field exists.

'C-c C-n s' Send a message to subscribe the mailing list, if List-Subscribe field exists.

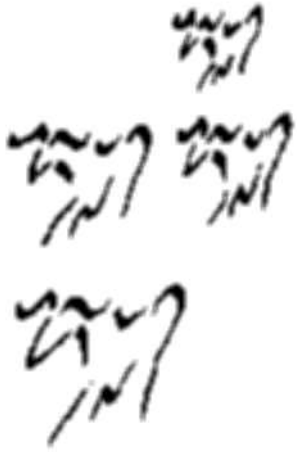
'C-c C-n u' Send a message to unsubscribe the mailing list, if List-Unsubscribe field exists.

'C-c C-n p' Post to the mailing list, if List-Post field exists.

'C-c C-n o' Send a message to the mailing list owner, if List-Owner field exists.

'C-c C-n a' Browse the mailing list archive, if List-Archive field exists.

# Article Buffer



The articles are displayed in the article buffer, of which there is only one. All the summary buffers share the same article buffer unless you tell Gnus otherwise.

## 4.1 Hiding Headers

The top section of each article is the *head*. (The rest is the *body*, but you may have guessed that already.)

There is a lot of useful information in the head: the name of the person who wrote the article, the date it was written and the subject of the article. That's well and nice, but there's also lots of information most people do not want to see—what systems the article has passed through before reaching you, the Message-ID, the References, etc. ad nauseam—and you'll probably want to get rid of some of those lines. If you want to keep all those lines in the article buffer, you can set gnus-show-all-headers to t.

Gnus provides you with two variables for sifting headers:

gnus-visible-headers If this variable is non-nil, it should be a regular expression that says what headers you wish to keep in the article buffer. All headers that do not match this variable will be hidden.

For instance, if you only want to see the name of the person who wrote the article and the subject, you'd say:

```
(setq gnus-visible-headers "^From:\\|^Subject:")
```

This variable can also be a list of regexps to match headers to remain visible.

gnus-ignored-headers This variable is the reverse of gnus-visible-headers. If this variable is set (and gnus-visible-headers is nil), it should be a regular expression that matches all lines that you want to hide. All lines that do not match this variable will remain visible.

For instance, if you just want to get rid of the References line and the Xref line, you might say:

```
(setq gnus-ignored-headers "^References:\\|^Xref:")
```

This variable can also be a list of regexps to match headers to be removed.

Note that if gnus-visible-headers is non-nil, this variable will have no effect.

Gnus can also sort the headers for you. (It does this by default.) You can control the sorting by setting the gnus-sorted-header-list variable. It is a list of regular expressions that says in what order the headers are to be displayed.

For instance, if you want the name of the author of the article first, and then the subject, you might say something like:

```
(setq gnus-sorted-header-list '("^From:" "^Subject:"))
```

Any headers that are to remain visible, but are not listed in this variable, will be displayed in random order after all the headers listed in this variable.

You can hide further boring headers by setting gnus-treat-hide-boring-headers to head. What this function does depends on the gnus-boring-article-headers variable. It's a list, but this list doesn't actually contain header names. Instead is lists various *boring conditions* that Gnus can check and remove from sight.

These conditions are:

empty Remove all empty headers.

followup-to Remove the Followup-To header if it is identical to the Newsgroups header.

reply-to Remove the Reply-To header if it lists the same address as the From header, or if the broken-reply-to group parameter is set.

newsgroups Remove the Newsgroups header if it only contains the current group name.

to-address Remove the To header if it only contains the address identical to the current group's to-address parameter.

to-list Remove the To header if it only contains the address identical to the current group's to-list parameter.

cc-list Remove the CC header if it only contains the address identical to the current group's to-list parameter.

date Remove the Date header if the article is less than three days old.

long-to Remove the To header if it is very long.

many-to Remove all To headers if there are more than one.

To include these three elements, you could say something like:

```
(setq gnus-boring-article-headers
      '(empty followup-to reply-to))
```

This is also the default value for this variable.

## 4.2 Using MIME

Mime is a standard for waving your hands through the air, aimlessly, while people stand around yawning.

MIME, however, is a standard for encoding your articles, aimlessly, while all newsreaders die of fear.

MIME may specify what character set the article uses, the encoding of the characters, and it also makes it possible to embed pictures and other naughty stuff in innocent-looking articles.

Gnus pushes MIME articles through gnus-display-mime-function to display the MIME parts. This is gnus-display-mime by default, which creates a bundle of clickable buttons that can be used to display, save and manipulate the MIME objects.

The following commands are available when you have placed point over a MIME button:

'RET (Article)'
'BUTTON-2 (Article)' Toggle displaying of the MIME object (gnus-article-press-button). If built-in viewers can not display the object, Gnus resorts to external viewers in the 'mailcap' files. If a viewer has the "copiousoutput" specification, the object is displayed inline.

'M-RET (Article)'
'v (Article)' Prompt for a method, and then view the MIME object using this method (gnus-mime-view-part).

't (Article)' View the MIME object as if it were a different MIME media type (gnus-mime-view-part-as-type).

'C (Article)' Prompt for a charset, and then view the MIME object using this charset (gnus-mime-view-part-as-charset).

'o (Article)' Prompt for a file name, and then save the MIME object (gnus-mime-save-part).

'C-o (Article)' Prompt for a file name, then save the MIME object and strip it from the article. Then proceed to article editing, where a reasonable suggestion is being made on how the altered article should look like. The stripped MIME object will be referred via the message/external-body MIME type. (gnus-mime-save-part-and-strip).

'd (Article)' Delete the MIME object from the article and replace it with some information about the removed MIME object (gnus-mime-delete-part).

'c (Article)' Copy the MIME object to a fresh buffer and display this buffer (gnus-mime-copy-part). Compressed files like '.gz' and '.bz2' are automatically decompressed if auto-compression-mode is enabled (see "Compressed Files,, Accessing Compressed Files, emacs, The Emacs Editor" on page ??).

'p (Article)' Print the MIME object (gnus-mime-print-part). This command respects the "print=" specifications in the '.mailcap' file.

'i (Article)' Insert the contents of the MIME object into the buffer (gnus-mime-inline-part) as text/plain. If given a prefix, insert the raw contents without decoding. If given a numerical prefix, you can do semi-manual charset stuff (see gnus-summary-show-article-charset-alist in "Paging the Article" on page 57).

'E (Article)' View the MIME object with an internal viewer. If no internal viewer is available, use an external viewer (gnus-mime-view-part-internally).

'e (Article)' View the MIME object with an external viewer. (gnus-mime-view-part-externally).

'— (Article)' Output the MIME object to a process (gnus-mime-pipe-part).

'. (Article)' Interactively run an action on the MIME object (gnus-mime-action-on-part).

Gnus will display some MIME objects automatically. The way Gnus determines which parts to do this with is described in the Emacs MIME manual.

It might be best to just use the toggling functions from the article buffer to avoid getting nasty surprises. (For instance, you enter the group "alt.sing-a-long" and, before you know it, MIME has decoded the sound file in the article and some horrible sing-a-long song comes screaming out your speakers, and you can't find the volume button, because there isn't one, and people are starting to look at you, and you try to stop the program, but you can't, and you can't find the program to control the volume, and everybody else in the room suddenly decides to look at you disdainfully, and you'll feel rather stupid.)

Any similarity to real events and people is purely coincidental. Ahem.

Also see "MIME Commands" on page 104.

## 4.3 Customizing Articles

A slew of functions for customizing how the articles are to look like exist. You can call these functions interactively (see "Article Washing" on page 95), or you can have them called automatically when you select the articles.

To have them called automatically, you should set the corresponding "treatment" variable. For instance, to have headers hidden, you'd set gnus-treat-hide-headers. Below is a list of variables that can be set, but first we discuss the values these variables can have.

Note: Some values, while valid, make little sense. Check the list below for sensible values.

1. nil: Don't do this treatment.

2. t: Do this treatment on all body parts.
3. head: Do the treatment on the headers.
4. last: Do this treatment on the last part.
5. An integer: Do this treatment on all body parts that have a length less than this number.
6. A list of strings: Do this treatment on all body parts that are in articles that are read in groups that have names that match one of the regexps in the list.
7. A list where the first element is not a string:

   The list is evaluated recursively. The first element of the list is a predicate. The following predicates are recognized: or, and, not and typep. Here's an example:

```
(or last
    (typep "text/x-vcard"))
```

You may have noticed that the word *part* is used here. This refers to the fact that some messages are MIME multipart articles that may be divided into several parts. Articles that are not multiparts are considered to contain just a single part.

Are the treatments applied to all sorts of multipart parts? Yes, if you want to, but by default, only "text/plain" parts are given the treatment. This is controlled by the gnus-article-treat-types variable, which is a list of regular expressions that are matched to the type of the part. This variable is ignored if the value of the controlling variable is a predicate list, as described above.

The following treatment options are available. The easiest way to customize this is to examine the gnus-article-treat customization group. Values in parenthesis are suggested sensible values. Others are possible but those listed are probably sufficient for most people.

gnus-treat-buttonize (t, integer)

gnus-treat-buttonize-head (head) See "Article Buttons" on page 99.

gnus-treat-capitalize-sentences (t, integer)

gnus-treat-overstrike (t, integer)

gnus-treat-strip-cr (t, integer)

gnus-treat-strip-headers-in-body (t, integer)

gnus-treat-strip-leading-blank-lines (t, integer)

gnus-treat-strip-multiple-blank-lines (t, integer)

gnus-treat-strip-pem (t, last, integer)

gnus-treat-strip-trailing-blank-lines (t, last, integer)

gnus-treat-unsplit-urls (t, integer)

gnus-treat-wash-html (t, integer) See "Article Washing" on page 95.

gnus-treat-date-english (head)

gnus-treat-date-iso8601 (head)

gnus-treat-date-lapsed (head)

gnus-treat-date-local (head)

gnus-treat-date-original (head)

gnus-treat-date-user-defined (head)

gnus-treat-date-ut (head) See "Article Date" on page 101.

gnus-treat-from-picon (head)

gnus-treat-mail-picon (head)

gnus-treat-newsgroups-picon (head) See "Picons" on page 343.

gnus-treat-display-smileys (t, integer)

gnus-treat-body-boundary (head) Adds a delimiter between header and body, the string used as delimiter is controlled by gnus-body-boundary-delimiter.

See "Smileys" on page 343.

gnus-treat-display-x-face (head) See "X-Face" on page 341.

gnus-treat-display-face (head) See "Face" on page 342.

gnus-treat-emphasize (t, head, integer)

gnus-treat-fill-article (t, integer)

gnus-treat-fill-long-lines (t, integer)

gnus-treat-hide-boring-headers (head)

gnus-treat-hide-citation (t, integer)

gnus-treat-hide-citation-maybe (t, integer)

gnus-treat-hide-headers (head)

gnus-treat-hide-signature (t, last)

gnus-treat-strip-banner (t, last)

gnus-treat-strip-list-identifiers (head) See "Article Hiding" on page 93.

gnus-treat-highlight-citation (t, integer)

gnus-treat-highlight-headers (head)

gnus-treat-highlight-signature (t, last, integer) See "Article Highlighting" on page 92.

gnus-treat-play-sounds

gnus-treat-translate

gnus-treat-x-pgp-sig (head)

gnus-treat-unfold-headers (head)

gnus-treat-fold-headers (head)

gnus-treat-fold-newsgroups (head)

gnus-treat-leading-whitespace (head) See "Article Header" on page 98.

You can, of course, write your own functions to be called from gnus-part-display-hook. The functions are called narrowed to the part, and you can do anything you like, pretty much. There is no information that you have to keep in the buffer—you can change everything.

## 4.4 Article Keymap

Most of the keystrokes in the summary buffer can also be used in the article buffer. They should behave as if you typed them in the summary buffer, which means that you don't actually have to have a summary buffer displayed while reading. You can do it all from the article buffer.

A few additional keystrokes are available:

'SPACE' Scroll forwards one page (gnus-article-next-page). This is exactly the same as 'h SPACE h'.

'DEL' Scroll backwards one page (gnus-article-prev-page). This is exactly the same as 'h DEL h'.

'C-c ^' If point is in the neighborhood of a Message-ID and you press 'C-c ^', Gnus will try to get that article from the server (gnus-article-refer-article).

'C-c C-m' Send a reply to the address near point (gnus-article-mail). If given a prefix, include the mail.

's' Reconfigure the buffers so that the summary buffer becomes visible (gnus-article-show-summary).

'?' Give a very brief description of the available keystrokes (gnus-article-describe-briefly).

'TAB' Go to the next button, if any (gnus-article-next-button). This only makes sense if you have buttonizing turned on.

'M-TAB' Go to the previous button, if any (gnus-article-prev-button).

'R' Send a reply to the current article and yank the current article (gnus-article-reply-with-original). If given a prefix, make a wide reply. If the region is active, only yank the text in the region.

'F' Send a followup to the current article and yank the current article (gnus-article-followup-with-original). If given a prefix, make a wide reply. If the region is active, only yank the text in the region.

## 4.5 Misc Article

gnus-single-article-buffer If non-nil, use the same article buffer for all the groups. (This is the default.) If nil, each group will have its own article buffer.

gnus-article-decode-hook Hook used to decode MIME articles. The default value is (article-decode-charset article-decode-encoded-words)

gnus-article-prepare-hook This hook is called right after the article has been inserted into the article buffer. It is mainly intended for functions that do something depending on the contents; it should probably not be used for changing the contents of the article buffer.

gnus-article-mode-hook Hook called in article mode buffers.

gnus-article-mode-syntax-table Syntax table used in article buffers. It is initialized from text-mode-syntax-table.

gnus-article-over-scroll If non-nil, allow scrolling the article buffer even when there no more new text to scroll in. The default is nil.

gnus-article-mode-line-format This variable is a format string along the same lines as gnus-summary-mode-line-format (see "Mode Line Formatting" on page 326). It accepts the same format specifications as that variable, with two extensions:

"w" The *wash status* of the article. This is a short string with one character for each possible article wash operation that may have been performed. The characters and their meaning:

"c" Displayed when cited text may be hidden in the article buffer.

"h" Displayed when headers are hidden in the article buffer.

"p" Displayed when article is digitally signed or encrypted, and Gnus has hidden the security headers. (N.B. does not tell anything about security status, i.e. good or bad signature.)

"s" Displayed when the signature has been hidden in the Article buffer.

"o" Displayed when Gnus has treated overstrike characters in the article buffer.

"e" Displayed when Gnus has treated emphasised strings in the article buffer.

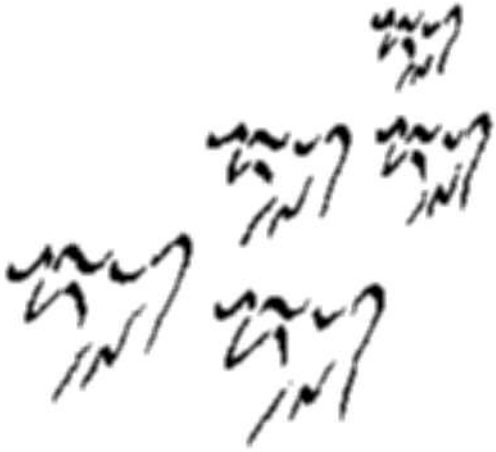
"m" The number of MIME parts in the article.

gnus-break-pages Controls whether *page breaking* is to take place. If this variable is non-nil, the articles will be divided into pages whenever a page delimiter appears in the article. If this variable is nil, paging will not be done.

gnus-page-delimiter This is the delimiter mentioned above. By default, it is "^L" (formfeed).

gnus-use-idna This variable controls whether Gnus performs IDNA decoding of internationalized domain names inside "From", "To" and "Cc" headers. This requires http://www.gnu.org/software/libidn/, GNU Libidn, and this variable is only enabled if you have installed it.

# Composing Messages



All commands for posting and mailing will put you in a message buffer where you can edit the article all you like, before you send the article by pressing 'C-c C-c'. See "Top, , Overview, message, Message Manual" on page ??. Where the message will be posted/mailed to depends on your setup (see "Posting Server" on page 136).

Also see "Canceling and Superseding" on page 61 for information on how to remove articles you shouldn't have posted.

## 5.1 Mail

Variables for customizing outgoing mail:

gnus-uu-digest-headers List of regexps to match headers included in digested messages. The headers will be included in the sequence they are matched. If nil include all headers.

gnus-add-to-list If non-nil, add a to-list group parameter to mail groups that have none when you do a 'a'.

gnus-confirm-mail-reply-to-news This can also be a function receiving the group name as the only parameter which should return non-nil if a confirmation is needed, or a regular expression matching group names, where confirmation is should be asked for.

If you find yourself never wanting to reply to mail, but occasionally press R anyway, this variable might be for you.

gnus-confirm-treat-mail-like-news If non-nil, Gnus also requests confirmation according to gnus-confirm-mail-reply-to-news when replying to mail. This is useful for treating mailing lists like newsgroups.

## 5.2 Posting Server

When you press those magical 'C-c C-c' keys to ship off your latest (extremely intelligent, of course) article, where does it go?

Thank you for asking. I hate you.

It can be quite complicated.

When posting news, Message usually invokes message-send-news (see "News Variables, , News Variables, message, Message Manual" on page ??). Normally, Gnus will post using the same select method as you're reading from (which might be convenient if you're reading lots of groups from different private servers). However. If the server you're reading from doesn't allow posting, just reading, you probably want to use some other server to post your (extremely intelligent and fabulously interesting) articles. You can then set the gnus-post-method to some other method:

```
(setq gnus-post-method '(nnspool ""))
```

Now, if you've done this, and then this server rejects your article, or this server is down, what do you do then? To override this variable you can use a non-zero prefix to the 'C-c C-c' command to force using the "current" server, to get back the default behavior, for posting.

If you give a zero prefix (i.e., 'C-u 0 C-c C-c') to that command, Gnus will prompt you for what method to use for posting.

You can also set gnus-post-method to a list of select methods. If that's the case, Gnus will always prompt you for what method to use for posting.

Finally, if you want to always post using the native select method, you can set this variable to native.

When sending mail, Message invokes message-send-mail-function. The default function, message-send-mail-with-sendmail, pipes your article to the sendmail binary for further queuing and sending. When your local system is not configured for sending mail using sendmail, and you have access to a remote SMTP server, you can set message-send-mail-function to smtpmail-send-it and make sure to setup the smtpmail package correctly. An example:

```
(setq message-send-mail-function 'smtpmail-send-it
      smtpmail-default-smtp-server "YOUR SMTP HOST")
```

To the thing similar to this, there is message-smtpmail-send-it. It is useful if your ISP requires the POP-before-SMTP authentication. See the documentation for the function mail-source-touch-pop.

Other possible choices for message-send-mail-function includes message-send-mail-with-mh, message-send-mail-with-qmail, and feedmail-send-it.

## 5.3 Mail and Post

Here's a list of variables relevant to both mailing and posting:

gnus-mailing-list-groups If your news server offers groups that are really mailing lists gatewayed to the NNTP server, you can read those groups without problems, but you can't post/followup to them without some difficulty. One solution is to add a to-address to the group parameters (see "Group Parameters" on page 25). An easier thing to do is set the gnus-mailing-list-groups to a regexp that matches the groups that really are mailing lists. Then, at least, followups to the mailing lists will work most of the time. Posting to these groups ('a') is still a pain, though.

gnus-user-agent This variable controls which information should be exposed in the User-Agent header. It can be one of the symbols gnus (show only Gnus version), emacs-gnus (show only Emacs and Gnus versions), emacs-gnus-config (same as emacs-gnus plus system configuration), emacs-gnus-type (same as emacs-gnus plus system type) or a custom string. If you set it to a string, be sure to use a valid format, see RFC 2616.

You may want to do spell-checking on messages that you send out. Or, if you don't want to spell-check by hand, you could add automatic spell-checking via the ispell package:

```
(add-hook 'message-send-hook 'ispell-message)
```

If you want to change the ispell dictionary based on what group you're in, you could say something like the following:

```
(add-hook 'gnus-select-group-hook
          (lambda ()
            (cond
             ((string-match
               "^de\\." (gnus-group-real-name gnus-newsgroup-name))
              (ispell-change-dictionary "deutsch"))
             (t
              (ispell-change-dictionary "english")))))
```

Modify to suit your needs.

## 5.4 Archived Messages

Gnus provides a few different methods for storing the mail and news you send. The default method is to use the *archive virtual server* to store the messages. If you want to disable this completely, the gnus-message-archive-group variable should be nil, which is the default.

For archiving interesting messages in a group you read, see the 'B c' (gnus-summary-copy-article) command (see "Mail Group Commands" on page 114).

gnus-message-archive-method says what virtual server Gnus is to use to store sent messages. The default is:

```
(nnfolder "archive"
          (nnfolder-directory   "~/Mail/archive")
          (nnfolder-active-file "~/Mail/archive/active")
          (nnfolder-get-new-mail nil)
          (nnfolder-inhibit-expiry t))
```

You can, however, use any mail select method (nnml, nnmbox, etc.). nnfolder is a quite likable select method for doing this sort of thing, though. If you don't like the default directory chosen, you could say something like:

```
(setq gnus-message-archive-method
      '(nnfolder "archive"
                 (nnfolder-inhibit-expiry t)
                 (nnfolder-active-file "~/News/sent-mail/active")
                 (nnfolder-directory "~/News/sent-mail/")))
```

Gnus will insert Gcc headers in all outgoing messages that point to one or more group(s) on that server. Which group to use is determined by the gnus-message-archive-group variable.

This variable can be used to do the following:

a string Messages will be saved in that group.

Note that you can include a select method in the group name, then the message will not be stored in the select method given by gnus-message-archive-method, but in the select method specified by the group name, instead. Suppose gnus-message-archive-method has the default value shown above. Then setting gnus-message-archive-group to "foo" means that outgoing messages are stored in "nnfolder+archive:foo", but if you use the value "nnml:foo", then outgoing messages will be stored in "nnml:foo".

a list of strings Messages will be saved in all those groups.

an alist of regexps, functions and forms When a key "matches", the result is used.

nil No message archiving will take place. This is the default.

Let's illustrate:

Just saving to a single group called "MisK":

```
(setq gnus-message-archive-group "MisK")
```

Saving to two groups, "MisK" and "safe":

```
(setq gnus-message-archive-group '("MisK" "safe"))
```

Save to different groups based on what group you are in:

```
(setq gnus-message-archive-group
      '(("^alt" "sent-to-alt")
        ("mail" "sent-to-mail")
        (".*" "sent-to-misc")))
```

More complex stuff:

```
(setq gnus-message-archive-group
      '((if (message-news-p)
            "misc-news"
          "misc-mail")))
```

How about storing all news messages in one file, but storing all mail messages in one file per month:

```
(setq gnus-message-archive-group
      '((if (message-news-p)
            "misc-news"
          (concat "mail." (format-time-string "%Y-%m")))))
```

Now, when you send a message off, it will be stored in the appropriate group. (If you want to disable storing for just one particular message, you can just remove the Gcc header that has been inserted.) The archive group will appear in the group buffer the next time you start Gnus, or the next time you press 'F' in the group buffer. You can enter it and read the articles in it just like you'd read any other group. If the group gets really big and annoying, you can simply rename if (using 'G r' in the group buffer) to something nice—"misc-mail-september-1995", or whatever. New messages will continue to be stored in the old (now empty) group.

That's the default method of archiving sent messages. Gnus offers a different way for the people who don't like the default method. In that case you should set gnus-message-archive-group to nil; this will disable archiving.

gnus-outgoing-message-group All outgoing messages will be put in this group. If you want to store all your outgoing mail and articles in the group "nnml:archive", you set this variable to that value. This variable can also be a list of group names.

If you want to have greater control over what group to put each message in, you can set this variable to a function that checks the current newsgroup name and then returns a suitable group name (or list of names).

This variable can be used instead of gnus-message-archive-group, but the latter is the preferred method.

gnus-gcc-mark-as-read If non-nil, automatically mark Gcc articles as read.

gnus-gcc-externalize-attachments If nil, attach files as normal parts in Gcc copies; if a regexp and matches the Gcc group name, attach files as external parts; if it is all, attach local files as external parts; if it is other non-nil, the behavior is the same as all, but it may be changed in the future.

## 5.5 Posting Styles

All them variables, they make my head swim.

So what if you want a different Organization and signature based on what groups you post to? And you post both from your home machine and your work machine, and you want different From lines, and so on?

One way to do stuff like that is to write clever hooks that change the variables you need to have changed. That's a bit boring, so somebody came up with the bright idea of letting the user specify these things in a handy alist. Here's an example of a gnus-posting-styles variable:

```
((".*"
  (signature "Peace and happiness")
  (organization "What me?"))
```

```
("^comp"
 (signature "Death to everybody"))
("comp.emacs.i-love-it"
 (organization "Emacs is it")))
```

As you might surmise from this example, this alist consists of several *styles*. Each style will be applicable if the first element "matches", in some form or other. The entire alist will be iterated over, from the beginning towards the end, and each match will be applied, which means that attributes in later styles that match override the same attributes in earlier matching styles. So "comp.programming.literate" will have the "Death to everybody" signature and the "What me?" Organization header.

The first element in each style is called the match. If it's a string, then Gnus will try to regexp match it against the group name. If it is the form (header match regexp), then Gnus will look in the original article for a header whose name is match and compare that regexp. match and regexp are strings. (The original article is the one you are replying or following up to. If you are not composing a reply or a followup, then there is nothing to match against.) If the match is a function symbol, that function will be called with no arguments. If it's a variable symbol, then the variable will be referenced. If it's a list, then that list will be evaled. In any case, if this returns a non-nil value, then the style is said to *match*.

Each style may contain an arbitrary amount of *attributes*. Each attribute consists of a (name value) pair. The attribute name can be one of:

- 
- 
- 
- 
- 
- 

The attribute name can also be a string or a symbol. In that case, this will be used as a header name, and the value will be inserted in the headers of the article; if the value is nil, the header name will be removed. If the attribute name is eval, the form is evaluated, and the result is thrown away.

The attribute value can be a string (used verbatim), a function with zero arguments (the return value will be used), a variable (its value will be used) or a list (it will be evaled and the return value will be used). The functions and sexps are called/evaled in the message buffer that is being set up. The headers of the current article are available through the message-reply-headers variable, which is a vector of the following headers: number subject from date id references chars lines xref extra.

If you wish to check whether the message you are about to compose is meant to be a news article or a mail message, you can check the values of the message-news-p and message-mail-p functions.

So here's a new example:

```
(setq gnus-posting-styles
      '((".*"
         (signature-file "~/.signature")
         (name "User Name")
         ("X-Home-Page" (getenv "WWW_HOME"))
         (organization "People's Front Against MWM"))
        ("^rec.humor"
         (signature my-funny-signature-randomizer))
        ((equal (system-name) "gnarly")  ;; \gnusr{A form}
         (signature my-quote-randomizer))
        (message-news-p        ;; \gnusr{A function symbol}
         (signature my-news-signature))
        (window-system         ;; \gnusr{A value symbol}
         ("X-Window-System" (format "%s" window-system)))
        ;; \gnusr{If I'm replying to Larsi, set the Organization head
        ((header "from" "larsi.*org")
         (Organization "Somewhere, Inc."))
        ((posting-from-work-p) ;; \gnusr{A user defined function}
         (signature-file "~/.work-signature")
         (address "user@bar.foo")
         (body "You are fired.\n\nSincerely, your boss.")
         (organization "Important Work, Inc"))
        ("nnml:.*"
         (From (save-excursion
                 (set-buffer gnus-article-buffer)
                 (message-fetch-field "to"))))
        ("^nn.+:"
         (signature-file "~/.mail-signature"))))
```

The "nnml:.*" rule means that you use the To address as the From address in all your outgoing replies, which might be handy if you fill many roles.

## 5.6 Drafts

If you are writing a message (mail or news) and suddenly remember that you have a steak in the oven (or some pesto in the food processor, you craaazy vegetarians), you'll probably wish there was a method to save the message you are writing so that you can continue editing it some other day, and send it when you feel its finished.

Well, don't worry about it. Whenever you start composing a message of some sort using the Gnus mail and post commands, the buffer you get will automatically associate to an article in a special *draft* group. If you save the buffer the normal way ('C-x C-s', for instance), the article will be saved there. (Auto-save files also go to the draft group.)

The draft group is a special group (which is implemented as an nndraft group, if you absolutely have to know) called "nndraft:drafts". The variable nndraft-directory says where nndraft is to store its files. What makes this group special is that you can't tick any articles in it or mark any articles as read—all articles in the group are permanently unread.

If the group doesn't exist, it will be created and you'll be subscribed to it. The only way to make it disappear from the Group buffer is to unsubscribe it. The special properties of the draft group comes from a group property (see "Group Parameters" on page 25), and if lost the group behaves like any other group. This means the commands below will not be available. To restore the special properties of the group, the simplest way is to kill the group, using 'C-k', and restart Gnus. The group is automatically created again with the correct parameters. The content of the group is not lost.

When you want to continue editing the article, you simply enter the draft group and push 'D e' (gnus-draft-edit-message) to do that. You will be placed in a buffer where you left off.

Rejected articles will also be put in this draft group (see "Rejected Articles" on page 143).

If you have lots of rejected messages you want to post (or mail) without doing further editing, you can use the 'D s' command (gnus-draft-send-message). This command understands the process/prefix convention (see "Process/Prefix" on page 324). The 'D S' command (gnus-draft-send-all-messages) will ship off all messages in the buffer.

If you have some messages that you wish not to send, you can use the 'D t' (gnus-draft-toggle-sending) command to mark the message as unsendable. This is a toggling command.

## 5.7 Rejected Articles

Sometimes a news server will reject an article. Perhaps the server doesn't like your face. Perhaps it just feels miserable. Perhaps *there be demons*. Perhaps you have included too much cited text. Perhaps the disk is full. Perhaps the server is down.

These situations are, of course, totally beyond the control of Gnus. (Gnus, of course, loves the way you look, always feels great, has angels fluttering around inside of it, doesn't care about how much cited text you include, never runs full and never goes down.) So Gnus saves these articles until some later time when the server feels better.

The rejected articles will automatically be put in a special draft group (see

"Drafts" on page 142). When the server comes back up again, you'd then typically enter that group and send all the articles off.

## 5.8 Signing and encrypting

Gnus can digitally sign and encrypt your messages, using vanilla PGP format or PGP/MIME or S/MIME. For decoding such messages, see the mm-verify-option and mm-decrypt-option options (see "Security" on page 268).

Often, you would like to sign replies to people who send you signed messages. Even more often, you might want to encrypt messages which are in reply to encrypted messages. Gnus offers gnus-message-replysign to enable the former, and gnus-message-replyencrypt for the latter. In addition, setting gnus-message-replysignencrypted (on by default) will sign automatically encrypted messages.

Instructing MML to perform security operations on a MIME part is done using the 'C-c C-m s' key map for signing and the 'C-c C-m c' key map for encryption, as follows.

'C-c C-m s s' Digitally sign current message using S/MIME.

'C-c C-m s o' Digitally sign current message using PGP.

'C-c C-m s p' Digitally sign current message using PGP/MIME.

'C-c C-m c s' Digitally encrypt current message using S/MIME.

'C-c C-m c o' Digitally encrypt current message using PGP.

'C-c C-m c p' Digitally encrypt current message using PGP/MIME.

'C-c C-m C-n' Remove security related MML tags from message.

See "Security, ,Security, message, Message Manual" on page **??**, for more information.

# Select Methods

A *foreign group* is a group not read by the usual (or default) means. It could be, for instance, a group from a different NNTP server, it could be a virtual group, or it could be your own personal mail group.

A foreign group (or any group, really) is specified by a *name* and a *select method*. To take the latter first, a select method is a list where the first element says what back end to use (e.g. nntp, nnspool, nnml) and the second element is the *server name*. There may be additional elements in the select method, where the value may have special meaning for the back end in question.

One could say that a select method defines a *virtual server*—so we do just that (see "Server Buffer" on page 146).

The *name* of the group is the name the back end will recognize the group as.

For instance, the group "soc.motss" on the NNTP server "some.where.edu" will have the name "soc.motss" and select method (nntp "some.where.edu"). Gnus will call this group "nntp+some.where.edu:soc.motss", even though the nntp back end just knows this group as "soc.motss".

The different methods all have their peculiarities, of course.

## 6.1 Server Buffer

Traditionally, a *server* is a machine or a piece of software that one connects to, and then requests information from. Gnus does not connect directly to any real servers, but does all transactions through one back end or other. But that's just putting one layer more between the actual media and Gnus, so we might just as well say that each back end represents a virtual server.

For instance, the nntp back end may be used to connect to several different actual NNTP servers, or, perhaps, to many different ports on the same actual NNTP server. You tell Gnus which back end to use, and what parameters to set by specifying a *select method*.

These select method specifications can sometimes become quite complicated—say, for instance, that you want to read from the NNTP server "news.funet.fi" on port number 13, which hangs if queried for NOV headers and has a buggy select. Ahem. Anyway, if you had to specify that for each group that used this server, that would be too much work, so Gnus offers a way of naming select methods, which is what you do in the server buffer.

To enter the server buffer, use the '^' (gnus-group-enter-server-mode) command in the group buffer.

gnus-server-mode-hook is run when creating the server buffer.

### 6.1.1 Server Buffer Format

You can change the look of the server buffer lines by changing the gnus-server-line-format variable. This is a format-like variable, with some simple extensions:

"h" How the news is fetched—the back end name.

"n" The name of this server.

"w" Where the news is to be fetched from—the address.

"s" The opened/closed/denied status of the server.

The mode line can also be customized by using the gnus-server-mode-line-format variable (see "Mode Line Formatting" on page 326). The following specs are understood:

"S" Server name.

"M" Server method.

Also see "Formatting Variables" on page 325.

### 6.1.2 Server Commands

'a' Add a new server (gnus-server-add-server).

'e' Edit a server (gnus-server-edit-server).

'SPACE' Browse the current server (gnus-server-read-server).

'q' Return to the group buffer (gnus-server-exit).

'k' Kill the current server (gnus-server-kill-server).

'y' Yank the previously killed server (gnus-server-yank-server).

'c' Copy the current server (gnus-server-copy-server).

'l' List all servers (gnus-server-list-servers).

's' Request that the server scan its sources for new articles (gnus-server-scan-server). This is mainly sensible with mail servers.

'g' Request that the server regenerate all its data structures (gnus-server-regenerate-server). This can be useful if you have a mail back end that has gotten out of sync.

### 6.1.3 Example Methods

Most select methods are pretty simple and self-explanatory:

```
(nntp "news.funet.fi")
```

Reading directly from the spool is even simpler:

```
(nnspool "")
```

As you can see, the first element in a select method is the name of the back end, and the second is the *address*, or *name*, if you will.

After these two elements, there may be an arbitrary number of (variable form) pairs.

To go back to the first example—imagine that you want to read from port 15 on that machine. This is what the select method should look like then:

```
(nntp "news.funet.fi" (nntp-port-number 15))
```

You should read the documentation to each back end to find out what variables are relevant, but here's an nnmh example:

nnmh is a mail back end that reads a spool-like structure. Say you have two structures that you wish to access: One is your private mail spool, and the other is a public one. Here's the possible spec for your private mail:

```
(nnmh "private" (nnmh-directory "~/private/mail/"))
```

(This server is then called "private", but you may have guessed that.)

Here's the method for a public spool:

```
(nnmh "public"
      (nnmh-directory "/usr/information/spool/")
      (nnmh-get-new-mail nil))
```

If you are behind a firewall and only have access to the NNTP server from the firewall machine, you can instruct Gnus to rlogin on the firewall machine and telnet from there to the NNTP server. Doing this can be rather fiddly, but your virtual server definition should probably look something like this:

```
(nntp "firewall"
      (nntp-open-connection-function nntp-open-via-rlogin-and-telnet)
      (nntp-via-address "the.firewall.machine")
      (nntp-address "the.real.nntp.host")
      (nntp-end-of-line "\n"))
```

If you want to use the wonderful ssh program to provide a compressed connection over the modem line, you could add the following configuration to the example above:

```
      (nntp-via-rlogin-command "ssh")
```

See also nntp-via-rlogin-command-switches.

If you're behind a firewall, but have direct access to the outside world through a wrapper command like "runsocks", you could open a socksified telnet connection to the news server as follows:

```
(nntp "outside"
      (nntp-pre-command "runsocks")
      (nntp-open-connection-function nntp-open-via-telnet)
      (nntp-address "the.news.server")
      (nntp-end-of-line "\n"))
```

This means that you have to have set up ssh-agent correctly to provide automatic authorization, of course. And to get a compressed connection, you have to have the "Compression" option in the ssh 'config' file.

### 6.1.4 Creating a Virtual Server

If you're saving lots of articles in the cache by using persistent articles, you may want to create a virtual server to read the cache.

First you need to add a new server. The 'a' command does that. It would probably be best to use nnml to read the cache. You could also use nnspool or nnmh, though.

Type 'a nnml RET cache RET'.

You should now have a brand new nnml virtual server called "cache". You now need to edit it to have the right definitions. Type 'e' to edit the server. You'll be entered into a buffer that will contain the following:

```
(nnml "cache")
```

Change that to:

```
(nnml "cache"
         (nnml-directory "~/News/cache/")
         (nnml-active-file "~/News/cache/active"))
```

Type 'C-c C-c' to return to the server buffer. If you now press 'RET' over this virtual server, you should be entered into a browse buffer, and you should be able to enter any of the groups displayed.

### 6.1.5 Server Variables

One sticky point when defining variables (both on back ends and in Emacs in general) is that some variables are typically initialized from other variables when the definition of the variables is being loaded. If you change the "base" variable after the variables have been loaded, you won't change the "derived" variables.

This typically affects directory and file variables. For instance, nnml-directory is '~/Mail/' by default, and all nnml directory variables are initialized from that variable, so nnml-active-file will be '~/Mail/active'. If you define a new virtual nnml server, it will *not* suffice to set just nnml-directory—you have to explicitly set all the file variables to be what you want them to be. For a complete list of variables for each back end, see each back end's section later in this manual, but here's an example nnml definition:

```
(nnml "public"
      (nnml-directory "~/my-mail/")
      (nnml-active-file "~/my-mail/active")
      (nnml-newsgroups-file "~/my-mail/newsgroups"))
```

Server variables are often called *server parameters*.

### 6.1.6 Servers and Methods

Wherever you would normally use a select method (e.g. gnus-secondary-select-method, in the group select method, when browsing a foreign server) you can use a virtual server name instead. This could potentially save lots of typing. And it's nice all over.

### 6.1.7 Unavailable Servers

If a server seems to be unreachable, Gnus will mark that server as denied. That means that any subsequent attempt to make contact with that server will just be ignored. "It can't be opened," Gnus will tell you, without making the least effort to see whether that is actually the case or not.

That might seem quite naughty, but it does make sense most of the time. Let's say you have 10 groups subscribed to on server "nephelococcygia.com". This server is located somewhere quite far away from you and the machine is quite slow, so it takes 1 minute just to find out that it refuses connection to you today. If Gnus were to attempt to do that 10 times, you'd be quite annoyed, so Gnus won't attempt to do that. Once it has gotten a single "connection refused", it will regard that server as "down".

So, what happens if the machine was only feeling unwell temporarily? How do you test to see whether the machine has come up again?

You jump to the server buffer (see "Server Buffer" on page 146) and poke it with the following commands:

'O' Try to establish connection to the server on the current line (gnus-server-open-server).

'C' Close the connection (if any) to the server (gnus-server-close-server).

'D' Mark the current server as unreachable (gnus-server-deny-server).

'M-o' Open the connections to all servers in the buffer (gnus-server-open-all-servers).

'M-c' Close the connections to all servers in the buffer (gnus-server-close-all-servers).

'R' Remove all marks to whether Gnus was denied connection from any servers (gnus-server-remove-denials).

'L' Set server status to offline (gnus-server-offline-server).

## 6.2 Getting News

A newsreader is normally used for reading news. Gnus currently provides only two methods of getting news—it can read from an NNTP server, or it can read from a local spool.

### 6.2.1 NNTP

Subscribing to a foreign group from an NNTP server is rather easy. You just specify nntp as method and the address of the NNTP server as the, uhm, address.

If the NNTP server is located at a non-standard port, setting the third element of the select method to this port number should allow you to connect to the right port. You'll have to edit the group info for that (see "Foreign Groups" on page 23).

The name of the foreign group can be the same as a native group. In fact, you can subscribe to the same group from as many different servers you feel like. There will be no name collisions.

The following variables can be used to create a virtual nntp server:

nntp-server-opened-hook is run after a connection has been made. It can be used to send commands to the NNTP server after it has been contacted. By default it sends the command MODE READER to the server with the nntp-send-mode-reader function. This function should always be present in this hook.

nntp-authinfo-function This function will be used to send "AUTHINFO" to the NNTP server. The default function is nntp-send-authinfo, which looks through your '~/.authinfo' (or whatever you've set the nntp-authinfo-file variable to) for applicable entries. If none are found, it will prompt you for a login name and a password. The format of the '~/.authinfo' file is (almost) the same as the ftp '~/.netrc' file, which is defined in the ftp manual page, but here are the salient facts:

1. The file contains one or more line, each of which define one server.
2. Each line may contain an arbitrary number of token/value pairs.
   The valid tokens include "machine", "login", "password", "default". In addition Gnus introduces two new tokens, not present in the original '.netrc'/ftp syntax, namely "port" and "force". (This is the only way the '.authinfo' file format deviates from the '.netrc' file format.) "port" is used to indicate what port on the server the credentials apply to and "force" is explained below.

Here's an example file:

```
machine news.uio.no login larsi password geheimnis
machine nntp.ifi.uio.no login larsi force yes
```

The token/value pairs may appear in any order; "machine" doesn't have to be first, for instance.

In this example, both login name and password have been supplied for the former server, while the latter has only the login name listed, and the user will be prompted for the password. The latter also has the "force" tag, which means that the authinfo will be sent to the nntp server upon connection; the default (i.e., when there is not "force" tag) is to not send authinfo to the nntp server until the nntp server asks for it.

You can also add "default" lines that will apply to all servers that don't have matching "machine" lines.

```
default force yes
```

This will force sending "AUTHINFO" commands to all servers not previously mentioned.

Remember to not leave the '~/.authinfo' file world-readable.

nntp-server-action-alist This is a list of regexps to match on server types and actions to be taken when matches are made. For instance, if you want Gnus to beep every time you connect to innd, you could say something like:

```
(setq nntp-server-action-alist
      '(("innd" (ding))))
```

You probably don't want to do that, though.

The default value is

```
'(("nntpd 1\\.5\\.11t"
   (remove-hook 'nntp-server-opened-hook
                'nntp-send-mode-reader)))
```

This ensures that Gnus doesn't send the MODE READER command to nntpd 1.5.11t, since that command chokes that server, I've been told.

nntp-maximum-request If the NNTP server doesn't support NOV headers, this back end will collect headers by sending a series of head commands. To speed things up, the back end sends lots of these commands without waiting for reply, and then reads all the replies. This is controlled by the nntp-maximum-request variable, and is 400 by default. If your network is buggy, you should set this to 1.

nntp-connection-timeout If you have lots of foreign nntp groups that you connect to regularly, you're sure to have problems with NNTP servers not responding properly, or being too loaded to reply within reasonable time. This is can lead to awkward problems, which can be helped somewhat by setting nntp-connection-timeout. This is an integer that says how many seconds the nntp back end should wait for a connection before giving up. If it is nil, which is the default, no timeouts are done.

nntp-server-hook This hook is run as the last step when connecting to an NNTP server.

nntp-buggy-select Set this to non-nil if your select routine is buggy.

nntp-nov-is-evil If the NNTP server does not support NOV, you could set this variable to t, but nntp usually checks automatically whether NOV can be used.

nntp-xover-commands List of strings used as commands to fetch NOV lines from a server. The default value of this variable is ("XOVER" "XOVERVIEW").

nntp-nov-gap nntp normally sends just one big request for NOV lines to the server. The server responds with one huge list of lines. However, if you have read articles 2-5000 in the group, and only want to read article 1 and 5001, that means that nntp will fetch 4999 NOV lines that you will not need. This variable says how big a gap between two consecutive articles is allowed to be before the XOVER request is split into several request. Note that if your network is fast, setting this variable to a really small number means that fetching will probably be slower. If this variable is nil, nntp will never split requests. The default is 5.

nntp-prepare-server-hook A hook run before attempting to connect to an NNTP server.

nntp-warn-about-losing-connection If this variable is non-nil, some noise will be made when a server closes connection.

nntp-record-commands If non-nil, nntp will log all commands it sends to the NNTP server (along with a timestamp) in the "*nntp-log*" buffer. This is useful if you are debugging a Gnus/NNTP connection that doesn't seem to work.

nntp-open-connection-function It is possible to customize how the connection to the nntp server will be opened. If you specify an nntp-open-connection-function parameter, Gnus will use that function to establish the connection. Five pre-made functions are supplied. These functions can be grouped in two categories: direct connection functions (three pre-made), and indirect ones (two pre-made).

nntp-prepare-post-hook A hook run just before posting an article. If there is no Message-ID header in the article and the news server provides the recommended ID, it will be added to the article before running this hook. It is useful to make Cancel-Lock headers even if you inhibit Gnus to add a Message-ID header, you could say:

```
(add-hook 'nntp-prepare-post-hook 'canlock-insert-header)
```

Note that not all servers support the recommended ID. This works for INN versions 2.3.0 and later, for instance.

nntp-read-timeout How long nntp should wait between checking for the end of output. Shorter values mean quicker response, but is more CPU intensive. The default is 0.1 seconds. If you have a slow line to the server (and don't like to see Emacs eat your available CPU power), you might set this to, say, 1.

#### 6.2.1.1 Direct Functions

These functions are called direct because they open a direct connection between your machine and the NNTP server. The behavior of these functions is also affected by commonly understood variables (see "Common Variables" on page 156).

nntp-open-network-stream This is the default, and simply connects to some port or other on the remote system.

nntp-open-tls-stream Opens a connection to a server over a *secure* channel. To use this you must have http://www.gnu.org/software/gnutls/, GNUTLS installed. You then define a server as follows:

```
;; \gnusr{"nntps" is port 563 and is predefined in our \gnusfile{
;; \gnusr{however, \gnussamp{gnutls-cli -p} doesn't like named po
;;
(nntp "snews.bar.com"
      (nntp-open-connection-function nntp-open-tls-stream)
      (nntp-port-number )
      (nntp-address "snews.bar.com"))
```

nntp-open-ssl-stream Opens a connection to a server over a *secure* channel. To use this you must have http://www.openssl.org, OpenSSL or ftp://ftp.psy.uq.oz.au/pub/Crypto/SSL, SSLeay installed. You then define a server as follows:

```
;; \gnusr{"snews" is port 563 and is predefined in our \gnusfile{
;; \gnusr{however, \gnussamp{openssl s_client -port} doesn't like
```

```
;;
(nntp "snews.bar.com"
      (nntp-open-connection-function nntp-open-ssl-stream)
      (nntp-port-number 563)
      (nntp-address "snews.bar.com"))
```

nntp-open-telnet-stream Opens a connection to an NNTP server by simply "telnet"'ing it. You might wonder why this function exists, since we have the default nntp-open-network-stream which would do the job. (One of) the reason(s) is that if you are behind a firewall but have direct connections to the outside world thanks to a command wrapper like runsocks, you can use it like this:

```
(nntp "socksified"
      (nntp-pre-command "runsocks")
      (nntp-open-connection-function nntp-open-telnet-stream)
      (nntp-address "the.news.server"))
```

With the default method, you would need to wrap your whole Emacs session, which is not a good idea.

#### 6.2.1.2 Indirect Functions

These functions are called indirect because they connect to an intermediate host before actually connecting to the NNTP server. All of these functions and related variables are also said to belong to the "via" family of connection: they're all prefixed with "via" to make things cleaner. The behavior of these functions is also affected by commonly understood variables (see "Common Variables" on page 156).

nntp-open-via-rlogin-and-telnet Does an "rlogin" on a remote system, and then does a "telnet" to the real NNTP server from there. This is useful for instance if you need to connect to a firewall machine first.

nntp-open-via-rlogin-and-telnet-specific variables:

nntp-via-rlogin-command Command used to log in on the intermediate host. The default is "rsh", but "ssh" is a popular alternative.

nntp-via-rlogin-command-switches List of strings to be used as the switches to nntp-via-rlogin-command. The default is nil. If you use "ssh" for nntp-via-rlogin-command, you may set this to "("-C")" in order to compress all data connections, otherwise set this to "("-t" "-e" "none")" or "("-C" "-t" "-e" "none")" if the telnet command requires a pseudo-tty allocation on an intermediate host.

nntp-open-via-telnet-and-telnet Does essentially the same, but uses "telnet" instead of "rlogin" to connect to the intermediate host.

nntp-open-via-telnet-and-telnet-specific variables:

nntp-via-telnet-command Command used to telnet the intermediate host. The default is "telnet".

nntp-via-telnet-switches List of strings to be used as the switches to the nntp-via-telnet-command command. The default is "("-8")".

nntp-via-user-password Password to use when logging in on the intermediate host.

nntp-via-envuser If non-nil, the intermediate telnet session (client and server both) will support the ENVIRON option and not prompt for login name. This works for Solaris telnet, for instance.

nntp-via-shell-prompt Regexp matching the shell prompt on the intermediate host. The default is "bash/—/gnusdollar */r?$/—> */r?".

Here are some additional variables that are understood by all the above functions:

nntp-via-user-name User name to use when connecting to the intermediate host.

nntp-via-address Address of the intermediate host to connect to.

#### 6.2.1.3 Common Variables

The following variables affect the behavior of all, or several of the pre-made connection functions. When not specified, all functions are affected.

nntp-pre-command A command wrapper to use when connecting through a non native connection function (all except nntp-open-network-stream, nntp-open-tls-stream, and nntp-open-ssl-stream. This is where you would put a "SOCKS" wrapper for instance.

nntp-address The address of the NNTP server.

nntp-port-number Port number to connect to the NNTP server. The default is "nntp". If you use NNTP over TLS/SSL, you may want to use integer ports rather than named ports (i.e, use "563" instead of "snews" or "nntps"), because external TLS/SSL tools may not work with named ports.

nntp-end-of-line String to use as end-of-line marker when talking to the NNTP server. This is "/r/n" by default, but should be "/n" when using a non native connection function.

nntp-telnet-command Command to use when connecting to the NNTP server through "telnet". This is *not* for an intermediate host. This is just for the real NNTP server. The default is "telnet".

nntp-telnet-switches A list of switches to pass to nntp-telnet-command. The default is "("-8")".

### 6.2.2 News Spool

Subscribing to a foreign group from the local spool is extremely easy, and might be useful, for instance, to speed up reading groups that contain very big articles—"alt.binaries.pictures.furniture", for instance.

Anyway, you just specify nnspool as the method and "" (or anything else) as the address.

If you have access to a local spool, you should probably use that as the native select method (see "Finding the News" on page 2). It is normally faster than using an nntp select method, but might not be. It depends. You just have to try to find out what's best at your site.

nnspool-inews-program Program used to post an article.

nnspool-inews-switches Parameters given to the inews program when posting an article.

nnspool-spool-directory Where nnspool looks for the articles. This is normally '/usr/spool/news/'.

nnspool-nov-directory Where nnspool will look for NOV files. This is normally '/usr/spool/news/over.view/'.

nnspool-lib-dir Where the news lib dir is ('/usr/lib/news/' by default).

nnspool-active-file The name of the active file.

nnspool-newsgroups-file The name of the group descriptions file.

nnspool-history-file The name of the news history file.

nnspool-active-times-file The name of the active date file.

nnspool-nov-is-evil If non-nil, nnspool won't try to use any NOV files that it finds.

nnspool-sift-nov-with-sed If non-nil, which is the default, use sed to get the relevant portion from the overview file. If nil, nnspool will load the entire file into a buffer and process it there.

## 6.3 Getting Mail

Reading mail with a newsreader—isn't that just plain WeIrD? But of course.

### 6.3.1 Mail in a Newsreader

If you are used to traditional mail readers, but have decided to switch to reading mail with Gnus, you may find yourself experiencing something of a culture shock.

Gnus does not behave like traditional mail readers. If you want to make it behave that way, you can, but it's an uphill battle.

Gnus, by default, handles all its groups using the same approach. This approach is very newsreaderly—you enter a group, see the new/unread messages, and when you read the messages, they get marked as read, and you don't see them any more. (Unless you explicitly ask for them.)

In particular, you do not do anything explicitly to delete messages.

Does this mean that all the messages that have been marked as read are deleted? How awful!

But, no, it means that old messages are *expired* according to some scheme or other. For news messages, the expire process is controlled by the news administrator; for mail, the expire process is controlled by you. The expire process for mail is covered in depth in "Expiring Mail" on page 175.

What many Gnus users find, after using it a while for both news and mail, is that the transport mechanism has very little to do with how they want to treat a message.

Many people subscribe to several mailing lists. These are transported via SMTP, and are therefore mail. But we might go for weeks without answering, or even reading these messages very carefully. We may not need to save them because if we should need to read one again, they are archived somewhere else.

Some people have local news groups which have only a handful of readers. These are transported via NNTP, and are therefore news. But we may need to read and answer a large fraction of the messages very carefully in order to do our work. And there may not be an archive, so we may need to save the interesting messages the same way we would personal mail.

The important distinction turns out to be not the transport mechanism, but other factors such as how interested we are in the subject matter, or how easy it is to retrieve the message if we need to read it again.

Gnus provides many options for sorting mail into "groups" which behave like newsgroups, and for treating each group (whether mail or news) differently.

Some users never get comfortable using the Gnus (ahem) paradigm and wish that Gnus should grow up and be a male, er, mail reader. It is possible to whip Gnus into a more mailreaderly being, but, as said before, it's not easy. People who prefer proper mail readers should try VM instead, which is an excellent, and proper, mail reader.

I don't mean to scare anybody off, but I want to make it clear that you may be required to learn a new way of thinking about messages. After you've been subjected to The Gnus Way, you will come to love it. I can guarantee it. (At least the guy who sold me the Emacs Subliminal Brain-Washing Functions that I've put into Gnus did guarantee it. You Will Be Assimilated. You Love Gnus. You Love The Gnus Mail Way. You Do.)

### 6.3.2 Getting Started Reading Mail

It's quite easy to use Gnus to read your new mail. You just plonk the mail back end of your choice into gnus-secondary-select-methods, and things will happen automatically.

For instance, if you want to use nnml (which is a "one file per mail" back end), you could put the following in your '~/.gnus.el' file:

```
(setq gnus-secondary-select-methods '((nnml "")))
```

Now, the next time you start Gnus, this back end will be queried for new articles, and it will move all the messages in your spool file to its directory, which is '~/Mail/' by default. The new group that will be created ("mail.misc") will be subscribed, and you can read it like any other group.

You will probably want to split the mail into several groups, though:

```
(setq nnmail-split-methods
      '(("junk" "^From:.*Lars Ingebrigtsen")
        ("crazy" "^Subject:.*die\\|^Organization:.*flabby")
        ("other" "")))
```

This will result in three new nnml mail groups being created: "nnml:junk", "nnml:crazy", and "nnml:other". All the mail that doesn't fit into the first two groups will be placed in the last group.

This should be sufficient for reading mail with Gnus. You might want to give the other sections in this part of the manual a perusal, though. Especially see "Choosing a Mail Back End" on page 180 and see "Expiring Mail" on page 175.

### 6.3.3 Splitting Mail

The nnmail-split-methods variable says how the incoming mail is to be split into groups.

```
(setq nnmail-split-methods
  '(("mail.junk" "^From:.*Lars Ingebrigtsen")
    ("mail.crazy" "^Subject:.*die\\|^Organization:.*flabby")
    ("mail.other" "")))
```

This variable is a list of lists, where the first element of each of these lists is the name of the mail group (they do not have to be called something beginning with "mail", by the way), and the second element is a regular expression used on the header of each mail to determine if it belongs in this mail group. The first string may contain "/1" forms, like the ones used by replace-match to insert subexpressions from the matched text. For instance:

```
("list.\\1" "From:.* \\(.*\\)-list@majordomo.com")
```

The second element can also be a function. In that case, it will be called narrowed to the headers with the first element of the rule as the argument. It should return a non-nil value if it thinks that the mail belongs in that group.

The last of these groups should always be a general one, and the regular expression should *always* be "*" so that it matches any mails that haven't been matched by any of the other regexps. (These rules are processed from the beginning of the alist toward the end. The first rule to make a match will "win", unless you have crossposting enabled. In that case, all matching rules will "win".)

If you like to tinker with this yourself, you can set this variable to a function of your choice. This function will be called without any arguments in a buffer narrowed to the headers of an incoming mail message. The function should return a list of group names that it thinks should carry this mail message.

Note that the mail back ends are free to maul the poor, innocent, incoming headers all they want to. They all add Lines headers; some add X-Gnus-Group headers; most rename the Unix mbox From<SPACE> line to something else.

The mail back ends all support cross-posting. If several regexps match, the mail will be "cross-posted" to all those groups. nnmail-crosspost says whether to use this mechanism or not. Note that no articles are crossposted to the general ("*") group.

nnmh and nnml makes crossposts by creating hard links to the crossposted articles. However, not all file systems support hard links. If that's the case for you, set nnmail-crosspost-link-function to copy-file. (This variable is add-name-to-file by default.)

If you wish to see where the previous mail split put the messages, you can use the 'M-x nnmail-split-history' command. If you wish to see where re-spooling messages would put the messages, you can use gnus-summary-respool-trace and related commands (see "Mail Group Commands" on page 114).

Header lines longer than the value of nnmail-split-header-length-limit are excluded from the split function.

By default the splitting codes MIME decodes headers so you can match on non-ASCII strings. The nnmail-mail-splitting-charset variable specifies the default charset for decoding. The behaviour can be turned off completely by binding nnmail-mail-splitting-decodes to nil, which is useful if you want to match articles based on the raw header data.

By default, splitting is performed on all incoming messages. If you specify a directory entry for the variable mail-sources (see "Mail Source Specifiers" on page 161), however, then splitting does *not* happen by default. You can set the variable

nnmail-resplit-incoming to a non-nil value to make splitting happen even in this case. (This variable has no effect on other kinds of entries.)

Gnus gives you all the opportunity you could possibly want for shooting yourself in the foot. Let's say you create a group that will contain all the mail you get from your boss. And then you accidentally unsubscribe from the group. Gnus will still put all the mail from your boss in the unsubscribed group, and so, when your boss mails you "Have that report ready by Monday or you're fired!", you'll never see it and, come Tuesday, you'll still believe that you're gainfully employed while you really should be out collecting empty bottles to save up for next month's rent money.

### 6.3.4 Mail Sources

Mail can be gotten from many different sources—the mail spool, from a POP mail server, from a procmail directory, or from a maildir, for instance.

#### 6.3.4.1 Mail Source Specifiers

You tell Gnus how to fetch mail by setting mail-sources (see "Fetching Mail" on page 168) to a *mail source specifier*.

Here's an example:

```
(pop :server "pop3.mailserver.com" :user "myname")
```

As can be observed, a mail source specifier is a list where the first element is a *mail source type*, followed by an arbitrary number of *keywords*. Keywords that are not explicitly specified are given default values.

The following mail source types are available:

file Get mail from a single file; typically from the mail spool.

Keywords:

:path The file name. Defaults to the value of the MAIL environment variable or the value of rmail-spool-directory (usually something like '/usr/mail/spool/user-name').

:prescript
:postscript Script run before/after fetching mail.

An example file mail source:

```
(file :path "/usr/spool/mail/user-name")
```

Or using the default file name:

```
(file)
```

If the mail spool file is not located on the local machine, it's best to use POP or IMAP or the like to fetch the mail. You can not use ange-ftp file names here—it has no way to lock the mail spool while moving the mail.

If it's impossible to set up a proper server, you can use ssh instead.

```
(setq mail-sources
      '((file :prescript "ssh host bin/getmail >%t")))
```

The "getmail" script would look something like the following:

```
#!/bin/sh
#  getmail - move mail from spool to stdout
#  flu@iki.fi

MOVEMAIL=/usr/lib/emacs/20.3/i386-redhat-linux/movemail
TMP=$HOME/Mail/tmp
rm -f $TMP; $MOVEMAIL $MAIL $TMP >/dev/null && cat $TMP
```

Alter this script to fit find the "movemail" you want to use.

directory Get mail from several files in a directory. This is typically used when you have procmail split the incoming mail into several files. That is, there is a one-to-one correspondence between files in that directory and groups, so that mail from the file 'foo.bar.spool' will be put in the group foo.bar. (You can change the suffix to be used instead of .spool.) Setting nnmail-scan-directory-mail-source-once to non-nil forces Gnus to scan the mail source only once. This is particularly useful if you want to scan mail groups at a specified level.

There is also the variable nnmail-resplit-incoming, if you set that to a non-nil value, then the normal splitting process is applied to all the files from the directory, "Splitting Mail" on page 159.

Keywords:

:path The name of the directory where the files are. There is no default value.

:suffix Only files ending with this suffix are used. The default is ".spool".

:predicate Only files that have this predicate return non-nil are returned. The default is identity. This is used as an additional filter—only files that have the right suffix *and* satisfy this predicate are considered.

:prescript
:postscript Script run before/after fetching mail.

An example directory mail source:

```
(directory :path "/home/user-name/procmail-dir/"
           :suffix ".prcml")
```

pop Get mail from a POP server.

Keywords:

:server The name of the POP server. The default is taken from the MAILHOST environment variable.

:port The port number of the POP server. This can be a number (eg, "**:port 1234**") or a string (eg, "**:port "pop3""**). If it is a string, it should be a service name as listed in '**/etc/services**' on Unix systems. The default is "**""pop3""**". On some systems you might need to specify it as "**""pop-3""** instead.

:user The user name to give to the POP server. The default is the login name.

:password The password to give to the POP server. If not specified, the user is prompted.

:program The program to use to fetch mail from the POP server. This should be a **format**-like string. Here's an example:

```
fetchmail %u@%s -P %p %t
```

The valid format specifier characters are:

"**t**" The name of the file the mail is to be moved to. This must always be included in this string.

"**s**" The name of the server.

"**P**" The port number of the server.

"**u**" The user name to use.

"**p**" The password to use.

The values used for these specs are taken from the values you give the corresponding keywords.

:prescript A script to be run before fetching the mail. The syntax is the same as the **:program** keyword. This can also be a function to be run.

:postscript A script to be run after fetching the mail. The syntax is the same as the **:program** keyword. This can also be a function to be run.

:function The function to use to fetch mail from the POP server. The function is called with one parameter—the name of the file where the mail should be moved to.

:authentication This can be either the symbol **password** or the symbol **apop** and says what authentication scheme to use. The default is **password**.

If the :program and :function keywords aren't specified, pop3-movemail will be used.

Here are some examples. Fetch from the default POP server, using the default user name, and default fetcher:

```
(pop)
```

Fetch from a named server with a named user and password:

```
(pop :server "my.pop.server"
     :user "user-name" :password "secret")
```

Use "movemail" to move the mail:

```
(pop :program "movemail po:%u %t %p")
```

maildir Get mail from a maildir. This is a type of mailbox that is supported by at least qmail and postfix, where each file in a special directory contains exactly one mail.

Keywords:

:path The name of the directory where the mails are stored. The default is taken from the MAILDIR environment variable or '~/Maildir/'.

:subdirs The subdirectories of the Maildir. The default is "("new" "cur")".

You can also get mails from remote hosts (because maildirs don't suffer from locking problems).

Two example maildir mail sources:

```
(maildir :path "/home/user-name/Maildir/"
         :subdirs ("cur" "new"))

(maildir :path "/user@remotehost.org:~/Maildir/"
         :subdirs ("new"))
```

imap Get mail from a IMAP server. If you don't want to use IMAP as intended, as a network mail reading protocol (ie with nnimap), for some reason or other, Gnus let you treat it similar to a POP server and fetches articles from a given IMAP mailbox. See "IMAP" on page 197, for more information.

Note that for the Kerberos, GSSAPI, TLS/SSL and STARTTLS support you may need external programs and libraries, See "IMAP" on page 197.

Keywords:

:server The name of the IMAP server. The default is taken from the MAILHOST environment variable.

:port The port number of the IMAP server. The default is "143", or "993" for TLS/SSL connections.

:user The user name to give to the IMAP server. The default is the login name.

:password The password to give to the IMAP server. If not specified, the user is prompted.

:stream What stream to use for connecting to the server, this is one of the symbols in imap-stream-alist. Right now, this means "gssapi", "kerberos4", "starttls", "tls", "ssl", "shell" or the default "network".

:authentication Which authenticator to use for authenticating to the server, this is one of the symbols in imap-authenticator-alist. Right now, this means "gssapi", "kerberos4", "digest-md5", "cram-md5", "anonymous" or the default "login".

:program When using the 'shell' :stream, the contents of this variable is mapped into the imap-shell-program variable. This should be a format-like string (or list of strings). Here's an example:

```
ssh %s imapd
```

The valid format specifier characters are:

"s" The name of the server.

"l" User name from imap-default-user.

"p" The port number of the server.

The values used for these specs are taken from the values you give the corresponding keywords.

:mailbox The name of the mailbox to get mail from. The default is "INBOX" which normally is the mailbox which receive incoming mail.

:predicate The predicate used to find articles to fetch. The default, "UNSEEN UNDELETED", is probably the best choice for most people, but if you sometimes peek in your mailbox with a IMAP client and mark some articles as read (or; SEEN) you might want to set this to "1:*". Then all articles in the mailbox is fetched, no matter what. For a complete list of predicates, see RFC 2060 section 6.4.4.

:fetchflag How to flag fetched articles on the server, the default "/Deleted" will mark them as deleted, an alternative would be "/Seen" which would simply mark them as read. These are the two most likely choices, but more flags are defined in RFC 2060 section 2.3.2.

:dontexpunge If non-nil, don't remove all articles marked as deleted in the mailbox after finishing the fetch.

An example IMAP mail source:

```
(imap :server "mail.mycorp.com"
      :stream kerberos4
      :fetchflag "\\Seen")
```

webmail Get mail from a webmail server, such as www.hotmail.com, webmail.netscape.com, www.netaddress.com, mail.yahoo.com.

NOTE: Webmail largely depends cookies. A "one-line-cookie" patch is required for url "4.0pre.46".

WARNING: Mails may be lost. NO WARRANTY.

Keywords:

:subtype The type of the webmail server. The default is hotmail. The alternatives are netscape, netaddress, my-deja.

:user The user name to give to the webmail server. The default is the login name.

:password The password to give to the webmail server. If not specified, the user is prompted.

:dontexpunge If non-nil, only fetch unread articles and don't move them to trash folder after finishing the fetch.

An example webmail source:

```
(webmail :subtype 'hotmail
         :user "user-name"
         :password "secret")
```

*Common Keywords* Common keywords can be used in any type of mail source.

Keywords:

:plugged If non-nil, fetch the mail even when Gnus is unplugged. If you use directory source to get mail, you can specify it as in this example:

```
(setq mail-sources
      '((directory :path "/home/pavel/.Spool/"
                   :suffix ""
                   :plugged t)))
```

Gnus will then fetch your mail even when you are unplugged. This is useful when you use local mail and news.

#### 6.3.4.2 Function Interface

Some of the above keywords specify a Lisp function to be executed. For each keyword :foo, the Lisp variable foo is bound to the value of the keyword while the function is executing. For example, consider the following mail-source setting:

```
(setq mail-sources '((pop :user "jrl"
                          :server "pophost" :function fetchfunc)))
```

While the function fetchfunc is executing, the symbol user is bound to "jrl", and the symbol server is bound to "pophost". The symbols port, password, program, prescript, postscript, function, and authentication are also bound (to their default values).

See above for a list of keywords for each type of mail source.

#### 6.3.4.3 Mail Source Customization

The following is a list of variables that influence how the mail is fetched. You would normally not need to set or change any of these variables.

mail-source-crash-box File where mail will be stored while processing it. The default is '~/.emacs-mail-crash-box'.

mail-source-delete-incoming If non-nil, delete incoming files after handling them. If t, delete the files immediately, if nil, never delete any files. If a positive number, delete files older than number of days (This will only happen, when receiving new mail). You may also set mail-source-delete-incoming to nil and call mail-source-delete-old-incoming from a hook or interactively.

mail-source-delete-old-incoming-confirm If non-nil, ask for for confirmation before deleting old incoming files. This variable only applies when mail-source-delete-incoming is a positive number.

mail-source-ignore-errors If non-nil, ignore errors when reading mail from a mail source.

mail-source-directory Directory where files (if any) will be stored. The default is '~/Mail/'. At present, the only thing this is used for is to say where the incoming files will be stored if the previous variable is nil.

mail-source-incoming-file-prefix Prefix for file name for storing incoming mail. The default is 'Incoming', in which case files will end up with names like 'Incoming30630D'' or 'Incoming298602ZD'. This is really only relevant if mail-source-delete-incoming is nil.

mail-source-default-file-modes All new mail files will get this file mode. The default is 384.

mail-source-movemail-program If non-nil, name of program for fetching new mail. If nil, movemail in exec-directory.

#### 6.3.4.4 Fetching Mail

The way to actually tell Gnus where to get new mail from is to set mail-sources to a list of mail source specifiers (see "Mail Source Specifiers" on page 161).

If this variable (and the obsolescent nnmail-spool-file) is nil, the mail back ends will never attempt to fetch mail by themselves.

If you want to fetch mail both from your local spool as well as a POP mail server, you'd say something like:

```
(setq mail-sources
      '((file)
        (pop :server "pop3.mail.server"
             :password "secret")))
```

Or, if you don't want to use any of the keyword defaults:

```
(setq mail-sources
      '((file :path "/var/spool/mail/user-name")
        (pop :server "pop3.mail.server"
             :user "user-name"
             :port "pop3"
             :password "secret")))
```

When you use a mail back end, Gnus will slurp all your mail from your inbox and plonk it down in your home directory. Gnus doesn't move any mail if you're not using a mail back end—you have to do a lot of magic invocations first. At the time when you have finished drawing the pentagram, lightened the candles, and sacrificed the goat, you really shouldn't be too surprised when Gnus moves your mail.

### 6.3.5 Mail Back End Variables

These variables are (for the most part) pertinent to all the various mail back ends.

nnmail-read-incoming-hook The mail back ends all call this hook after reading new mail. You can use this hook to notify any mail watch programs, if you want to.

nnmail-split-hook Hook run in the buffer where the mail headers of each message is kept just before the splitting based on these headers is done. The hook is free to modify the buffer contents in any way it sees fit—the buffer is discarded after the splitting has been done, and no changes performed in the buffer will show up in any files. gnus-article-decode-encoded-words is one likely function to add to this hook.

nnmail-pre-get-new-mail-hook
nnmail-post-get-new-mail-hook These are two useful hooks executed when treating new incoming mail—nnmail-pre-get-new-mail-hook (is called just before starting to handle the new mail) and nnmail-post-get-new-mail-hook (is called when the mail handling is done). Here's and example of using these two hooks to change the default file modes the new mail files get:

```
(add-hook 'nnmail-pre-get-new-mail-hook
          (lambda () (set-default-file-modes 511)))

(add-hook 'nnmail-post-get-new-mail-hook
          (lambda () (set-default-file-modes 551)))
```

nnmail-use-long-file-names If non-nil, the mail back ends will use long file and directory names. Groups like "mail.misc" will end up in directories (assuming use of nnml back end) or files (assuming use of nnfolder back end) like 'mail.misc'. If it is nil, the same group will end up in 'mail/misc'.

nnmail-delete-file-function Function called to delete files. It is delete-file by default.

nnmail-cache-accepted-message-ids If non-nil, put the Message-IDs of articles imported into the back end (via Gcc, for instance) into the mail duplication discovery cache. The default is nil.

nnmail-cache-ignore-groups This can be a regular expression or a list of regular expressions. Group names that match any of the regular expressions will never be recorded in the Message-ID cache.

This can be useful, for example, when using Fancy Splitting (see "Fancy Mail Splitting" on page 169) together with the function nnmail-split-fancy-with-parent.

### 6.3.6 Fancy Mail Splitting

If the rather simple, standard method for specifying how to split mail doesn't allow you to do what you want, you can set nnmail-split-methods to nnmail-split-fancy. Then you can play with the nnmail-split-fancy variable.

Let's look at an example value of this variable first:

```
;; \gnusr{Messages from the mailer daemon are not crossposted to any of}
;; \gnusr{the ordinary groups.  Warnings are put in a separate group}
;; \gnusr{from real errors.}
(| ("from" mail (| ("subject" "warn.*" "mail.warning")
                   "mail.misc"))
   ;; \gnusr{Non-error messages are crossposted to all relevant}
```

```
;; \gnusr{groups, but we don't crosspost between the group for the
;; \gnusr{(ding) list and the group for other (ding) related mail.
(& (| (any "ding@ifi\\.uio\\.no" "ding.list")
      ("subject" "ding" "ding.misc"))
   ;; \gnusr{Other mailing lists...}
   (any "procmail@informatik\\.rwth-aachen\\.de" "procmail.list")
   (any "SmartList@informatik\\.rwth-aachen\\.de" "SmartList.list"
   ;; \gnusr{Both lists below have the same suffix, so prevent}
   ;; \gnusr{cross-posting to mkpkg.list of messages posted only t
   ;; \gnusr{the bugs- list, but allow cross-posting when the}
   ;; \gnusr{message was really cross-posted.}
   (any "bugs-mypackage@somewhere" "mypkg.bugs")
   (any "mypackage@somewhere\" - "bugs-mypackage" "mypkg.list")
   ;; \gnusr{People...}
   (any "larsi@ifi\\.uio\\.no" "people.Lars_Magne_Ingebrigtsen"))
;; \gnusr{Unmatched mail goes to the catch all group.}
"misc.misc")
```

This variable has the format of a *split*. A split is a (possibly) recursive structure where each split may contain other splits. Here are the possible split syntaxes:

**group** If the split is a string, that will be taken as a group name. Normal regexp match expansion will be done. See below for examples.

**(**field value **[-** restrict **[...] ]** split**)** If the split is a list, the first element of which is a string, then store the message as specified by split, if header field (a regexp) contains value (also a regexp). If restrict (yet another regexp) matches some string after field and before the end of the matched value, the split is ignored. If none of the restrict clauses match, split is processed.

**(|** split ...**)** If the split is a list, and the first element is **|** (vertical bar), then process each split until one of them matches. A split is said to match if it will cause the mail message to be stored in one or more groups.

**(&** split ...**)** If the split is a list, and the first element is **&**, then process all splits in the list.

**junk** If the split is the symbol **junk**, then don't save (i.e., delete) this message. Use with extreme caution.

**(:** function arg1 arg2 ...**)** If the split is a list, and the first element is ":", then the second element will be called as a function with args given as arguments. The function should return a split.

For instance, the following function could be used to split based on the body of the messages:

```
(defun split-on-body ()
  (save-excursion
    (widen)
    (goto-char (point-min))
    (when (re-search-forward "Some.*string" nil t)
      "string.group")))
```

The buffer is narrowed to the message in question when function is run. That's why (widen) needs to be called after save-excursion in the example above. Also note that with the nnimap backend, message bodies will not be downloaded by default. You need to set nnimap-split-download-body to t to do that (see "Splitting in IMAP" on page 201).

(! func split) If the split is a list, and the first element is !, then split will be processed, and func will be called as a function with the result of split as argument. func should return a split.

nil If the split is nil, it is ignored.

In these splits, field must match a complete field name. value must match a complete word according to the fundamental mode syntax table. You can use .* in the regexps to match partial field names or words. In other words, all value's are wrapped in "/gnusless" and "/gnusgreater" pairs.

field and value can also be Lisp symbols, in that case they are expanded as specified by the variable nnmail-split-abbrev-alist. This is an alist of cons cells, where the CAR of a cell contains the key, and the CDR contains the associated value. Predefined entries in nnmail-split-abbrev-alist include:

from Matches the "From", "Sender" and "Resent-From" fields.

to Matches the "To", "Cc", "Apparently-To", "Resent-To" and "Resent-Cc" fields.

any Is the union of the from and to entries.

nnmail-split-fancy-syntax-table is the syntax table in effect when all this splitting is performed.

If you want to have Gnus create groups dynamically based on some information in the headers (i.e., do replace-match-like substitutions in the group names), you can say things like:

```
(any "debian-\\b\\(\\w+\\)@lists.debian.org" "mail.debian.\\1")
```

In this example, messages sent to "debian-foo@lists.debian.org" will be filed in "mail.debian.foo".

If the string contains the element "/gnusampersand", then the previously matched string will be substituted. Similarly, the elements "/1" up to "/9" will be substituted with the text matched by the groupings 1 through 9.

nnmail-split-fancy-with-parent is a function which allows you to split followups into the same groups their parents are in. Sometimes you can't make splitting rules for all your mail. For example, your boss might send you personal mail regarding different projects you are working on, and as you can't tell your boss to put a distinguishing string into the subject line, you have to resort to manually moving the messages into the right group. With this function, you only have to do it once per thread.

To use this feature, you have to set nnmail-treat-duplicates and nnmail-cache-accepted-message-ids to a non-nil value. And then you can include nnmail-split-fancy-with-parent using the colon feature, like so:

```
(setq nnmail-treat-duplicates 'warn     ; \gnusr{or \gnuscode{delete}
      nnmail-cache-accepted-message-ids t
      nnmail-split-fancy
      '(| (: nnmail-split-fancy-with-parent)
          ;; \gnusr{other splits go here}
        ))
```

This feature works as follows: when nnmail-treat-duplicates is non-nil, Gnus records the message id of every message it sees in the file specified by the variable nnmail-message-id-cache-file, together with the group it is in (the group is omitted for non-mail messages). When mail splitting is invoked, the function nnmail-split-fancy-with-parent then looks at the References (and In-Reply-To) header of each message to split and searches the file specified by nnmail-message-id-cache-file for the message ids. When it has found a parent, it returns the corresponding group name unless the group name matches the regexp nnmail-split-fancy-with-parent-ignore-groups. It is recommended that you set nnmail-message-id-cache-length to a somewhat higher number than the default so that the message ids are still in the cache. (A value of 5000 appears to create a file some 300 kBytes in size.) When nnmail-cache-accepted-message-ids is non-nil, Gnus also records the message ids of moved articles, so that the followup messages goes into the new group.

Also see the variable nnmail-cache-ignore-groups if you don't want certain groups to be recorded in the cache. For example, if all outgoing messages are written to an "outgoing" group, you could set nnmail-cache-ignore-groups to match that group name. Otherwise, answers to all your messages would end up in the "outgoing" group.

### 6.3.7 Group Mail Splitting

If you subscribe to dozens of mailing lists but you don't want to maintain mail splitting rules manually, group mail splitting is for you. You just have to set to-list and/or to-address in group parameters or group customization and set nnmail-split-methods to gnus-group-split. This splitting function will scan all groups for those parameters and split mail accordingly, i.e., messages posted from or to the addresses

specified in the parameters to-list or to-address of a mail group will be stored in that group.

Sometimes, mailing lists have multiple addresses, and you may want mail splitting to recognize them all: just set the extra-aliases group parameter to the list of additional addresses and it's done. If you'd rather use a regular expression, set split-regexp.

All these parameters in a group will be used to create an nnmail-split-fancy split, in which the field is "any", the value is a single regular expression that matches to-list, to-address, all of extra-aliases and all matches of split-regexp, and the split is the name of the group. restricts are also supported: just set the split-exclude parameter to a list of regular expressions.

If you can't get the right split to be generated using all these parameters, or you just need something fancier, you can set the parameter split-spec to an nnmail-split-fancy split. In this case, all other aforementioned parameters will be ignored by gnus-group-split. In particular, split-spec may be set to nil, in which case the group will be ignored by gnus-group-split.

gnus-group-split will do cross-posting on all groups that match, by defining a single & fancy split containing one split for each group. If a message doesn't match any split, it will be stored in the group named in gnus-group-split-default-catch-all-group, unless some group has split-spec set to catch-all, in which case that group is used as the catch-all group. Even though this variable is often used just to name a group, it may also be set to an arbitrarily complex fancy split (after all, a group name is a fancy split), and this may be useful to split mail that doesn't go to any mailing list to personal mail folders. Note that this fancy split is added as the last element of a — split list that also contains a & split with the rules extracted from group parameters.

It's time for an example. Assume the following group parameters have been defined:

```
nnml:mail.bar:
((to-address . "bar@femail.com")
 (split-regexp . ".*@femail\\.com"))
nnml:mail.foo:
((to-list . "foo@nowhere.gov")
 (extra-aliases "foo@localhost" "foo-redist@home")
 (split-exclude "bugs-foo" "rambling-foo")
 (admin-address . "foo-request@nowhere.gov"))
nnml:mail.others:
((split-spec . catch-all))
```

Setting nnmail-split-methods to gnus-group-split will behave as if nnmail-split-fancy had been selected and variable nnmail-split-fancy had been set as follows:

```
(| (& (any "\\(bar@femail\\.com\\|.*@femail\\.com\\)" "mail.bar")
      (any "\\(foo@nowhere\\.gov\\|foo@localhost\\|foo-redist@home\\)"
```

```
        - "bugs-foo" - "rambling-foo" "mail.foo"))
 "mail.others")
```

If you'd rather not use group splitting for all your mail groups, you may use it for only some of them, by using nnmail-split-fancy splits like this:

```
(: gnus-group-split-fancy \gnusvar{groups} \gnusvar{no-crosspost} \gnu
```

groups may be a regular expression or a list of group names whose parameters will be scanned to generate the output split. no-crosspost can be used to disable cross-posting; in this case, a single — split will be output. catch-all is the fall back fancy split, used like gnus-group-split-default-catch-all-group. If catch-all is nil, or if split-regexp matches the empty string in any selected group, no catch-all split will be issued. Otherwise, if some group has split-spec set to catch-all, this group will override the value of the catch-all argument.

Unfortunately, scanning all groups and their parameters can be quite slow, especially considering that it has to be done for every message. But don't despair! The function gnus-group-split-setup can be used to enable gnus-group-split in a much more efficient way. It sets nnmail-split-methods to nnmail-split-fancy and sets nnmail-split-fancy to the split produced by gnus-group-split-fancy. Thus, the group parameters are only scanned once, no matter how many messages are split.

However, if you change group parameters, you'd have to update nnmail-split-fancy manually. You can do it by running gnus-group-split-update. If you'd rather have it updated automatically, just tell gnus-group-split-setup to do it for you. For example, add to your '~/.gnus.el':

```
(gnus-group-split-setup \gnusvar{auto-update} \gnusvar{catch-all})
```

If auto-update is non-nil, gnus-group-split-update will be added to nnmail-pre-get-new-mail-hook, so you won't ever have to worry about updating nnmail-split-fancy again. If you don't omit catch-all (it's optional, equivalent to nil), gnus-group-split-default-catch-all-group will be set to its value.

Because you may want to change nnmail-split-fancy after it is set by gnus-group-split-update, this function will run gnus-group-split-updated-hook just before finishing.

### 6.3.8 Incorporating Old Mail

Most people have lots of old mail stored in various file formats. If you have set up Gnus to read mail using one of the spiffy Gnus mail back ends, you'll probably wish to have that old mail incorporated into your mail groups.

Doing so can be quite easy.

To take an example: You're reading mail using nnml (see "Mail Spool" on page 181), and have set nnmail-split-methods to a satisfactory value (see "Splitting Mail"

on page 159). You have an old Unix mbox file filled with important, but old, mail. You want to move it into your nnml groups.

Here's how:

1. Go to the group buffer.
2. Type 'G f' and give the file name to the mbox file when prompted to create an nndoc group from the mbox file (see "Foreign Groups" on page 23).
3. Type 'SPACE' to enter the newly created group.
4. Type 'M P b' to process-mark all articles in this group's buffer (see "Setting Process Marks" on page 68).
5. Type 'B r' to respool all the process-marked articles, and answer "nnml" when prompted (see "Mail Group Commands" on page 114).

All the mail messages in the mbox file will now also be spread out over all your nnml groups. Try entering them and check whether things have gone without a glitch. If things look ok, you may consider deleting the mbox file, but I wouldn't do that unless I was absolutely sure that all the mail has ended up where it should be.

Respooling is also a handy thing to do if you're switching from one mail back end to another. Just respool all the mail in the old mail groups using the new mail back end.

### 6.3.9 Expiring Mail

Traditional mail readers have a tendency to remove mail articles when you mark them as read, in some way. Gnus takes a fundamentally different approach to mail reading.

Gnus basically considers mail just to be news that has been received in a rather peculiar manner. It does not think that it has the power to actually change the mail, or delete any mail messages. If you enter a mail group, and mark articles as "read", or kill them in some other fashion, the mail articles will still exist on the system. I repeat: Gnus will not delete your old, read mail. Unless you ask it to, of course.

To make Gnus get rid of your unwanted mail, you have to mark the articles as *expirable*. (With the default key bindings, this means that you have to type 'E'.) This does not mean that the articles will disappear right away, however. In general, a mail article will be deleted from your system if, 1) it is marked as expirable, AND 2) it is more than one week old. If you do not mark an article as expirable, it will remain on your system until hell freezes over. This bears repeating one more time, with some spurious capitalizations: IF you do NOT mark articles as EXPIRABLE, Gnus will NEVER delete those ARTICLES.

You do not have to mark articles as expirable by hand. Gnus provides two features, called "auto-expire" and "total-expire", that can help you with this. In a

nutshell, "auto-expire" means that Gnus hits 'E' for you when you select an article. And "total-expire" means that Gnus considers all articles as expirable that are read. So, in addition to the articles marked "E", also the articles marked "r", "R", "O", "K", "Y" and so on are considered expirable.

When should either auto-expire or total-expire be used? Most people who are subscribed to mailing lists split each list into its own group and then turn on auto-expire or total-expire for those groups. (See "Splitting Mail" on page 159, for more information on splitting each list into its own group.)

Which one is better, auto-expire or total-expire? It's not easy to answer. Generally speaking, auto-expire is probably faster. Another advantage of auto-expire is that you get more marks to work with: for the articles that are supposed to stick around, you can still choose between tick and dormant and read marks. But with total-expire, you only have dormant and ticked to choose from. The advantage of total-expire is that it works well with adaptive scoring (see "Adaptive Scoring" on page 244). Auto-expire works with normal scoring but not with adaptive scoring.

Groups that match the regular expression gnus-auto-expirable-newsgroups will have all articles that you read marked as expirable automatically. All articles marked as expirable have an "E" in the first column in the summary buffer.

By default, if you have auto expiry switched on, Gnus will mark all the articles you read as expirable, no matter if they were read or unread before. To avoid having articles marked as read marked as expirable automatically, you can put something like the following in your '~/.gnus.el' file:

```
(remove-hook 'gnus-mark-article-hook
             'gnus-summary-mark-read-and-unread-as-read)
(add-hook 'gnus-mark-article-hook 'gnus-summary-mark-unread-as-read)
```

Note that making a group auto-expirable doesn't mean that all read articles are expired—only the articles marked as expirable will be expired. Also note that using the 'd' command won't make articles expirable—only semi-automatic marking of articles as read will mark the articles as expirable in auto-expirable groups.

Let's say you subscribe to a couple of mailing lists, and you want the articles you have read to disappear after a while:

```
(setq gnus-auto-expirable-newsgroups
      "mail.nonsense-list\\|mail.nice-list")
```

Another way to have auto-expiry happen is to have the element auto-expire in the group parameters of the group.

If you use adaptive scoring (see "Adaptive Scoring" on page 244) and auto-expiring, you'll have problems. Auto-expiring and adaptive scoring don't really mix very well.

The nnmail-expiry-wait variable supplies the default time an expirable article has to live. Gnus starts counting days from when the message *arrived*, not from when it was sent. The default is seven days.

Gnus also supplies a function that lets you fine-tune how long articles are to live, based on what group they are in. Let's say you want to have one month expiry period in the "mail.private" group, a one day expiry period in the "mail.junk" group, and a six day expiry period everywhere else:

```
(setq nnmail-expiry-wait-function
      (lambda (group)
       (cond ((string= group "mail.private")
              31)
             ((string= group "mail.junk")
              1)
             ((string= group "important")
              'never)
             (t
              6))))
```

The group names this function is fed are "unadorned" group names—no "nnml:" prefixes and the like.

The nnmail-expiry-wait variable and nnmail-expiry-wait-function function can either be a number (not necessarily an integer) or one of the symbols immediate or never.

You can also use the expiry-wait group parameter to selectively change the expiry period (see "Group Parameters" on page 25).

The normal action taken when expiring articles is to delete them. However, in some circumstances it might make more sense to move them to other groups instead of deleting them. The variable nnmail-expiry-target (and the expiry-target group parameter) controls this. The variable supplies a default value for all groups, which can be overridden for specific groups by the group parameter. default value is delete, but this can also be a string (which should be the name of the group the message should be moved to), or a function (which will be called in a buffer narrowed to the message in question, and with the name of the group being moved from as its parameter) which should return a target—either a group name or delete.

Here's an example for specifying a group name:

```
(setq nnmail-expiry-target "nnml:expired")
```

Gnus provides a function nnmail-fancy-expiry-target which will expire mail to groups according to the variable nnmail-fancy-expiry-targets. Here's an example:

```
(setq nnmail-expiry-target 'nnmail-fancy-expiry-target
      nnmail-fancy-expiry-targets
      '((to-from "boss" "nnfolder:Work")
        ("subject" "IMPORTANT" "nnfolder:IMPORTANT.%Y.%b")
        ("from" ".*" "nnfolder:Archive-%Y")))
```

With this setup, any mail that has IMPORTANT in its Subject header and was sent in the year YYYY and month MMM, will get expired to the group nnfolder:IMPORTANT.YYYY.MMM. If its From or To header contains the string boss, it will get expired to nnfolder:Work. All other mail will get expired to nnfolder:Archive-YYYY.

If nnmail-keep-last-article is non-nil, Gnus will never expire the final article in a mail newsgroup. This is to make life easier for procmail users.

By the way: That line up there, about Gnus never expiring non-expirable articles, is a lie. If you put total-expire in the group parameters, articles will not be marked as expirable, but all read articles will be put through the expiry process. Use with extreme caution. Even more dangerous is the gnus-total-expirable-newsgroups variable. All groups that match this regexp will have all read articles put through the expiry process, which means that *all* old mail articles in the groups in question will be deleted after a while. Use with extreme caution, and don't come crying to me when you discover that the regexp you used matched the wrong group and all your important mail has disappeared. Be a *man*! Or a *woman*! Whatever you feel more comfortable with! So there!

Most people make most of their mail groups total-expirable, though.

If gnus-inhibit-user-auto-expire is non-nil, user marking commands will not mark an article as expirable, even if the group has auto-expire turned on.

### 6.3.10 Washing Mail

Mailers and list servers are notorious for doing all sorts of really, really stupid things with mail. "Hey, RFC 822 doesn't explicitly prohibit us from adding the string wE aRe ElltE!!!!!1!! to the end of all lines passing through our server, so let's do that!!!!1!" Yes, but RFC 822 wasn't designed to be read by morons. Things that were considered to be self-evident were not discussed. So. Here we are.

Case in point: The German version of Microsoft Exchange adds "AW: " to the subjects of replies instead of "Re: ". I could pretend to be shocked and dismayed by this, but I haven't got the energy. It is to laugh.

Gnus provides a plethora of functions for washing articles while displaying them, but it might be nicer to do the filtering before storing the mail to disk. For that purpose, we have three hooks and various functions that can be put in these hooks.

nnmail-prepare-incoming-hook This hook is called before doing anything with the mail and is meant for grand, sweeping gestures. It is called in a buffer that contains all the new, incoming mail. Functions to be used include:

- nnheader-ms-strip-cr Remove trailing carriage returns from each line. This is default on Emacs running on MS machines.

nnmail-prepare-incoming-header-hook This hook is called narrowed to each header. It can be used when cleaning up the headers. Functions that can be used include:

nnmail-remove-leading-whitespace Clear leading white space that "helpful" listservs have added to the headers to make them look nice. Aaah.

(Note that this function works on both the header on the body of all messages, so it is a potentially dangerous function to use (if a body of a message contains something that looks like a header line). So rather than fix the bug, it is of course the right solution to make it into a feature by documenting it.)

nnmail-remove-list-identifiers Some list servers add an identifier—for example, "(idm)"—to the beginning of all Subject headers. I'm sure that's nice for people who use stone age mail readers. This function will remove strings that match the nnmail-list-identifiers regexp, which can also be a list of regexp. nnmail-list-identifiers may not contain /(../).

For instance, if you want to remove the "(idm)" and the "nagnagnag" identifiers:

```
(setq nnmail-list-identifiers
      '("(idm)" "nagnagnag"))
```

This can also be done non-destructively with gnus-list-identifiers, See "Article Hiding" on page 93.

nnmail-remove-tabs Translate all "TAB" characters into "SPACE" characters.

nnmail-fix-eudora-headers Eudora produces broken References headers, but OK In-Reply-To headers. This function will get rid of the References headers.

nnmail-prepare-incoming-message-hook This hook is called narrowed to each message. Functions to be used include:

article-de-quoted-unreadable Decode Quoted Readable encoding.

### 6.3.11 Duplicates

If you are a member of a couple of mailing lists, you will sometimes receive two copies of the same mail. This can be quite annoying, so nnmail checks for and treats any duplicates it might find. To do this, it keeps a cache of old Message-IDs—nnmail-message-id-cache-file, which is '~/.nnmail-cache' by default. The approximate maximum number of Message-IDs stored there is controlled by the nnmail-message-id-cache-length variable, which is 1000 by default. (So 1000 Message-IDs will be stored.) If all this sounds scary to you, you can set nnmail-treat-duplicates to warn (which is what it is by default), and nnmail won't delete duplicate mails. Instead it will insert a warning into the head of the mail saying that it thinks that this is a duplicate of a different message.

This variable can also be a function. If that's the case, the function will be called from a buffer narrowed to the message in question with the Message-ID as a parameter. The function must return either nil, warn, or delete.

You can turn this feature off completely by setting the variable to nil.

If you want all the duplicate mails to be put into a special *duplicates* group, you could do that using the normal mail split methods:

```
(setq nnmail-split-fancy
      '(| ;; \gnusr{Messages duplicates go to a separate group.}
        ("gnus-warning" "duplicat\\(e\\|ion\\) of message" "duplicate
        ;; \gnusr{Message from daemons, postmaster, and the like to a
        (any mail "mail.misc")
        ;; \gnusr{Other rules.}
        [...] ))
```

Or something like:

```
(setq nnmail-split-methods
      '(("duplicates" "^Gnus-Warning:.*duplicate")
        ;; \gnusr{Other rules.}
        [...]))
```

Here's a neat feature: If you know that the recipient reads her mail with Gnus, and that she has nnmail-treat-duplicates set to delete, you can send her as many insults as you like, just by using a Message-ID of a mail that you know that she's already received. Think of all the fun! She'll never see any of it! Whee!

### 6.3.12 Not Reading Mail

If you start using any of the mail back ends, they have the annoying habit of assuming that you want to read mail with them. This might not be unreasonable, but it might not be what you want.

If you set mail-sources and nnmail-spool-file to nil, none of the back ends will ever attempt to read incoming mail, which should help.

This might be too much, if, for instance, you are reading mail quite happily with nnml and just want to peek at some old Rmail file you have stashed away with nnbabyl. All back ends have variables called back-end-get-new-mail. If you want to disable the nnbabyl mail reading, you edit the virtual server for the group to have a setting where nnbabyl-get-new-mail to nil.

All the mail back ends will call nn*-prepare-save-mail-hook narrowed to the article to be saved before saving it when reading incoming mail.

### 6.3.13 Choosing a Mail Back End

Gnus will read the mail spool when you activate a mail group. The mail file is first copied to your home directory. What happens after that depends on what format you want to store your mail in.

There are six different mail back ends in the standard Gnus, and more back ends are available separately. The mail back end most people use (because it is possibly the fastest) is nnml (see "Mail Spool" on page 181).

#### 6.3.13.1 Unix Mail Box

The *nnmbox* back end will use the standard Un*x mbox file to store mail. nnmbox will add extra headers to each mail article to say which group it belongs in.

Virtual server settings:

nnmbox-mbox-file The name of the mail box in the user's home directory. Default is '~/mbox'.

nnmbox-active-file The name of the active file for the mail box. Default is '~/.mbox-active'.

nnmbox-get-new-mail If non-nil, nnmbox will read incoming mail and split it into groups. Default is t.

#### 6.3.13.2 Rmail Babyl

The *nnbabyl* back end will use a Babyl mail box (aka. *Rmail mbox*) to store mail. nnbabyl will add extra headers to each mail article to say which group it belongs in.

Virtual server settings:

nnbabyl-mbox-file The name of the Rmail mbox file. The default is '~/RMAIL'

nnbabyl-active-file The name of the active file for the rmail box. The default is '~/.rmail-active'

nnbabyl-get-new-mail If non-nil, nnbabyl will read incoming mail. Default is t

#### 6.3.13.3 Mail Spool

The *nnml* spool mail format isn't compatible with any other known format. It should be used with some caution.

If you use this back end, Gnus will split all incoming mail into files, one file for each mail, and put the articles into the corresponding directories under the directory specified by the nnml-directory variable. The default value is '~/Mail/'.

You do not have to create any directories beforehand; Gnus will take care of all that.

If you have a strict limit as to how many files you are allowed to store in your account, you should not use this back end. As each mail gets its own file, you might very well occupy thousands of inodes within a few weeks. If this is no problem for you, and it isn't a problem for you having your friendly systems administrator

walking around, madly, shouting "Who is eating all my inodes?! Who? Who!?!", then you should know that this is probably the fastest format to use. You do not have to trudge through a big mbox file just to read your new mail.

nnml is probably the slowest back end when it comes to article splitting. It has to create lots of files, and it also generates NOV databases for the incoming mails. This makes it possibly the fastest back end when it comes to reading mail.

When the marks file is used (which it is by default), nnml servers have the property that you may backup them using tar or similar, and later be able to restore them into Gnus (by adding the proper nnml server) and have all your marks be preserved. Marks for a group is usually stored in the .marks file (but see nnml-marks-file-name) within each nnml group's directory. Individual nnml groups are also possible to backup, use 'G m' to restore the group (after restoring the backup into the nnml directory).

If for some reason you believe your '.marks' files are screwed up, you can just delete them all. Gnus will then correctly regenerate them next time it starts.

Virtual server settings:

nnml-directory All nnml directories will be placed under this directory. The default is the value of message-directory (whose default value is '~/Mail').

nnml-active-file The active file for the nnml server. The default is '~/Mail/active'.

nnml-newsgroups-file The nnml group descriptions file. See "Newsgroups File Format" on page 426. The default is '~/Mail/newsgroups'.

nnml-get-new-mail If non-nil, nnml will read incoming mail. The default is t.

nnml-nov-is-evil If non-nil, this back end will ignore any NOV files. The default is nil.

nnml-nov-file-name The name of the NOV files. The default is '.overview'.

nnml-prepare-save-mail-hook Hook run narrowed to an article before saving.

nnml-marks-is-evil If non-nil, this back end will ignore any MARKS files. The default is nil.

nnml-marks-file-name The name of the *marks* files. The default is '.marks'.

nnml-use-compressed-files If non-nil, nnml will allow using compressed message files.

If your nnml groups and NOV files get totally out of whack, you can do a complete update by typing 'M-x nnml-generate-nov-databases'. This command will trawl through the entire nnml hierarchy, looking at each and every article, so it might take a while to complete. A better interface to this functionality can be found in the server buffer (see "Server Commands" on page 147).

#### 6.3.13.4 MH Spool

nnmh is just like nnml, except that is doesn't generate NOV databases and it doesn't keep an active file or marks file. This makes nnmh a *much* slower back end than nnml, but it also makes it easier to write procmail scripts for.

Virtual server settings:

nnmh-directory All nnmh directories will be located under this directory. The default is the value of message-directory (whose default is '~/Mail')

nnmh-get-new-mail If non-nil, nnmh will read incoming mail. The default is t.

nnmh-be-safe If non-nil, nnmh will go to ridiculous lengths to make sure that the articles in the folder are actually what Gnus thinks they are. It will check date stamps and stat everything in sight, so setting this to t will mean a serious slow-down. If you never use anything but Gnus to read the nnmh articles, you do not have to set this variable to t. The default is nil.

#### 6.3.13.5 Maildir

nnmaildir stores mail in the maildir format, with each maildir corresponding to a group in Gnus. This format is documented here: http://cr.yp.to/proto/maildir.html and here: http://www.qmail.org/man/man5/maildir.html. nnmaildir also stores extra information in the '.nnmaildir/' directory within a maildir.

Maildir format was designed to allow concurrent deliveries and reading, without needing locks. With other back ends, you would have your mail delivered to a spool of some kind, and then you would configure Gnus to split mail from that spool into your groups. You can still do that with nnmaildir, but the more common configuration is to have your mail delivered directly to the maildirs that appear as group in Gnus.

nnmaildir is designed to be perfectly reliable: 'C-g' will never corrupt its data in memory, and SIGKILL will never corrupt its data in the filesystem.

nnmaildir stores article marks and NOV data in each maildir. So you can copy a whole maildir from one Gnus setup to another, and you will keep your marks.

Virtual server settings:

directory For each of your nnmaildir servers (it's very unlikely that you'd need more than one), you need to create a directory and populate it with maildirs or symlinks to maildirs (and nothing else; do not choose a directory already used for other purposes). Each maildir will be represented in Gnus as a newsgroup on that server; the filename of the symlink will be the name of the group. Any filenames in the directory starting with "." are ignored. The directory is scanned when you first start Gnus, and each time you type 'g' in the group buffer; if any maildirs have been removed or added, nnmaildir notices at these times.

The value of the directory parameter should be a Lisp form which is processed by eval and expand-file-name to get the path of the directory for this server. The form is evaled only when the server is opened; the resulting string is used until the server is closed. (If you don't know about forms and eval, don't worry—a simple string will work.) This parameter is not optional; you must specify it. I don't recommend using "~/Mail" or a subdirectory of it; several other parts of Gnus use that directory by default for various things, and may get confused if nnmaildir uses it too. "~/.nnmaildir" is a typical value.

target-prefix This should be a Lisp form which is processed by eval and expand-file-name. The form is evaled only when the server is opened; the resulting string is used until the server is closed.

When you create a group on an nnmaildir server, the maildir is created with target-prefix prepended to its name, and a symlink pointing to that maildir is created, named with the plain group name. So if directory is "~/.nnmaildir" and target-prefix is "../maildirs/", then when you create the group foo, nnmaildir will create '~/.nnmaildir/../maildirs/foo' as a maildir, and will create '~/.nnmaildir/foo' as a symlink pointing to '../maildirs/foo'.

You can set target-prefix to a string without any slashes to create both maildirs and symlinks in the same directory; in this case, any maildirs found in directory whose names start with target-prefix will not be listed as groups (but the symlinks pointing to them will be).

As a special case, if target-prefix is "" (the default), then when you create a group, the maildir will be created in directory without a corresponding symlink. Beware that you cannot use gnus-group-delete-group on such groups without the force argument.

directory-files This should be a function with the same interface as directory-files (such as directory-files itself). It is used to scan the server's directory for maildirs. This parameter is optional; the default is nnheader-directory-files-safe if nnheader-directory-files-is-safe is nil, and directory-files otherwise. (nnheader-directory-files-is-safe is checked only once when the server is opened; if you want to check it each time the directory is scanned, you'll have to provide your own function that does that.)

get-new-mail If non-nil, then after scanning for new mail in the group maildirs themselves as usual, this server will also incorporate mail the conventional Gnus way, from mail-sources according to nnmail-split-methods or nnmail-split-fancy. The default value is nil.

Do *not* use the same maildir both in mail-sources and as an nnmaildir group. The results might happen to be useful, but that would be by chance, not by design, and the results might be different in the future. If your split rules create new groups, remember to supply a create-directory server parameter.

#### 6.3.13.6 Group parameters

nnmaildir uses several group parameters. It's safe to ignore all this; the default behavior for nnmaildir is the same as the default behavior for other mail back ends: articles are deleted after one week, etc. Except for the expiry parameters, all this functionality is unique to nnmaildir, so you can ignore it if you're just trying to duplicate the behavior you already have with another back end.

If the value of any of these parameters is a vector, the first element is evaluated as a Lisp form and the result is used, rather than the original value. If the value is not a vector, the value itself is evaluated as a Lisp form. (This is why these parameters use names different from those of other, similar parameters supported by other back ends: they have different, though similar, meanings.) (For numbers, strings, nil, and t, you can ignore the eval business again; for other values, remember to use an extra quote and wrap the value in a vector when appropriate.)

expire-age An integer specifying the minimum age, in seconds, of an article before it will be expired, or the symbol never to specify that articles should never be expired. If this parameter is not set, nnmaildir falls back to the usual nnmail-expiry-wait(-function) variables (overrideable by the expiry-wait(-function) group parameters. If you wanted a value of 3 days, you could use something like [(* 3 24 60 60)]; nnmaildir will evaluate the form and use the result. An article's age is measured starting from the article file's modification time. Normally, this is the same as the article's delivery time, but editing an article makes it younger. Moving an article (other than via expiry) may also make an article younger.

expire-group If this is set to a string such as a full Gnus group name, like

```
"backend+server.address.string:group.name"
```

and if it is not the name of the same group that the parameter belongs to, then articles will be moved to the specified group during expiry before being deleted. *If this is set to an nnmaildir group, the article will be just as old in the destination group as it was in the source group.* So be careful with expire-age in the destination group. If this is set to the name of the same group that the parameter belongs to, then the article is not expired at all. If you use the vector form, the first element is evaluated once for each article. So that form can refer to nnmaildir-article-file-name, etc., to decide where to put the article. *If this parameter is not set, nnmaildir does not fall back to the expiry-target group parameter or the nnmail-expiry-target variable.*

read-only If this is set to t, nnmaildir will treat the articles in this maildir as read-only. This means: articles are not renamed from 'new/' into 'cur/'; articles are only found in 'new/', not 'cur/'; articles are never deleted; articles cannot be edited. 'new/' is expected to be a symlink to the 'new/' directory of another

maildir—e.g., a system-wide mailbox containing a mailing list of common interest. Everything in the maildir outside 'new/' is *not* treated as read-only, so for a shared mailbox, you do still need to set up your own maildir (or have write permission to the shared mailbox); your maildir just won't contain extra copies of the articles.

directory-files A function with the same interface as directory-files. It is used to scan the directories in the maildir corresponding to this group to find articles. The default is the function specified by the server's directory-files parameter.

distrust-Lines: If non-nil, nnmaildir will always count the lines of an article, rather than use the Lines: header field. If nil, the header field will be used if present.

always-marks A list of mark symbols, such as ['(read expire)]. Whenever Gnus asks nnmaildir for article marks, nnmaildir will say that all articles have these marks, regardless of whether the marks stored in the filesystem say so. This is a proof-of-concept feature that will probably be removed eventually; it ought to be done in Gnus proper, or abandoned if it's not worthwhile.

never-marks A list of mark symbols, such as ['(tick expire)]. Whenever Gnus asks nnmaildir for article marks, nnmaildir will say that no articles have these marks, regardless of whether the marks stored in the filesystem say so. never-marks overrides always-marks. This is a proof-of-concept feature that will probably be removed eventually; it ought to be done in Gnus proper, or abandoned if it's not worthwhile.

nov-cache-size An integer specifying the size of the NOV memory cache. To speed things up, nnmaildir keeps NOV data in memory for a limited number of articles in each group. (This is probably not worthwhile, and will probably be removed in the future.) This parameter's value is noticed only the first time a group is seen after the server is opened—i.e., when you first start Gnus, typically. The NOV cache is never resized until the server is closed and reopened. The default is an estimate of the number of articles that would be displayed in the summary buffer: a count of articles that are either marked with tick or not marked with read, plus a little extra.

#### 6.3.13.7 Article identification

Articles are stored in the 'cur/' subdirectory of each maildir. Each article file is named like uniq:info, where uniq contains no colons. nnmaildir ignores, but preserves, the :info part. (Other maildir readers typically use this part of the filename to store marks.) The uniq part uniquely identifies the article, and is used in various places in the '.nnmaildir/' subdirectory of the maildir to store information about the corresponding article. The full pathname of an article is available in the variable nnmaildir-article-file-name after you request the article in the summary buffer.

#### 6.3.13.8 NOV data

An article identified by uniq has its NOV data (used to generate lines in the summary buffer) stored in .nnmaildir/nov/uniq. There is no nnmaildir-generate-nov-databases function. (There isn't much need for it—an article's NOV data is updated automatically when the article or nnmail-extra-headers has changed.) You can force nnmaildir to regenerate the NOV data for a single article simply by deleting the corresponding NOV file, but *beware*: this will also cause nnmaildir to assign a new article number for this article, which may cause trouble with seen marks, the Agent, and the cache.

#### 6.3.13.9 Article marks

An article identified by uniq is considered to have the mark flag when the file '.nnmaildir/marks/flag/uniq' exists. When Gnus asks nnmaildir for a group's marks, nnmaildir looks for such files and reports the set of marks it finds. When Gnus asks nnmaildir to store a new set of marks, nnmaildir creates and deletes the corresponding files as needed. (Actually, rather than create a new file for each mark, it just creates hard links to '.nnmaildir/markfile', to save inodes.)

You can invent new marks by creating a new directory in '.nnmaildir/marks/'. You can tar up a maildir and remove it from your server, untar it later, and keep your marks. You can add and remove marks yourself by creating and deleting mark files. If you do this while Gnus is running and your nnmaildir server is open, it's best to exit all summary buffers for nnmaildir groups and type 's' in the group buffer first, and to type 'g' or 'M-g' in the group buffer afterwards. Otherwise, Gnus might not pick up the changes, and might undo them.

#### 6.3.13.10 Mail Folders

nnfolder is a back end for storing each mail group in a separate file. Each file is in the standard Un*x mbox format. nnfolder will add extra headers to keep track of article numbers and arrival dates.

When the marks file is used (which it is by default), nnfolder servers have the property that you may backup them using tar or similar, and later be able to restore them into Gnus (by adding the proper nnfolder server) and have all your marks be preserved. Marks for a group is usually stored in a file named as the mbox file with .mrk concatenated to it (but see nnfolder-marks-file-suffix) within the nnfolder directory. Individual nnfolder groups are also possible to backup, use 'G m' to restore the group (after restoring the backup into the nnfolder directory).

Virtual server settings:

nnfolder-directory All the nnfolder mail boxes will be stored under this directory. The default is the value of message-directory (whose default is '~/Mail')

nnfolder-active-file The name of the active file. The default is '~/Mail/active'.

nnfolder-newsgroups-file The name of the group descriptions file. See "Newsgroups File Format" on page 426. The default is '~/Mail/newsgroups'

nnfolder-get-new-mail If non-nil, nnfolder will read incoming mail. The default is t

nnfolder-save-buffer-hook Hook run before saving the folders. Note that Emacs does the normal backup renaming of files even with the nnfolder buffers. If you wish to switch this off, you could say something like the following in your '.emacs' file:

```
(defun turn-off-backup ()
  (set (make-local-variable 'backup-inhibited) t))

(add-hook 'nnfolder-save-buffer-hook 'turn-off-backup)
```

nnfolder-delete-mail-hook Hook run in a buffer narrowed to the message that is to be deleted. This function can be used to copy the message to somewhere else, or to extract some information from it before removing it.

nnfolder-nov-is-evil If non-nil, this back end will ignore any NOV files. The default is nil.

nnfolder-nov-file-suffix The extension for NOV files. The default is '.nov'.

nnfolder-nov-directory The directory where the NOV files should be stored. If nil, nnfolder-directory is used.

nnfolder-marks-is-evil If non-nil, this back end will ignore any MARKS files. The default is nil.

nnfolder-marks-file-suffix The extension for MARKS files. The default is '.mrk'.

nnfolder-marks-directory The directory where the MARKS files should be stored. If nil, nnfolder-directory is used.

If you have lots of nnfolder-like files you'd like to read with nnfolder, you can use the 'M-x nnfolder-generate-active-file' command to make nnfolder aware of all likely files in nnfolder-directory. This only works if you use long file names, though.

#### 6.3.13.11 Comparing Mail Back Ends

First, just for terminology, the *back end* is the common word for a low-level access method—a transport, if you will, by which something is acquired. The sense is that one's mail has to come from somewhere, and so selection of a suitable back end is required in order to get that mail within spitting distance of Gnus.

The same concept exists for Usenet itself: Though access to articles is typically done by NNTP these days, once upon a midnight dreary, everyone in the world got

at Usenet by running a reader on the machine where the articles lay (the machine which today we call an NNTP server), and access was by the reader stepping into the articles' directory spool area directly. One can still select between either the nntp or nnspool back ends, to select between these methods, if one happens actually to live on the server (or can see its spool directly, anyway, via NFS).

The goal in selecting a mail back end is to pick one which simultaneously represents a suitable way of dealing with the original format plus leaving mail in a form that is convenient to use in the future. Here are some high and low points on each:

nnmbox UNIX systems have historically had a single, very common, and well- defined format. All messages arrive in a single *spool file*, and they are delineated by a line whose regular expression matches "^From·". (My notational use of "·" is to indicate a space, to make it clear in this instance that this is not the RFC-specified "From:" header.) Because Emacs and therefore Gnus emanate historically from the Unix environment, it is simplest if one does not mess a great deal with the original mailbox format, so if one chooses this back end, Gnus' primary activity in getting mail from the real spool area to Gnus' preferred directory is simply to copy it, with no (appreciable) format change in the process. It is the "dumbest" way to move mail into availability in the Gnus environment. This makes it fast to move into place, but slow to parse, when Gnus has to look at what's where.

nnbabyl Once upon a time, there was the DEC-10 and DEC-20, running operating systems called TOPS and related things, and the usual (only?) mail reading environment was a thing called Babyl. I don't know what format was used for mail landing on the system, but Babyl had its own internal format to which mail was converted, primarily involving creating a spool-file-like entity with a scheme for inserting Babyl-specific headers and status bits above the top of each message in the file. Rmail was Emacs' first mail reader, it was written by Richard Stallman, and Stallman came out of that TOPS/Babyl environment, so he wrote Rmail to understand the mail files folks already had in existence. Gnus (and VM, for that matter) continue to support this format because it's perceived as having some good qualities in those mailer-specific headers/status bits stuff. Rmail itself still exists as well, of course, and is still maintained by Stallman.

Both of the above forms leave your mail in a single file on your file system, and they must parse that entire file each time you take a look at your mail.

nnml nnml is the back end which smells the most as though you were actually operating with an nnspool-accessed Usenet system. (In fact, I believe nnml actually derived from nnspool code, lo these years ago.) One's mail is taken from the original spool file, and is then cut up into individual message files, 1:1. It maintains a Usenet-style active file (analogous to what one finds in an

INN- or CNews-based news system in (for instance) '/var/lib/news/active', or what is returned via the "NNTP LIST" verb) and also creates *overview* files for efficient group entry, as has been defined for NNTP servers for some years now. It is slower in mail-splitting, due to the creation of lots of files, updates to the nnml active file, and additions to overview files on a per-message basis, but it is extremely fast on access because of what amounts to the indexing support provided by the active file and overviews.

nnml costs *inodes* in a big way; that is, it soaks up the resource which defines available places in the file system to put new files. Sysadmins take a dim view of heavy inode occupation within tight, shared file systems. But if you live on a personal machine where the file system is your own and space is not at a premium, nnml wins big.

It is also problematic using this back end if you are living in a FAT16-based Windows world, since much space will be wasted on all these tiny files.

nnmh The Rand MH mail-reading system has been around UNIX systems for a very long time; it operates by splitting one's spool file of messages into individual files, but with little or no indexing support—nnmh is considered to be semantically equivalent to "nnml without active file or overviews". This is arguably the worst choice, because one gets the slowness of individual file creation married to the slowness of access parsing when learning what's new in one's groups.

nnfolder Basically the effect of nnfolder is nnmbox (the first method described above) on a per-group basis. That is, nnmbox itself puts *all* one's mail in one file; nnfolder provides a little bit of optimization to this so that each of one's mail groups has a Unix mail box file. It's faster than nnmbox because each group can be parsed separately, and still provides the simple Unix mail box format requiring minimal effort in moving the mail around. In addition, it maintains an "active" file making it much faster for Gnus to figure out how many messages there are in each separate group.

If you have groups that are expected to have a massive amount of messages, nnfolder is not the best choice, but if you receive only a moderate amount of mail, nnfolder is probably the most friendly mail back end all over.

nnmaildir For configuring expiry and other things, nnmaildir uses incompatible group parameters, slightly different from those of other mail back ends.

nnmaildir is largely similar to nnml, with some notable differences. Each message is stored in a separate file, but the filename is unrelated to the article number in Gnus. nnmaildir also stores the equivalent of nnml's overview files in one file per article, so it uses about twice as many inodes as nnml. (Use df -i to see how plentiful your inode supply is.) If this slows you down or takes up very much space, consider switching to http://www.namesys.com/, ReiserFS or another non-block-structured file system.

Since maildirs don't require locking for delivery, the maildirs you use as groups can also be the maildirs your mail is directly delivered to. This means you can skip Gnus' mail splitting if your mail is already organized into different mailboxes during delivery. A directory entry in mail-sources would have a similar effect, but would require one set of mailboxes for spooling deliveries (in mbox format, thus damaging message bodies), and another set to be used as groups (in whatever format you like). A maildir has a built-in spool, in the new/ subdirectory. Beware that currently, mail moved from new/ to cur/ instead of via mail splitting will not undergo treatment such as duplicate checking.

nnmaildir stores article marks for a given group in the corresponding maildir, in a way designed so that it's easy to manipulate them from outside Gnus. You can tar up a maildir, unpack it somewhere else, and still have your marks. nnml also stores marks, but it's not as easy to work with them from outside Gnus as with nnmaildir.

nnmaildir uses a significant amount of memory to speed things up. (It keeps in memory some of the things that nnml stores in files and that nnmh repeatedly parses out of message files.) If this is a problem for you, you can set the nov-cache-size group parameter to something small (0 would probably not work, but 1 probably would) to make it use less memory. This caching will probably be removed in the future.

Startup is likely to be slower with nnmaildir than with other back ends. Everything else is likely to be faster, depending in part on your file system.

nnmaildir does not use nnoo, so you cannot use nnoo to write an nnmaildir-derived back end.

## 6.4 Browsing the Web

Web-based discussion forums are getting more and more popular. On many subjects, the web-based forums have become the most important forums, eclipsing the importance of mailing lists and news groups. The reason is easy to understand—they are friendly to new users; you just point and click, and there's the discussion. With mailing lists, you have to go through a cumbersome subscription procedure, and most people don't even know what a news group is.

The problem with this scenario is that web browsers are not very good at being newsreaders. They do not keep track of what articles you've read; they do not allow you to score on subjects you're interested in; they do not allow off-line browsing; they require you to click around and drive you mad in the end.

So—if web browsers suck at reading discussion forums, why not use Gnus to do it instead?

Gnus has been getting a bit of a collection of back ends for providing interfaces to these sources.

All the web sources require Emacs/w3 and the url library to work.

The main caveat with all these web sources is that they probably won't work for a very long time. Gleaning information from the HTML data is guesswork at best, and when the layout is altered, the Gnus back end will fail. If you have reasonably new versions of these back ends, though, you should be ok.

One thing all these Web methods have in common is that the Web sources are often down, unavailable or just plain too slow to be fun. In those cases, it makes a lot of sense to let the Gnus Agent (see "Gnus Unplugged" on page 216) handle downloading articles, and then you can read them at leisure from your local disk. No more World Wide Wait for you.

### 6.4.1 Archiving Mail

Some of the back ends, notably nnml, nnfolder, and nnmaildir, now actually store the article marks with each group. For these servers, archiving and restoring a group while preserving marks is fairly simple.

(Preserving the group level and group parameters as well still requires ritual dancing and sacrifices to the '.newsrc.eld' deity though.)

To archive an entire nnml, nnfolder, or nnmaildir server, take a recursive copy of the server directory. There is no need to shut down Gnus, so archiving may be invoked by cron or similar. You restore the data by restoring the directory tree, and adding a server definition pointing to that directory in Gnus. The "Article Backlog" on page 83, "Asynchronous Fetching" on page 80 and other things might interfere with overwriting data, so you may want to shut down Gnus before you restore the data.

It is also possible to archive individual nnml, nnfolder, or nnmaildir groups, while preserving marks. For nnml or nnmaildir, you copy all files in the group's directory. For nnfolder you need to copy both the base folder file itself ('FOO', say), and the marks file ('FOO.mrk' in this example). Restoring the group is done with 'G m' from the Group buffer. The last step makes Gnus notice the new directory. nnmaildir notices the new directory automatically, so 'G m' is unnecessary in that case.

### 6.4.2 Web Searches

It's, like, too neat to search the Usenet for articles that match a string, but it, like, totally *sucks*, like, totally, to use one of those, like, Web browsers, and you, like, have to, rilly, like, look at the commercials, so, like, with Gnus you can do *rad*, rilly, searches without having to use a browser.

The nnweb back end allows an easy interface to the mighty search engine. You create an nnweb group, enter a search pattern, and then enter the group and read the articles like you would any normal group. The 'G w' command in the group buffer (see "Foreign Groups" on page 23) will do this in an easy-to-use fashion.

nnweb groups don't really lend themselves to being solid groups—they have a very fleeting idea of article numbers. In fact, each time you enter an nnweb

group (not even changing the search pattern), you are likely to get the articles ordered in a different manner. Not even using duplicate suppression (see "Duplicate Suppression" on page 120) will help, since nnweb doesn't even know the Message-ID of the articles before reading them using some search engines (Google, for instance). The only possible way to keep track of which articles you've read is by scoring on the Date header—mark all articles posted before the last date you read the group as read.

If the search engine changes its output substantially, nnweb won't be able to parse it and will fail. One could hardly fault the Web providers if they were to do this—their *raison d'être* is to make money off of advertisements, not to provide services to the community. Since nnweb washes the ads off all the articles, one might think that the providers might be somewhat miffed. We'll see.

You must have the url and w3 package installed to be able to use nnweb.

Virtual server variables:

nnweb-type What search engine type is being used. The currently supported types are google, dejanews, and gmane. Note that dejanews is an alias to google.

nnweb-search The search string to feed to the search engine.

nnweb-max-hits Advisory maximum number of hits per search to display. The default is 999.

nnweb-type-definition Type-to-definition alist. This alist says what nnweb should do with the various search engine types. The following elements must be present:

- article Function to decode the article and provide something that Gnus understands.
- map Function to create an article number to message header and URL alist.
- search Function to send the search string to the search engine.
- address The address the aforementioned function should send the search string to.
- id Format string URL to fetch an article by Message-ID.

### 6.4.3 Slashdot

http://slashdot.org/, Slashdot is a popular news site, with lively discussion following the news articles. nnslashdot will let you read this forum in a convenient manner.

The easiest way to read this source is to put something like the following in your '~/.gnus.el' file:

```
(setq gnus-secondary-select-methods
      '((nnslashdot "")))
```

This will make Gnus query the nnslashdot back end for new comments and groups. The 'F' command will subscribe each new news article as a new Gnus group, and you can read the comments by entering these groups. (Note that the default subscription method is to subscribe new groups as zombies. Other methods are available (see "Subscription Methods" on page 5).

If you want to remove an old nnslashdot group, the 'G DEL' command is the most handy tool (see "Foreign Groups" on page 23).

When following up to nnslashdot comments (or posting new comments), some light HTMLizations will be performed. In particular, text quoted with "> " will be quoted with blockquote instead, and signatures will have br added to the end of each line. Other than that, you can just write HTML directly into the message buffer. Note that Slashdot filters out some HTML forms.

The following variables can be altered to change its behavior:

nnslashdot-threaded Whether nnslashdot should display threaded groups or not. The default is t. To be able to display threads, nnslashdot has to retrieve absolutely all comments in a group upon entry. If a threaded display is not required, nnslashdot will only retrieve the comments that are actually wanted by the user. Threading is nicer, but much, much slower than unthreaded.

nnslashdot-login-name The login name to use when posting.

nnslashdot-password The password to use when posting.

nnslashdot-directory Where nnslashdot will store its files. The default is '~/News/slashdot/'.

nnslashdot-active-url The URL format string that will be used to fetch the information on news articles and comments. The default is "http://slashdot.org/search.pl?section=&min=%d".

nnslashdot-comments-url The URL format string that will be used to fetch comments. The default is "http://slashdot.org/comments.pl?sid=%s&threshold=%d&commentsort=%d&m

nnslashdot-article-url The URL format string that will be used to fetch the news article. The default is "http://slashdot.org/article.pl?sid=%s&mode=nocomment".

nnslashdot-threshold The score threshold. The default is -1.

nnslashdot-group-number The number of old groups, in addition to the ten latest, to keep updated. The default is 0.

### 6.4.4 Ultimate

http://www.ultimatebb.com/, The Ultimate Bulletin Board is probably the most popular Web bulletin board system used. It has a quite regular and nice interface, and it's possible to get the information Gnus needs to keep groups updated.

The easiest way to get started with nnultimate is to say something like the following in the group buffer: 'B nnultimate RET http://www.tcj.com/messboard/ubbcgi/ RET'. (Substitute the URL (not including "Ultimate.cgi" or the like at the end) for a forum you're interested in; there's quite a list of them on the Ultimate web site.) Then subscribe to the groups you're interested in from the server buffer, and read them from the group buffer.

The following nnultimate variables can be altered:

nnultimate-directory The directory where nnultimate stores its files. The default is '~/News/ultimate/'.

### 6.4.5 Web Archive

Some mailing lists only have archives on Web servers, such as http://www.egroups.com/ and http://www.mail-archive.com/. It has a quite regular and nice interface, and it's possible to get the information Gnus needs to keep groups updated.

The easiest way to get started with nnwarchive is to say something like the following in the group buffer: 'M-x gnus-group-make-warchive-group RET an˙egroup RET egroups RET www.egroups.com RET your@email.address RET'. (Substitute the an˙egroup with the mailing list you subscribed, the your@email.address with your email address.), or to browse the back end by 'B nnwarchive RET mail-archive RET'.

The following nnwarchive variables can be altered:

nnwarchive-directory The directory where nnwarchive stores its files. The default is '~/News/warchive/'.

nnwarchive-login The account name on the web server.

nnwarchive-passwd The password for your account on the web server.

### 6.4.6 RSS

Some sites have RDF site summary (RSS) http://purl.org/rss/1.0/spec. It has a quite regular and nice interface, and it's possible to get the information Gnus needs to keep groups updated.

The easiest way to get started with nnrss is to say something like the following in the group buffer: 'B nnrss RET RET', then subscribe groups.

The following nnrss variables can be altered:

nnrss-directory The directory where nnrss stores its files. The default is '~/News/rss/'.

The following code may be helpful, if you want to show the description in the summary buffer.

```
(add-to-list 'nnmail-extra-headers nnrss-description-field)
(setq gnus-summary-line-format "%U%R%z%I%(%[%4L: %-15,15f%]%) %s%uX\n

(defun gnus-user-format-function-X (header)
  (let ((descr
         (assq nnrss-description-field (mail-header-extra header))))
    (if descr (concat "\n\t" (cdr descr)) "")))
```

The following code may be useful to open an nnrss url directly from the summary buffer.

```
(require 'browse-url)

(defun browse-nnrss-url( arg )
  (interactive "p")
  (let ((url (assq nnrss-url-field
                   (mail-header-extra
                    (gnus-data-header
                     (assq (gnus-summary-article-number)
                           gnus-newsgroup-data))))))
    (if url
        (progn
          (browse-url (cdr url))
          (gnus-summary-mark-as-read-forward 1))
      (gnus-summary-scroll-up arg))))

(eval-after-load "gnus"
  #'(define-key gnus-summary-mode-map
      (kbd "<RET>") 'browse-nnrss-url))
(add-to-list 'nnmail-extra-headers nnrss-url-field)
```

### 6.4.7 Customizing w3

Gnus uses the url library to fetch web pages and Emacs/w3 to display web pages. Emacs/w3 is documented in its own manual, but there are some things that may be more relevant for Gnus users.

For instance, a common question is how to make Emacs/w3 follow links using the browse-url functions (which will call some external web browser like Netscape). Here's one way:

```
(eval-after-load "w3"
  '(progn
    (fset 'w3-fetch-orig (symbol-function 'w3-fetch))
    (defun w3-fetch (&optional url target)
```

```
      (interactive (list (w3-read-url-with-default)))
      (if (eq major-mode 'gnus-article-mode)
          (browse-url url)
        (w3-fetch-orig url target)))))
```

Put that in your '.emacs' file, and hitting links in w3-rendered HTML in the Gnus article buffers will use browse-url to follow the link.

## 6.5 IMAP

IMAP is a network protocol for reading mail (or news, or ...), think of it as a modernized NNTP. Connecting to a IMAP server is much similar to connecting to a news server, you just specify the network address of the server.

IMAP has two properties. First, IMAP can do everything that POP can, it can hence be viewed as a POP++. Secondly, IMAP is a mail storage protocol, similar to NNTP being a news storage protocol—however, IMAP offers more features than NNTP because news is more or less read-only whereas mail is read-write.

If you want to use IMAP as a POP++, use an imap entry in mail-sources. With this, Gnus will fetch mails from the IMAP server and store them on the local disk. This is not the usage described in this section—See "Mail Sources" on page 161.

If you want to use IMAP as a mail storage protocol, use an nnimap entry in gnus-secondary-select-methods. With this, Gnus will manipulate mails stored on the IMAP server. This is the kind of usage explained in this section.

A server configuration in '~/.gnus.el' with a few IMAP servers might look something like the following. (Note that for TLS/SSL, you need external programs and libraries, see below.)

```
(setq gnus-secondary-select-methods
      '((nnimap "simpleserver") ; \gnusr{no special configuration}
        ; \gnusr{perhaps a ssh port forwarded server:}
        (nnimap "dolk"
                (nnimap-address "localhost")
                (nnimap-server-port 1430))
        ; \gnusr{a UW server running on localhost}
        (nnimap "barbar"
                (nnimap-server-port 143)
                (nnimap-address "localhost")
                (nnimap-list-pattern ("INBOX" "mail/*")))
        ; \gnusr{anonymous public cyrus server:}
        (nnimap "cyrus.andrew.cmu.edu"
                (nnimap-authenticator anonymous)
                (nnimap-list-pattern "archive.*")
                (nnimap-stream network))
        ; \gnusr{a ssl server on a non-standard port:}
```

```
(nnimap "vic20"
        (nnimap-address "vic20.somewhere.com")
        (nnimap-server-port 9930)
        (nnimap-stream ssl))))
```

After defining the new server, you can subscribe to groups on the server using normal Gnus commands such as 'U' in the Group Buffer (see "Subscription Commands" on page 20) or via the Server Buffer (see "Server Buffer" on page 146).

The following variables can be used to create a virtual nnimap server:

nnimap-address The address of the remote IMAP server. Defaults to the virtual server name if not specified.

nnimap-server-port Port on server to contact. Defaults to port 143, or 993 for TLS/SSL.

Note that this should be an integer, example server specification:

```
(nnimap "mail.server.com"
        (nnimap-server-port 4711))
```

nnimap-list-pattern String or list of strings of mailboxes to limit available groups to. This is used when the server has very many mailboxes and you're only interested in a few—some servers export your home directory via IMAP, you'll probably want to limit the mailboxes to those in '~/Mail/*' then.

The string can also be a cons of REFERENCE and the string as above, what REFERENCE is used for is server specific, but on the University of Washington server it's a directory that will be concatenated with the mailbox.

Example server specification:

```
(nnimap "mail.server.com"
        (nnimap-list-pattern ("INBOX" "Mail/*" "alt.sex.*"
                              ("~friend/Mail/" . "list/*"))))
```

nnimap-stream The type of stream used to connect to your server. By default, nnimap will detect and automatically use all of the below, with the exception of TLS/SSL. (IMAP over TLS/SSL is being replaced by STARTTLS, which can be automatically detected, but it's not widely deployed yet.)

Example server specification:

```
(nnimap "mail.server.com"
        (nnimap-stream ssl))
```

Please note that the value of nnimap-stream is a symbol!

- *gssapi:* Connect with GSSAPI (usually Kerberos 5). Requires the "gsasl" or "imtest" program.
- *kerberos4:* Connect with Kerberos 4. Requires the "imtest" program.
- *starttls:* Connect via the STARTTLS extension (similar to TLS/SSL). Requires the external library "starttls.el" and program "starttls".
- *tls:* Connect through TLS. Requires GNUTLS (the program "gnutls-cli").
- *ssl:* Connect through SSL. Requires OpenSSL (the program "openssl") or SSLeay ("s˙client").
- *shell:* Use a shell command to start IMAP connection.
- *network:* Plain, TCP/IP network connection.

The "imtest" program is shipped with Cyrus IMAPD. If you're using "imtest" from Cyrus IMAPD < 2.0.14 (which includes version 1.5.x and 1.6.x) you need to frob imap-process-connection-type to make imap.el use a pty instead of a pipe when communicating with "imtest". You will then suffer from a line length restrictions on IMAP commands, which might make Gnus seem to hang indefinitely if you have many articles in a mailbox. The variable imap-kerberos4-program contain parameters to pass to the imtest program.

For TLS connection, the gnutls-cli program from GNUTLS is needed. It is available from http://www.gnu.org/software/gnutls/.

This parameter specifies a list of command lines that invoke a GSSAPI authenticated IMAP stream in a subshell. They are tried sequentially until a connection is made, or the list has been exhausted. By default, "gsasl" from GNU SASL, available from http://www.gnu.org/software/gsasl/, and the "imtest" program from Cyrus IMAPD (see imap-kerberos4-program), are tried.

For SSL connections, the OpenSSL program is available from http://www.openssl.org/. OpenSSL was formerly known as SSLeay, and nnimap support it too—although the most recent versions of SSLeay, 0.9.x, are known to have serious bugs making it useless. Earlier versions, especially 0.8.x, of SSLeay are known to work. The variable imap-ssl-program contain parameters to pass to OpenSSL/SSLeay.

For IMAP connections using the shell stream, the variable imap-shell-program specify what program to call.

nnimap-authenticator The authenticator used to connect to the server. By default, nnimap will use the most secure authenticator your server is capable of.

Example server specification:

```
(nnimap "mail.server.com"
        (nnimap-authenticator anonymous))
```

Please note that the value of nnimap-authenticator is a symbol!

- *gssapi:* GSSAPI (usually kerberos 5) authentication. Requires external program gsasl or imtest.
- *kerberos4:* Kerberos 4 authentication. Requires external program imtest.
- *digest-md5:* Encrypted username/password via DIGEST-MD5. Requires external library digest-md5.el.
- *cram-md5:* Encrypted username/password via CRAM-MD5.
- *login:* Plain-text username/password via LOGIN.
- *anonymous:* Login as "anonymous", supplying your email address as password.

nnimap-expunge-on-close Unlike Parmenides the IMAP designers have decided things that don't exist actually do exist. More specifically, IMAP has this concept of marking articles Deleted which doesn't actually delete them, and this (marking them Deleted, that is) is what nnimap does when you delete an article in Gnus (with 'B DEL' or similar).

Since the articles aren't really removed when we mark them with the Deleted flag we'll need a way to actually delete them. Feel like running in circles yet?

Traditionally, nnimap has removed all articles marked as Deleted when closing a mailbox but this is now configurable by this server variable.

The possible options are:

always The default behavior, delete all articles marked as "Deleted" when closing a mailbox.

never Never actually delete articles. Currently there is no way of showing the articles marked for deletion in nnimap, but other IMAP clients may allow you to do this. If you ever want to run the EXPUNGE command manually, See "Expunging mailboxes" on page 204.

ask When closing mailboxes, nnimap will ask if you wish to expunge deleted articles or not.

nnimap-importantize-dormant If non-nil (the default), marks dormant articles as ticked (as well), for other IMAP clients. Within Gnus, dormant articles will naturally still (only) be marked as dormant. This is to make dormant articles stand out, just like ticked articles, in other IMAP clients. (In other words, Gnus has two "Tick" marks and IMAP has only one.)

Probably the only reason for frobing this would be if you're trying enable per-user persistent dormant flags, using something like:

```
(setcdr (assq 'dormant nnimap-mark-to-flag-alist)
        (format "gnus-dormant-%s" (user-login-name)))
(setcdr (assq 'dormant nnimap-mark-to-predicate-alist)
        (format "KEYWORD gnus-dormant-%s" (user-login-name)))
```

In this case, you would not want the per-user dormant flag showing up as ticked for other users.

nnimap-expunge-search-string This variable contain the IMAP search command sent to server when searching for articles eligible for expiring. The default is "UID %s NOT SINCE %s", where the first %s is replaced by UID set and the second %s is replaced by a date.

Probably the only useful value to change this to is "UID %s NOT SENTSINCE %s", which makes nnimap use the Date: in messages instead of the internal article date. See section 6.4.4 of RFC 2060 for more information on valid strings.

nnimap-authinfo-file A file containing credentials used to log in on servers. The format is (almost) the same as the ftp '~/.netrc' file. See the variable nntp-authinfo-file for exact syntax; also see "NNTP" on page 151.

nnimap-need-unselect-to-notice-new-mail Unselect mailboxes before looking for new mail in them. Some servers seem to need this under some circumstances; it was reported that Courier 1.7.1 did.

### 6.5.1 Splitting in IMAP

Splitting is something Gnus users have loved and used for years, and now the rest of the world is catching up. Yeah, dream on, not many IMAP servers have server side splitting and those that have splitting seem to use some non-standard protocol. This means that IMAP support for Gnus has to do its own splitting.

And it does.

(Incidentally, people seem to have been dreaming on, and Sieve has gaining a market share and is supported by several IMAP servers. Fortunately, Gnus support it too, See "Sieve Commands" on page 46.)

Here are the variables of interest:

nnimap-split-crosspost If non-nil, do crossposting if several split methods match the mail. If nil, the first match in nnimap-split-rule found will be used.

Nnmail equivalent: nnmail-crosspost.

nnimap-split-inbox A string or a list of strings that gives the name(s) of IMAP mail-boxes to split from. Defaults to nil, which means that splitting is disabled!

```
(setq nnimap-split-inbox
      '("INBOX" ("~/friend/Mail" . "lists/*") "lists.imap"))
```

No nnmail equivalent.

nnimap-split-rule New mail found in nnimap-split-inbox will be split according to this variable.

This variable contains a list of lists, where the first element in the sublist gives the name of the IMAP mailbox to move articles matching the regexp in the second element in the sublist. Got that? Neither did I, we need examples.

```
(setq nnimap-split-rule
      '(("INBOX.nnimap"
         "^Sender: owner-nnimap@vic20.globalcom.se")
        ("INBOX.junk"    "^Subject:.*MAKE MONEY")
        ("INBOX.private" "")))
```

This will put all articles from the nnimap mailing list into mailbox INBOX.nnimap, all articles containing MAKE MONEY in the Subject: line into INBOX.junk and everything else in INBOX.private.

The first string may contain "/1" forms, like the ones used by replace-match to insert sub-expressions from the matched text. For instance:

```
("INBOX.lists.\\1"     "^Sender: owner-\\([a-z-]+\\)@")
```

The first element can also be the symbol junk to indicate that matching messages should simply be deleted. Use with care.

The second element can also be a function. In that case, it will be called with the first element of the rule as the argument, in a buffer containing the headers of the article. It should return a non-nil value if it thinks that the mail belongs in that group.

Nnmail users might recollect that the last regexp had to be empty to match all articles (like in the example above). This is not required in nnimap. Articles not matching any of the regexps will not be moved out of your inbox. (This might affect performance if you keep lots of unread articles in your inbox, since the splitting code would go over them every time you fetch new mail.)

These rules are processed from the beginning of the alist toward the end. The first rule to make a match will "win", unless you have crossposting enabled. In that case, all matching rules will "win".

This variable can also have a function as its value, the function will be called with the headers narrowed and should return a group where it thinks the article should be split to. See nnimap-split-fancy.

The splitting code tries to create mailboxes if it needs to.

To allow for different split rules on different virtual servers, and even different split rules in different inboxes on the same server, the syntax of this variable have been extended along the lines of:

```
(setq nnimap-split-rule
      '(("my1server"    (".*" (("ding"    "ding@gnus.org")
                               ("junk"    "From:.*Simon"))))
        ("my2server"    ("INBOX" nnimap-split-fancy))
        ("my[34]server" (".*" (("private" "To:.*Simon")
                               ("junk"    my-junk-func))))))
```

The virtual server name is in fact a regexp, so that the same rules may apply to several servers. In the example, the servers my3server and my4server both use the same rules. Similarly, the inbox string is also a regexp. The actual splitting rules are as before, either a function, or a list with group/regexp or group/function elements.

Nnmail equivalent: nnmail-split-methods.

nnimap-split-predicate Mail matching this predicate in nnimap-split-inbox will be split, it is a string and the default is "UNSEEN UNDELETED".

This might be useful if you use another IMAP client to read mail in your inbox but would like Gnus to split all articles in the inbox regardless of readedness. Then you might change this to "UNDELETED".

nnimap-split-fancy It's possible to set nnimap-split-rule to nnmail-split-fancy if you want to use fancy splitting. See "Fancy Mail Splitting" on page 169.

However, to be able to have different fancy split rules for nnmail and nnimap back ends you can set nnimap-split-rule to nnimap-split-fancy and define the nnimap specific fancy split rule in nnimap-split-fancy.

Example:

```
(setq nnimap-split-rule 'nnimap-split-fancy
      nnimap-split-fancy ...)
```

Nnmail equivalent: nnmail-split-fancy.

nnimap-split-download-body Set to non-nil to download entire articles during splitting. This is generally not required, and will slow things down considerably. You may need it if you want to use an advanced splitting function that analyses the body to split the article.

### 6.5.2 Expiring in IMAP

Even though nnimap is not a proper nnmail derived back end, it supports most features in regular expiring (see "Expiring Mail" on page 175). Unlike splitting in IMAP (see "Splitting in IMAP" on page 201) it does not clone the nnmail variables (i.e., creating nnimap-expiry-wait) but reuse the nnmail variables. What follows below are the variables used by the nnimap expiry process.

A note on how the expire mark is stored on the IMAP server is appropriate here as well. The expire mark is translated into a imap client specific mark, gnus-expire, and stored on the message. This means that likely only Gnus will understand and treat the gnus-expire mark properly, although other clients may allow you to view client specific flags on the message. It also means that your server must support permanent storage of client specific flags on messages. Most do, fortunately.

nnmail-expiry-wait

nnmail-expiry-wait-function These variables are fully supported. The expire value can be a number, the symbol immediate or never.

nnmail-expiry-target This variable is supported, and internally implemented by calling the nnmail functions that handle this. It contains an optimization that if the destination is a IMAP group on the same server, the article is copied instead of appended (that is, uploaded again).

### 6.5.3 Editing IMAP ACLs

ACL stands for Access Control List. ACLs are used in IMAP for limiting (or enabling) other users access to your mail boxes. Not all IMAP servers support this, this function will give an error if it doesn't.

To edit an ACL for a mailbox, type 'G l' (gnus-group-edit-nnimap-acl) and you'll be presented with an ACL editing window with detailed instructions.

Some possible uses:

- Giving "anyone" the "lrs" rights (lookup, read, keep seen/unseen flags) on your mailing list mailboxes enables other users on the same server to follow the list without subscribing to it.
- At least with the Cyrus server, you are required to give the user "anyone" posting ("p") capabilities to have "plussing" work (that is, mail sent to user+mailbox@domain ending up in the IMAP mailbox INBOX.mailbox).

### 6.5.4 Expunging mailboxes

If you're using the never setting of nnimap-expunge-on-close, you may want the option of expunging all deleted articles in a mailbox manually. This is exactly what 'G x' does.

Currently there is no way of showing deleted articles, you can just delete them.

### 6.5.5 A note on namespaces

The IMAP protocol has a concept called namespaces, described by the following text in the RFC:

```
5.1.2.  Mailbox Namespace Naming Convention

   By convention, the first hierarchical element of any mailbox name
   which begins with "#" identifies the "namespace" of the remainder of
   the name.  This makes it possible to disambiguate between different
   types of mailbox stores, each of which have their own namespaces.

      For example, implementations which offer access to USENET
      newsgroups MAY use the "#news" namespace to partition the USENET
      newsgroup namespace from that of other mailboxes.  Thus, the
      comp.mail.misc newsgroup would have an mailbox name of
      "#news.comp.mail.misc", and the name "comp.mail.misc" could refer
      to a different object (e.g. a user's private mailbox).
```

While there is nothing in this text that warrants concern for the IMAP implementation in Gnus, some servers use namespace prefixes in a way that does not work with how Gnus uses mailbox names.

Specifically, University of Washington's IMAP server uses mailbox names like #driver.mbx/read-mail which are valid only in the CREATE and APPEND commands. After the mailbox is created (or a messages is appended to a mailbox), it must be accessed without the namespace prefix, i.e. read-mail. Since Gnus do not make it possible for the user to guarantee that user entered mailbox names will only be used with the CREATE and APPEND commands, you should simply not use the namespace prefixed mailbox names in Gnus.

See the UoW IMAPD documentation for the #driver.*/ prefix for more information on how to use the prefixes. They are a power tool and should be used only if you are sure what the effects are.

## 6.6 Other Sources

Gnus can do more than just read news or mail. The methods described below allow Gnus to view directories and files as if they were newsgroups.

### 6.6.1 Directory Groups

If you have a directory that has lots of articles in separate files in it, you might treat it as a newsgroup. The files have to have numerical names, of course.

This might be an opportune moment to mention ange-ftp (and its successor efs), that most wonderful of all wonderful Emacs packages. When I wrote nndir, I didn't think much about it—a back end to read directories. Big deal.

ange-ftp changes that picture dramatically. For instance, if you enter the ange-ftp file name '/ftp.hpc.uh.edu:/pub/emacs/ding-list/' as the directory name, ange-ftp or efs will actually allow you to read this directory over at "sina" as a newsgroup. Distributed news ahoy!

nndir will use NOV files if they are present.

nndir is a "read-only" back end—you can't delete or expire articles with this method. You can use nnmh or nnml for whatever you use nndir for, so you could switch to any of those methods if you feel the need to have a non-read-only nndir.

### 6.6.2 Anything Groups

From the nndir back end (which reads a single spool-like directory), it's just a hop and a skip to nneething, which pretends that any arbitrary directory is a newsgroup. Strange, but true.

When nneething is presented with a directory, it will scan this directory and assign article numbers to each file. When you enter such a group, nneething must create "headers" that Gnus can use. After all, Gnus is a newsreader, in case you're forgetting. nneething does this in a two-step process. First, it snoops each file in question. If the file looks like an article (i.e., the first few lines look like headers), it will use this as the head. If this is just some arbitrary file without a head (e.g. a C source file), nneething will cobble up a header out of thin air. It will use file ownership, name and date and do whatever it can with these elements.

All this should happen automatically for you, and you will be presented with something that looks very much like a newsgroup. Totally like a newsgroup, to be precise. If you select an article, it will be displayed in the article buffer, just as usual.

If you select a line that represents a directory, Gnus will pop you into a new summary buffer for this nneething group. And so on. You can traverse the entire disk this way, if you feel like, but remember that Gnus is not dired, really, and does not intend to be, either.

There are two overall modes to this action—ephemeral or solid. When doing the ephemeral thing (i.e., 'G D' from the group buffer), Gnus will not store information on what files you have read, and what files are new, and so on. If you create a solid nneething group the normal way with 'G m', Gnus will store a mapping table between article numbers and file names, and you can treat this group like any other groups. When you activate a solid nneething group, you will be told how many unread articles it contains, etc., etc.

Some variables:

nneething-map-file-directory All the mapping files for solid nneething groups will be stored in this directory, which defaults to '~/.nneething/'.

nneething-exclude-files All files that match this regexp will be ignored. Nice to use to exclude auto-save files and the like, which is what it does by default.

nneething-include-files Regexp saying what files to include in the group. If this variable is non-nil, only files matching this regexp will be included.

nneething-map-file Name of the map files.

### 6.6.3 Document Groups

nndoc is a cute little thing that will let you read a single file as a newsgroup. Several files types are supported:

babyl The Babyl (Rmail) mail box.

mbox The standard Unix mbox file.

mmdf The MMDF mail box format.

news Several news articles appended into a file.

rnews The rnews batch transport format.

forward Forwarded articles.

nsmail Netscape mail boxes.

mime-parts MIME multipart messages.

standard-digest The standard (RFC 1153) digest format.

mime-digest A MIME digest of messages.

lanl-gov-announce Announcement messages from LANL Gov Announce.

rfc822-forward A message forwarded according to RFC822.

outlook The Outlook mail box.

oe-dbx The Outlook Express dbx mail box.

exim-bounce A bounce message from the Exim MTA.

forward A message forwarded according to informal rules.

rfc934 An RFC934-forwarded message.

mailman A mailman digest.

clari-briefs A digest of Clarinet brief news items.

slack-digest Non-standard digest format—matches most things, but does it badly.

mail-in-mail The last resort.

You can also use the special "file type" guess, which means that nndoc will try to guess what file type it is looking at. digest means that nndoc should guess what digest type the file is.

nndoc will not try to change the file or insert any extra headers into it—it will simply, like, let you use the file as the basis for a group. And that's it.

If you have some old archived articles that you want to insert into your new & spiffy Gnus mail back end, nndoc can probably help you with that. Say you have an old 'RMAIL' file with mail that you now want to split into your new nnml groups. You look at that file using nndoc (using the 'G f' command in the group buffer (see "Foreign Groups" on page 23)), set the process mark on all the articles in the buffer ('M P b', for instance), and then re-spool ('B r') using nnml. If all goes well, all the mail in the 'RMAIL' file is now also stored in lots of nnml directories, and you can delete that pesky 'RMAIL' file. If you have the guts!

Virtual server variables:

nndoc-article-type This should be one of mbox, babyl, digest, news, rnews, mmdf, forward, rfc934, rfc822-forward, mime-parts, standard-digest, slack-digest, clari-briefs, nsmail, outlook, oe-dbx, mailman, and mail-in-mail or guess.

nndoc-post-type This variable says whether Gnus is to consider the group a news group or a mail group. There are two valid values: mail (the default) and news.

#### 6.6.3.1 Document Server Internals

Adding new document types to be recognized by nndoc isn't difficult. You just have to whip up a definition of what the document looks like, write a predicate function to recognize that document type, and then hook into nndoc.

First, here's an example document type definition:

```
(mmdf
 (article-begin .  "^\^A\^A\^A\^A\n")
 (body-end .  "^\^A\^A\^A\^A\n"))
```

The definition is simply a unique *name* followed by a series of regexp pseudo-variable settings. Below are the possible variables—don't be daunted by the number of variables; most document types can be defined with very few settings:

first-article If present, nndoc will skip past all text until it finds something that match this regexp. All text before this will be totally ignored.

article-begin This setting has to be present in all document type definitions. It says what the beginning of each article looks like.

head-begin-function If present, this should be a function that moves point to the head of the article.

nndoc-head-begin If present, this should be a regexp that matches the head of the article.

nndoc-head-end This should match the end of the head of the article. It defaults to "^$"—the empty line.

body-begin-function If present, this function should move point to the beginning of the body of the article.

body-begin This should match the beginning of the body of the article. It defaults to "^/n".

body-end-function If present, this function should move point to the end of the body of the article.

body-end If present, this should match the end of the body of the article.

file-end If present, this should match the end of the file. All text after this regexp will be totally ignored.

So, using these variables nndoc is able to dissect a document file into a series of articles, each with a head and a body. However, a few more variables are needed since not all document types are all that news-like—variables needed to transform the head or the body into something that's palatable for Gnus:

prepare-body-function If present, this function will be called when requesting an article. It will be called with point at the start of the body, and is useful if the document has encoded some parts of its contents.

article-transform-function If present, this function is called when requesting an article. It's meant to be used for more wide-ranging transformation of both head and body of the article.

generate-head-function If present, this function is called to generate a head that Gnus can understand. It is called with the article number as a parameter, and is expected to generate a nice head for the article in question. It is called when requesting the headers of all articles.

Let's look at the most complicated example I can come up with—standard digests:

```
(standard-digest
 (first-article . ,(concat "^" (make-string 70 ?-) "\n\n+"))
 (article-begin . ,(concat "\n\n" (make-string 30 ?-) "\n\n+"))
 (prepare-body-function . nndoc-unquote-dashes)
 (body-end-function . nndoc-digest-body-end)
 (head-end . "^ ?$")
```

```
(body-begin . "^ ?\n")
(file-end . "^End of .*digest.*[0-9].*\n\\*\\*\\|^End of.*Digest *$"
(subtype digest guess))
```

We see that all text before a 70-width line of dashes is ignored; all text after a line that starts with that "^End of" is also ignored; each article begins with a 30-width line of dashes; the line separating the head from the body may contain a single space; and that the body is run through nndoc-unquote-dashes before being delivered.

To hook your own document definition into nndoc, use the nndoc-add-type function. It takes two parameters—the first is the definition itself and the second (optional) parameter says where in the document type definition alist to put this definition. The alist is traversed sequentially, and nndoc-type-type-p is called for a given type type. So nndoc-mmdf-type-p is called to see whether a document is of mmdf type, and so on. These type predicates should return nil if the document is not of the correct type; t if it is of the correct type; and a number if the document might be of the correct type. A high number means high probability; a low number means low probability with "0" being the lowest valid number.

### 6.6.4 SOUP

In the PC world people often talk about "offline" newsreaders. These are thingies that are combined reader/news transport monstrosities. With built-in modem programs. Yecchh!

Of course, us Unix Weenie types of human beans use things like uucp and, like, nntpd and set up proper news and mail transport things like Ghod intended. And then we just use normal newsreaders.

However, it can sometimes be convenient to do something that's a bit easier on the brain if you have a very slow modem, and you're not really that interested in doing things properly.

A file format called SOUP has been developed for transporting news and mail from servers to home machines and back again. It can be a bit fiddly.

First some terminology:

*server* This is the machine that is connected to the outside world and where you get news and/or mail from.

*home machine* This is the machine that you want to do the actual reading and responding on. It is typically not connected to the rest of the world in any way.

*packet* Something that contains messages and/or commands. There are two kinds of packets:

*message packets* These are packets made at the server, and typically contain lots of messages for you to read. These are called 'SoupoutX.tgz' by default, where x is a number.

*response packets* These are packets made at the home machine, and typically contains replies that you've written. These are called 'SoupinX.tgz' by default, where x is a number.

1. You log in on the server and create a SOUP packet. You can either use a dedicated SOUP thingie (like the awk program), or you can use Gnus to create the packet with its SOUP commands ('O s' and/or 'G s b'; and then 'G s p') (see "SOUP Commands" on page 211).
2. You transfer the packet home. Rail, boat, car or modem will do fine.
3. You put the packet in your home directory.
4. You fire up Gnus on your home machine using the nnsoup back end as the native or secondary server.
5. You read articles and mail and answer and followup to the things you want (see "SOUP Replies" on page 213).
6. You do the 'G s r' command to pack these replies into a SOUP packet.
7. You transfer this packet to the server.
8. You use Gnus to mail this packet out with the 'G s s' command.
9. You then repeat until you die.

So you basically have a bipartite system—you use nnsoup for reading and Gnus for packing/sending these SOUP packets.

#### 6.6.4.1 SOUP Commands

These are commands for creating and manipulating SOUP packets.

'G s b' Pack all unread articles in the current group (gnus-group-brew-soup). This command understands the process/prefix convention.

'G s w' Save all SOUP data files (gnus-soup-save-areas).

'G s s' Send all replies from the replies packet (gnus-soup-send-replies).

'G s p' Pack all files into a SOUP packet (gnus-soup-pack-packet).

'G s r' Pack all replies into a replies packet (nnsoup-pack-replies).

'O s' This summary-mode command adds the current article to a SOUP packet (gnus-soup-add-article). It understands the process/prefix convention (see "Process/Prefix" on page 324).

There are a few variables to customize where Gnus will put all these thingies:

gnus-soup-directory Directory where Gnus will save intermediate files while composing SOUP packets. The default is '~/SoupBrew/'.

gnus-soup-replies-directory This is what Gnus will use as a temporary directory while sending our reply packets. '~/SoupBrew/SoupReplies/' is the default.

gnus-soup-prefix-file Name of the file where Gnus stores the last used prefix. The default is "gnus-prefix".

gnus-soup-packer A format string command for packing a SOUP packet. The default is "tar cf - %s — gzip > $HOME/Soupout%d.tgz".

gnus-soup-unpacker Format string command for unpacking a SOUP packet. The default is "gunzip -c %s — tar xvf -".

gnus-soup-packet-directory Where Gnus will look for reply packets. The default is '~/'.

gnus-soup-packet-regexp Regular expression matching SOUP reply packets in gnus-soup-packet-directory.

#### 6.6.4.2 SOUP Groups

nnsoup is the back end for reading SOUP packets. It will read incoming packets, unpack them, and put them in a directory where you can read them at leisure.

These are the variables you can use to customize its behavior:

nnsoup-tmp-directory When nnsoup unpacks a SOUP packet, it does it in this directory. ('/tmp/' by default.)

nnsoup-directory nnsoup then moves each message and index file to this directory. The default is '~/SOUP/'.

nnsoup-replies-directory All replies will be stored in this directory before being packed into a reply packet. The default is '~/SOUP/replies/'.

nnsoup-replies-format-type The SOUP format of the replies packets. The default is "?n" (rnews), and I don't think you should touch that variable. I probably shouldn't even have documented it. Drats! Too late!

nnsoup-replies-index-type The index type of the replies packet. The default is "?n", which means "none". Don't fiddle with this one either!

nnsoup-active-file Where nnsoup stores lots of information. This is not an "active file" in the nntp sense; it's an Emacs Lisp file. If you lose this file or mess it up in any way, you're dead. The default is '~/SOUP/active'.

nnsoup-packer Format string command for packing a reply SOUP packet. The default is "tar cf - %s — gzip > $HOME/Soupin%d.tgz".

nnsoup-unpacker Format string command for unpacking incoming SOUP packets. The default is "gunzip -c %s — tar xvf -".

nnsoup-packet-directory Where nnsoup will look for incoming packets. The default is '~/'.

nnsoup-packet-regexp Regular expression matching incoming SOUP packets. The default is "Soupout".

nnsoup-always-save If non-nil, save the replies buffer after each posted message.

#### 6.6.4.3 SOUP Replies

Just using nnsoup won't mean that your postings and mailings end up in SOUP reply packets automagically. You have to work a bit more for that to happen.

The nnsoup-set-variables command will set the appropriate variables to ensure that all your followups and replies end up in the SOUP system.

In specific, this is what it does:

```
(setq message-send-news-function 'nnsoup-request-post)
(setq message-send-mail-function 'nnsoup-request-mail)
```

And that's it, really. If you only want news to go into the SOUP system you just use the first line. If you only want mail to be SOUPed you use the second.

### 6.6.5 Mail-To-News Gateways

If your local nntp server doesn't allow posting, for some reason or other, you can post using one of the numerous mail-to-news gateways. The nngateway back end provides the interface.

Note that you can't read anything from this back end—it can only be used to post with.

Server variables:

nngateway-address This is the address of the mail-to-news gateway.

nngateway-header-transformation News headers often have to be transformed in some odd way or other for the mail-to-news gateway to accept it. This variable says what transformation should be called, and defaults to nngateway-simple-header-transformation. The function is called narrowed to the headers to be transformed and with one parameter—the gateway address.

This default function just inserts a new To header based on the Newsgroups header and the gateway address. For instance, an article with this Newsgroups header:

```
Newsgroups: alt.religion.emacs
```

will get this To header inserted:

```
To: alt-religion-emacs@GATEWAY
```

The following pre-defined functions exist:

nngateway-simple-header-transformation Creates a To header that looks like newsgroup@nngateway-address.

nngateway-mail2news-header-transformation Creates a To header that looks like nngateway-address.

Here's an example:

```
(setq gnus-post-method
      '(nngateway
        "mail2news@replay.com"
        (nngateway-header-transformation
         nngateway-mail2news-header-transformation)))
```

So, to use this, simply say something like:

```
(setq gnus-post-method '(nngateway "GATEWAY.ADDRESS"))
```

## 6.7 Combined Groups

Gnus allows combining a mixture of all the other group types into bigger groups.

### 6.7.1 Virtual Groups

An *nnvirtual group* is really nothing more than a collection of other groups.

For instance, if you are tired of reading many small groups, you can put them all in one big group, and then grow tired of reading one big, unwieldy group. The joys of computing!

You specify nnvirtual as the method. The address should be a regexp to match component groups.

All marks in the virtual group will stick to the articles in the component groups. So if you tick an article in a virtual group, the article will also be ticked in the component group from whence it came. (And vice versa—marks from the component groups will also be shown in the virtual group.). To create an empty virtual group, run 'G V' (gnus-group-make-empty-virtual) in the group buffer and edit the method regexp with 'M-e' (gnus-group-edit-group-method)

Here's an example nnvirtual method that collects all Andrea Dworkin newsgroups into one, big, happy newsgroup:

```
(nnvirtual "^alt\\.fan\\.andrea-dworkin$\\|^rec\\.dworkin.*")
```

The component groups can be native or foreign; everything should work smoothly, but if your computer explodes, it was probably my fault.

Collecting the same group from several servers might actually be a good idea if users have set the Distribution header to limit distribution. If you would like to read "soc.motss" both from a server in Japan and a server in Norway, you could use the following as the group regexp:

```
"^nntp\\+server\\.jp:soc\\.motss$\\|^nntp\\+server\\.no:soc\\.motss$"
```

(Remember, though, that if you're creating the group with 'G m', you shouldn't double the backslashes, and you should leave off the quote characters at the beginning and the end of the string.)

This should work kinda smoothly—all articles from both groups should end up in this one, and there should be no duplicates. Threading (and the rest) will still work as usual, but there might be problems with the sequence of articles. Sorting on date might be an option here (see "Selecting a Group" on page 18).

One limitation, however—all groups included in a virtual group have to be alive (i.e., subscribed or unsubscribed). Killed or zombie groups can't be component groups for nnvirtual groups.

If the nnvirtual-always-rescan is non-nil, nnvirtual will always scan groups for unread articles when entering a virtual group. If this variable is nil (which is the default) and you read articles in a component group after the virtual group has been activated, the read articles from the component group will show up when you enter the virtual group. You'll also see this effect if you have two virtual groups that have a component group in common. If that's the case, you should set this variable to t. Or you can just tap M-g on the virtual group every time before you enter it—it'll have much the same effect.

nnvirtual can have both mail and news groups as component groups. When responding to articles in nnvirtual groups, nnvirtual has to ask the back end of the component group the article comes from whether it is a news or mail back end. However, when you do a '^', there is typically no sure way for the component back end to know this, and in that case nnvirtual tells Gnus that the article came from a not-news back end. (Just to be on the safe side.)

'C-c C-n' in the message buffer will insert the Newsgroups line from the article you respond to in these cases.

nnvirtual groups do not inherit anything but articles and marks from component groups—group parameters, for instance, are not inherited.

### 6.7.2 Kibozed Groups

*Kibozing* is defined by the OED as "grepping through (parts of) the news feed". nnkiboze is a back end that will do this for you. Oh joy! Now you can grind any NNTP server down to a halt with useless requests! Oh happiness!

To create a kibozed group, use the 'G k' command in the group buffer.

The address field of the nnkiboze method is, as with nnvirtual, a regexp to match groups to be "included" in the nnkiboze group. That's where most similarities between nnkiboze and nnvirtual end.

In addition to this regexp detailing component groups, an nnkiboze group must have a score file to say what articles are to be included in the group (see "Scoring" on page 232).

You must run 'M-x nnkiboze-generate-groups' after creating the nnkiboze groups you want to have. This command will take time. Lots of time. Oodles and oodles of time. Gnus has to fetch the headers from all the articles in all the component groups and run them through the scoring process to determine if there are any articles in the groups that are to be part of the nnkiboze groups.

Please limit the number of component groups by using restrictive regexps. Otherwise your sysadmin may become annoyed with you, and the NNTP site may throw you off and never let you back in again. Stranger things have happened.

nnkiboze component groups do not have to be alive—they can be dead, and they can be foreign. No restrictions.

The generation of an nnkiboze group means writing two files in nnkiboze-directory, which is '~/News/kiboze/' by default. One contains the NOV header lines for all the articles in the group, and the other is an additional '.newsrc' file to store information on what groups have been searched through to find component articles.

Articles marked as read in the nnkiboze group will have their NOV lines removed from the NOV file.

## 6.8 Gnus Unplugged

In olden times (ca. February '88), people used to run their newsreaders on big machines with permanent connections to the net. News transport was dealt with by news servers, and all the newsreaders had to do was to read news. Believe it or not.

Nowadays most people read news and mail at home, and use some sort of modem to connect to the net. To avoid running up huge phone bills, it would be nice to have a way to slurp down all the news and mail, hang up the phone, read for several hours, and then upload any responses you have to make. And then you repeat the procedure.

Of course, you can use news servers for doing this as well. I've used inn together with slurp, pop and sendmail for some years, but doing that's a bore. Moving the news server functionality up to the newsreader makes sense if you're the only person reading news on a machine.

Setting up Gnus as an "offline" newsreader is quite simple. In fact, you don't even have to configure anything.

Of course, to use it as such, you have to learn a few new commands.

### 6.8.1 Agent Basics

First, let's get some terminology out of the way.

The Gnus Agent is said to be *unplugged* when you have severed the connection to the net (and notified the Agent that this is the case). When the connection to the net is up again (and Gnus knows this), the Agent is *plugged*.

The *local* machine is the one you're running on, and which isn't connected to the net continuously.

*Downloading* means fetching things from the net to your local machine. *Uploading* is doing the opposite.

You know that Gnus gives you all the opportunity you'd ever want for shooting yourself in the foot. Some people call it flexibility. Gnus is also customizable to a great extent, which means that the user has a say on how Gnus behaves. Other newsreaders might unconditionally shoot you in your foot, but with Gnus, you have a choice!

Gnus is never really in plugged or unplugged state. Rather, it applies that state to each server individually. This means that some servers can be plugged while others can be unplugged. Additionally, some servers can be ignored by the Agent altogether (which means that they're kinda like plugged always).

So when you unplug the Agent and then wonder why is Gnus opening a connection to the Net, the next step to do is to look whether all servers are agentized. If there is an unagentized server, you found the culprit.

Another thing is the *offline* state. Sometimes, servers aren't reachable. When Gnus notices this, it asks you whether you want the server to be switched to offline state. If you say yes, then the server will behave somewhat as if it was unplugged, except that Gnus will ask you whether you want to switch it back online again.

Let's take a typical Gnus session using the Agent.

- You start Gnus with `gnus-unplugged`. This brings up the Gnus Agent in a disconnected state. You can read all the news that you have already fetched while in this mode.

- You then decide to see whether any new news has arrived. You connect your machine to the net (using PPP or whatever), and then hit '`J j`' to make Gnus become *plugged* and use '`g`' to check for new mail as usual. To check for new mail in unplugged mode (see "Mail Source Specifiers" on page 161).

- You can then read the new news immediately, or you can download the news onto your local machine. If you want to do the latter, you press '`g`' to check if there are any new news and then '`J s`' to fetch all the eligible articles in all the groups. (To let Gnus know which articles you want to download, see "Agent Categories" on page 218).

- After fetching the articles, you press '`J j`' to make Gnus become unplugged again, and you shut down the PPP thing (or whatever). And then you read the news offline.

- And then you go to step 2.

Here are some things you should do the first time (or so) that you use the Agent.

- Decide which servers should be covered by the Agent. If you have a mail back end, it would probably be nonsensical to have it covered by the Agent. Go to the server buffer ('^' in the group buffer) and press 'J a' on the server (or servers) that you wish to have covered by the Agent (see "Server Agent Commands" on page 226), or 'J r' on automatically added servers you do not wish to have covered by the Agent. By default, all nntp and nnimap servers in gnus-select-method and gnus-secondary-select-methods are agentized.

- Decide on download policy. It's fairly simple once you decide whether you are going to use agent categories, topic parameters, and/or group parameters to implement your policy. If you're new to gnus, it is probably best to start with a category, See "Agent Categories" on page 218.

  Both topic parameters (see "Topic Parameters" on page 41) and agent categories (see "Agent Categories" on page 218) provide for setting a policy that applies to multiple groups. Which you use is entirely up to you. Topic parameters do override categories so, if you mix the two, you'll have to take that into account. If you have a few groups that deviate from your policy, you can use group parameters (see "Group Parameters" on page 25) to configure them.

- Uhm... that's it.

### 6.8.2 Agent Categories

One of the main reasons to integrate the news transport layer into the newsreader is to allow greater control over what articles to download. There's not much point in downloading huge amounts of articles, just to find out that you're not interested in reading any of them. It's better to be somewhat more conservative in choosing what to download, and then mark the articles for downloading manually if it should turn out that you're interested in the articles anyway.

One of the more effective methods for controlling what is to be downloaded is to create a *category* and then assign some (or all) groups to this category. Groups that do not belong in any other category belong to the default category. Gnus has its own buffer for creating and managing categories.

If you prefer, you can also use group parameters (see "Group Parameters" on page 25) and topic parameters (see "Topic Parameters" on page 41) for an alternative approach to controlling the agent. The only real difference is that categories are specific to the agent (so there is less to learn) while group and topic parameters include the kitchen sink.

Since you can set agent parameters in several different places we have a rule to decide which source to believe. This rule specifies that the parameter sources are checked in the following order: group parameters, topic parameters, agent category, and finally customizable variables. So you can mix all of these sources to produce a wide range of behavior, just don't blame me if you don't remember where you put your settings.

#### 6.8.2.1 Category Syntax

A category consists of a name, the list of groups belonging to the category, and a number of optional parameters that override the customizable variables. The complete list of agent parameters are listed below.

gnus-agent-cat-name The name of the category.

gnus-agent-cat-groups The list of groups that are in this category.

gnus-agent-cat-predicate A predicate which (generally) gives a rough outline of which articles are eligible for downloading; and

gnus-agent-cat-score-file a score rule which (generally) gives you a finer granularity when deciding what articles to download. (Note that this *download score* is not necessarily related to normal scores.)

gnus-agent-cat-enable-expiration a boolean indicating whether the agent should expire old articles in this group. Most groups should be expired to conserve disk space. In fact, its probably safe to say that the gnus.* hierarchy contains the only groups that should not be expired.

gnus-agent-cat-days-until-old an integer indicating the number of days that the agent should wait before deciding that a read article is safe to expire.

gnus-agent-cat-low-score an integer that overrides the value of gnus-agent-low-score.

gnus-agent-cat-high-score an integer that overrides the value of gnus-agent-high-score.

gnus-agent-cat-length-when-short an integer that overrides the value of gnus-agent-short-article.

gnus-agent-cat-length-when-long an integer that overrides the value of gnus-agent-long-article.

The name of a category can not be changed once the category has been created.

Each category maintains a list of groups that are exclusive members of that category. The exclusivity rule is automatically enforced, add a group to a new category and it is automatically removed from its old category.

A predicate in its simplest form can be a single predicate such as true or false. These two will download every available article or nothing respectively. In the case of these two special predicates an additional score rule is superfluous.

Predicates of high or low download articles in respect of their scores in relationship to gnus-agent-high-score and gnus-agent-low-score as described below.

To gain even finer control of what is to be regarded eligible for download a predicate can consist of a number of predicates with logical operators sprinkled in between.

Perhaps some examples are in order.

Here's a simple predicate. (It's the default predicate, in fact, used for all groups that don't belong to any other category.)

```
short
```

Quite simple, eh? This predicate is true if and only if the article is short (for some value of "short").

Here's a more complex predicate:

```
(or high
    (and
     (not low)
     (not long)))
```

This means that an article should be downloaded if it has a high score, or if the score is not low and the article is not long. You get the drift.

The available logical operators are or, and and not. (If you prefer, you can use the more "C"-ish operators "—", & and ! instead.)

The following predicates are pre-defined, but if none of these fit what you want to do, you can write your own.

When evaluating each of these predicates, the named constant will be bound to the value determined by calling gnus-agent-find-parameter on the appropriate parameter. For example, gnus-agent-short-article will be bound to (gnus-agent-find-parameter group 'agent-short-article). This means that you can specify a predicate in your category then tune that predicate to individual groups.

short True iff the article is shorter than gnus-agent-short-article lines; default 100.

long True iff the article is longer than gnus-agent-long-article lines; default 200.

low True iff the article has a download score less than gnus-agent-low-score; default 0.

high True iff the article has a download score greater than gnus-agent-high-score; default 0.

spam True iff the Gnus Agent guesses that the article is spam. The heuristics may change over time, but at present it just computes a checksum and sees whether articles match.

true Always true.

false Always false.

If you want to create your own predicate function, here's what you have to know: The functions are called with no parameters, but the gnus-headers and gnus-score dynamic variables are bound to useful values.

For example, you could decide that you don't want to download articles that were posted more than a certain number of days ago (e.g. posted more than gnus-agent-expire-days ago) you might write a function something along the lines of the following:

```
(defun my-article-old-p ()
  "Say whether an article is old."
  (< (time-to-days (date-to-time (mail-header-date gnus-headers)))
     (- (time-to-days (current-time)) gnus-agent-expire-days)))
```

with the predicate then defined as:

```
(not my-article-old-p)
```

or you could append your predicate to the predefined gnus-category-predicate-alist in your '~/.gnus.el' or wherever.

```
(require 'gnus-agent)
(setq  gnus-category-predicate-alist
  (append gnus-category-predicate-alist
         '((old . my-article-old-p))))
```

and simply specify your predicate as:

```
(not old)
```

If/when using something like the above, be aware that there are many misconfigured systems/mailers out there and so an article's date is not always a reliable indication of when it was posted. Hell, some people just don't give a damn.

The above predicates apply to *all* the groups which belong to the category. However, if you wish to have a specific predicate for an individual group within a category, or you're just too lazy to set up a new category, you can enter a group's individual predicate in its group parameters like so:

```
(agent-predicate . short)
```

This is the group/topic parameter equivalent of the agent category default. Note that when specifying a single word predicate like this, the agent-predicate specification must be in dotted pair notation.

The equivalent of the longer example from above would be:

```
(agent-predicate or high (and (not low) (not long)))
```

The outer parenthesis required in the category specification are not entered here as, not being in dotted pair notation, the value of the predicate is assumed to be a list.

Now, the syntax of the download score is the same as the syntax of normal score files, except that all elements that require actually seeing the article itself are verboten. This means that only the following headers can be scored on: Subject, From, Date, Message-ID, References, Chars, Lines, and Xref.

As with predicates, the specification of the download score rule to use in respect of a group can be in either the category definition if it's to be applicable to all groups in therein, or a group's parameters if it's to be specific to that group.

In both of these places the download score rule can take one of three forms:

1. Score rule

   This has the same syntax as a normal Gnus score file except only a subset of scoring keywords are available as mentioned above.

   example:

   - Category specification

     ```
     (("from"
            ("Lars Ingebrigtsen" 1000000 nil s))
     ("lines"
            (500 -100 nil <)))
     ```

   - Group/Topic Parameter specification

     ```
     (agent-score ("from"
                        ("Lars Ingebrigtsen" 1000000 nil s))
                  ("lines"
                        (500 -100 nil <)))
     ```

     Again, note the omission of the outermost parenthesis here.

2. Agent score file

   These score files must *only* contain the permitted scoring keywords stated above.

   example:

- Category specification

  ```
  ("~/News/agent.SCORE")
  ```

  or perhaps

  ```
  ("~/News/agent.SCORE" "~/News/agent.group.SCORE")
  ```

- Group Parameter specification

  ```
  (agent-score "~/News/agent.SCORE")
  ```

  Additional score files can be specified as above. Need I say anything about parenthesis?

3. Use normal score files

   If you don't want to maintain two sets of scoring rules for a group, and your desired downloading criteria for a group are the same as your reading criteria then you can tell the agent to refer to your normal score files when deciding what to download.

   These directives in either the category definition or a group's parameters will cause the agent to read in all the applicable score files for a group, *filtering out* those sections that do not relate to one of the permitted subset of scoring keywords.

   - Category Specification

     ```
     file
     ```

   - Group Parameter specification

     ```
     (agent-score . file)
     ```

#### 6.8.2.2 Category Buffer

You'd normally do all category maintenance from the category buffer. When you enter it for the first time (with the 'J c' command from the group buffer), you'll only see the default category.

The following commands are available in this buffer:

'q' Return to the group buffer (gnus-category-exit).

'e' Use a customization buffer to set all of the selected category's parameters at one time (gnus-category-customize-category).

'k' Kill the current category (gnus-category-kill).

'c' Copy the current category (gnus-category-copy).

'a' Add a new category (gnus-category-add).

'p' Edit the predicate of the current category (gnus-category-edit-predicate).

'g' Edit the list of groups belonging to the current category (gnus-category-edit-groups).

's' Edit the download score rule of the current category (gnus-category-edit-score).

'l' List all the categories (gnus-category-list).

#### 6.8.2.3 Category Variables

gnus-category-mode-hook Hook run in category buffers.

gnus-category-line-format Format of the lines in the category buffer (see "Formatting Variables" on page 325). Valid elements are:

"c" The name of the category.

"g" The number of groups in the category.

gnus-category-mode-line-format Format of the category mode line (see "Mode Line Formatting" on page 326).

gnus-agent-short-article Articles that have fewer lines than this are short. Default 100.

gnus-agent-long-article Articles that have more lines than this are long. Default 200.

gnus-agent-low-score Articles that have a score lower than this have a low score. Default 0.

gnus-agent-high-score Articles that have a score higher than this have a high score. Default 0.

gnus-agent-expire-days The number of days that a "read" article must stay in the agent's local disk before becoming eligible for expiration (While the name is the same, this doesn't mean expiring the article on the server. It just means deleting the local copy of the article). What is also important to understand is that the counter starts with the time the article was written to the local disk and not the time the article was read. Default 7.

gnus-agent-enable-expiration Determines whether articles in a group are, by default, expired or retained indefinitely. The default is ENABLE which means that you'll have to disable expiration when desired. On the other hand, you could set this to DISABLE. In that case, you would then have to enable expiration in selected groups.

### 6.8.3 Agent Commands

All the Gnus Agent commands are on the 'J' submap. The 'J j' (gnus-agent-toggle-plugged) command works in all modes, and toggles the plugged/unplugged state of the Gnus Agent.

#### 6.8.3.1 Group Agent Commands

'J u' Fetch all eligible articles in the current group (gnus-agent-fetch-groups).

'J c' Enter the Agent category buffer (gnus-enter-category-buffer).

'J s' Fetch all eligible articles in all groups (gnus-agent-fetch-session).

'J S' Send all sendable messages in the queue group (gnus-group-send-queue). See "Drafts" on page 142.

'J a' Add the current group to an Agent category (gnus-agent-add-group). This command understands the process/prefix convention (see "Process/Prefix" on page 324).

'J r' Remove the current group from its category, if any (gnus-agent-remove-group). This command understands the process/prefix convention (see "Process/Prefix" on page 324).

'J Y' Synchronize flags changed while unplugged with remote server, if any.

#### 6.8.3.2 Summary Agent Commands

'J #' Mark the article for downloading (gnus-agent-mark-article).

'J M-#' Remove the downloading mark from the article (gnus-agent-unmark-article).

'@' Toggle whether to download the article (gnus-agent-toggle-mark). The download mark is "%" by default.

'J c' Mark all articles as read (gnus-agent-catchup) that are neither cached, downloaded, nor downloadable.

'J S' Download all eligible (see "Agent Categories" on page 218) articles in this group. (gnus-agent-fetch-group).

'J s' Download all processable articles in this group. (gnus-agent-fetch-series).

'J u' Download all downloadable articles in the current group (gnus-agent-summary-fetch-group).

#### 6.8.3.3 Server Agent Commands

'J a' Add the current server to the list of servers covered by the Gnus Agent (gnus-agent-add-server).

'J r' Remove the current server from the list of servers covered by the Gnus Agent (gnus-agent-remove-server).

### 6.8.4 Agent Visuals

If you open a summary while unplugged and, Gnus knows from the group's active range that there are more articles than the headers currently stored in the Agent, you may see some articles whose subject looks something like "[Undownloaded article #####]". These are placeholders for the missing headers. Aside from setting a mark, there is not much that can be done with one of these placeholders. When Gnus finally gets a chance to fetch the group's headers, the placeholders will automatically be replaced by the actual headers. You can configure the summary buffer's maneuvering to skip over the placeholders if you care (See gnus-auto-goto-ignores).

While it may be obvious to all, the only headers and articles available while unplugged are those headers and articles that were fetched into the Agent while previously plugged. To put it another way, "If you forget to fetch something while plugged, you might have a less than satisfying unplugged session". For this reason, the Agent adds two visual effects to your summary buffer. These effects display the download status of each article so that you always know which articles will be available when unplugged.

The first visual effect is the "%O" spec. If you customize gnus-summary-line-format to include this specifier, you will add a single character field that indicates an article's download status. Articles that have been fetched into either the Agent or the Cache, will display gnus-downloaded-mark (defaults to "+"). All other articles will display gnus-undownloaded-mark (defaults to "-"). If you open a group that has not been agentized, a space (" ") will be displayed.

The second visual effect are the undownloaded faces. The faces, there are three indicating the article's score (low, normal, high), seem to result in a love/hate response from many Gnus users. The problem is that the face selection is controlled by a list of condition tests and face names (See gnus-summary-highlight). Each condition is tested in the order in which it appears in the list so early conditions have

precedence over later conditions. All of this means that, if you tick an undownloaded article, the article will continue to be displayed in the undownloaded face rather than the ticked face.

If you use the Agent as a cache (to avoid downloading the same article each time you visit it or to minimize your connection time), the undownloaded face will probably seem like a good idea. The reason being that you do all of our work (marking, reading, deleting) with downloaded articles so the normal faces always appear.

For occasional Agent users, the undownloaded faces may appear to be an absolutely horrible idea. The issue being that, since most of their articles have not been fetched into the Agent, most of the normal faces will be obscured by the undownloaded faces. If this is your situation, you have two choices available. First, you can completely disable the undownload faces by customizing gnus-summary-highlight to delete the three cons-cells that refer to the gnus-summary-*-undownloaded-face faces. Second, if you prefer to take a more fine-grained approach, you may set the agent-disable-undownloaded-faces group parameter to t. This parameter, like all other agent parameters, may be set on an Agent Category (see "Agent Categories" on page 218), a Group Topic (see "Topic Parameters" on page 41), or an individual group (see "Group Parameters" on page 25).

### 6.8.5 Agent as Cache

When Gnus is plugged, it is not efficient to download headers or articles from the server again, if they are already stored in the Agent. So, Gnus normally only downloads headers once, and stores them in the Agent. These headers are later used when generating the summary buffer, regardless of whether you are plugged or unplugged. Articles are not cached in the Agent by default though (that would potentially consume lots of disk space), but if you have already downloaded an article into the Agent, Gnus will not download the article from the server again but use the locally stored copy instead.

If you so desire, you can configure the agent (see gnus-agent-cache see "Agent Variables" on page 229) to always download headers and articles while plugged. Gnus will almost certainly be slower, but it will be kept synchronized with the server. That last point probably won't make any sense if you are using a nntp or nnimap back end.

### 6.8.6 Agent Expiry

The Agent back end, nnagent, doesn't handle expiry. Well, at least it doesn't handle it like other back ends. Instead, there are special gnus-agent-expire and gnus-agent-expire-group commands that will expire all read articles that are older than gnus-agent-expire-days days. They can be run whenever you feel that you're running out of space. Neither are particularly fast or efficient, and it's not a particularly good idea to interrupt them (with 'C-g' or anything else) once you've started one of them.

Note that other functions, e.g. gnus-request-expire-articles, might run gnus-agent-expire for you to keep the agent synchronized with the group.

The agent parameter agent-enable-expiration may be used to prevent expiration in selected groups.

If gnus-agent-expire-all is non-nil, the agent expiration commands will expire all articles—unread, read, ticked and dormant. If nil (which is the default), only read articles are eligible for expiry, and unread, ticked and dormant articles will be kept indefinitely.

If you find that some articles eligible for expiry are never expired, perhaps some Gnus Agent files are corrupted. There's are special commands, gnus-agent-regenerate and gnus-agent-regenerate-group, to fix possible problems.

### 6.8.7 Agent Regeneration

The local data structures used by nnagent may become corrupted due to certain exceptional conditions. When this happens, nnagent functionality may degrade or even fail. The solution to this problem is to repair the local data structures by removing all internal inconsistencies.

For example, if your connection to your server is lost while downloaded articles into the agent, the local data structures will not know about articles successfully downloaded prior to the connection failure. Running gnus-agent-regenerate or gnus-agent-regenerate-group will update the data structures such that you don't need to download these articles a second time.

The command gnus-agent-regenerate will perform gnus-agent-regenerate-group on every agentized group. While you can run gnus-agent-regenerate in any buffer, it is strongly recommended that you first close all summary buffers.

The command gnus-agent-regenerate-group uses the local copies of individual articles to repair the local NOV(header) database. It then updates the internal data structures that document which articles are stored locally. An optional argument will mark articles in the agent as unread.

### 6.8.8 Agent and IMAP

The Agent works with any Gnus back end, including nnimap. However, since there are some conceptual differences between NNTP and IMAP, this section (should) provide you with some information to make Gnus Agent work smoother as a IMAP Disconnected Mode client.

The first thing to keep in mind is that all flags (read, ticked, etc) are kept on the IMAP server, rather than in '.newsrc' as is the case for nntp. Thus Gnus need to remember flag changes when disconnected, and synchronize these flags when you plug back in.

Gnus keeps track of flag changes when reading nnimap groups under the Agent. When you plug back in, Gnus will check if you have any changed any flags and ask if you wish to synchronize these with the server. The behavior is customizable by gnus-agent-synchronize-flags.

If gnus-agent-synchronize-flags is nil, the Agent will never automatically synchronize flags. If it is ask, which is the default, the Agent will check if you made any changes and if so ask if you wish to synchronize these when you re-connect. If it has any other value, all flags will be synchronized automatically.

If you do not wish to synchronize flags automatically when you re-connect, you can do it manually with the gnus-agent-synchronize-flags command that is bound to 'J Y' in the group buffer.

Some things are currently not implemented in the Agent that you'd might expect from a disconnected IMAP client, including:

- Copying/moving articles into nnimap groups when unplugged.
- Creating/deleting nnimap groups when unplugged.

Technical note: the synchronization algorithm does not work by "pushing" all local flags to the server, but rather incrementally update the server view of flags by changing only those flags that were changed by the user. Thus, if you set one flag on an article, quit the group and re-select the group and remove the flag; the flag will be set and removed from the server when you "synchronize". The queued flag operations can be found in the per-server flags file in the Agent directory. It's emptied when you synchronize flags.

### 6.8.9 Outgoing Messages

When Gnus is unplugged, all outgoing messages (both mail and news) are stored in the draft group "queue" (see "Drafts" on page 142). You can view them there after posting, and edit them at will.

When Gnus is plugged again, you can send the messages either from the draft group with the special commands available there, or you can use the 'J S' command in the group buffer to send all the sendable messages in the draft group.

### 6.8.10 Agent Variables

gnus-agent-directory Where the Gnus Agent will store its files. The default is '~/News/agent/'.

gnus-agent-handle-level Groups on levels (see "Group Levels" on page 21) higher than this variable will be ignored by the Agent. The default is gnus-level-subscribed, which means that only subscribed group will be considered by the Agent by default.

gnus-agent-plugged-hook Hook run when connecting to the network.

gnus-agent-unplugged-hook Hook run when disconnecting from the network.

gnus-agent-fetched-hook Hook run when finished fetching articles.

gnus-agent-cache Variable to control whether use the locally stored NOV and articles when plugged, e.g. essentially using the Agent as a cache. The default is non-nil, which means to use the Agent as a cache.

gnus-agent-go-online If gnus-agent-go-online is nil, the Agent will never automatically switch offline servers into online status. If it is ask, the default, the Agent will ask if you wish to switch offline servers into online status when you reconnect. If it has any other value, all offline servers will be automatically switched into online status.

gnus-agent-mark-unread-after-downloaded If gnus-agent-mark-unread-after-downloaded is non-nil, mark articles as unread after downloading. This is usually a safe thing to do as the newly downloaded article has obviously not been read. The default is t.

gnus-agent-consider-all-articles If gnus-agent-consider-all-articles is non-nil, the agent will fetch all missing headers. When nil, the agent will fetch only new headers. The default is nil.

gnus-agent-max-fetch-size The agent fetches articles into a temporary buffer prior to parsing them into individual files. To avoid exceeding the max. buffer size, the agent alternates between fetching and parsing until all articles have been fetched. gnus-agent-max-fetch-size provides a size limit to control how often the cycling occurs. A large value improves performance. A small value minimizes the time lost should the connection be lost while fetching (You may need to run gnus-agent-regenerate-group to update the group's state. However, all articles parsed prior to loosing the connection will be available while unplugged). The default is 10M so it is unusual to see any cycling.

gnus-server-unopen-status Perhaps not an Agent variable, but closely related to the Agent, this variable says what will happen if Gnus cannot open a server. If the Agent is enabled, the default, nil, makes Gnus ask the user whether to deny the server or whether to unplug the agent. If the Agent is disabled, Gnus always simply deny the server. Other choices for this variable include denied and offline the latter is only valid if the Agent is used.

gnus-auto-goto-ignores Another variable that isn't an Agent variable, yet so closely related that most will look for it here, this variable tells the summary buffer how to maneuver around undownloaded (only headers stored in the agent) and unfetched (neither article nor headers stored) articles.

The legal values are nil (maneuver to any article), undownloaded (maneuvering while unplugged ignores articles that have not been fetched), always-undownloaded (maneuvering always ignores articles that have not been fetched), unfetched (maneuvering ignores articles whose headers have not been fetched).

### 6.8.11 Example Setup

If you don't want to read this manual, and you have a fairly standard setup, you may be able to use something like the following as your '~/.gnus.el' file to get started.

```
;;; \gnusr{Define how Gnus is to fetch news.  We do this over \gnusacronym{nr
;;; \gnusr{from your ISP's server.}
(setq gnus-select-method '(nntp "news.your-isp.com"))

;;; \gnusr{Define how Gnus is to read your mail.  We read mail from}
;;; \gnusr{your ISP's \gnusacronym{pop} server.}
(setq mail-sources '((pop :server "pop.your-isp.com")))

;;; \gnusr{Say how Gnus is to store the mail.  We use nnml groups.}
(setq gnus-secondary-select-methods '((nnml "")))

;;; \gnusr{Make Gnus into an offline newsreader.}
;;; (gnus-agentize) ; \gnusr{The obsolete setting.}
;;; (setq gnus-agent t) ; \gnusr{Now the default.}
```

That should be it, basically. Put that in your '~/.gnus.el' file, edit to suit your needs, start up PPP (or whatever), and type 'M-x gnus'.

If this is the first time you've run Gnus, you will be subscribed automatically to a few default newsgroups. You'll probably want to subscribe to more groups, and to do that, you have to query the NNTP server for a complete list of groups with the 'A A' command. This usually takes quite a while, but you only have to do it once.

After reading and parsing a while, you'll be presented with a list of groups. Subscribe to the ones you want to read with the 'u' command. 'l' to make all the killed groups disappear after you've subscribe to all the groups you want to read. ('A k' will bring back all the killed groups.)

You can now read the groups at once, or you can download the articles with the 'J s' command. And then read the rest of this manual to find out which of the other gazillion things you want to customize.

### 6.8.12 Batching Agents

Having the Gnus Agent fetch articles (and post whatever messages you've written) is quite easy once you've gotten things set up properly. The following shell script will do everything that is necessary:

You can run a complete batch command from the command line with the following incantation:

```
#!/bin/sh
emacs -batch -l ~/.emacs -f -l ~/.gnus.el gnus-agent-batch >/dev/null 2>&1
```

### 6.8.13 Agent Caveats

The Gnus Agent doesn't seem to work like most other offline newsreaders. Here are some common questions that some imaginary people may ask:

*If I read an article while plugged, do they get entered into the Agent?* **No**. If you want this behaviour, add gnus-agent-fetch-selected-article to gnus-select-article-hook.

*If I read an article while plugged, and the article already exists in* the Agent, will it get downloaded once more?

**No**, unless gnus-agent-cache is nil.

In short, when Gnus is unplugged, it only looks into the locally stored articles; when it's plugged, it talks to your ISP and may also use the locally stored articles.

# Scoring

Other people use *kill files*, but we here at Gnus Towers like scoring better than killing, so we'd rather switch than fight. They do something completely different as well, so sit up straight and pay attention!

All articles have a default score (gnus-summary-default-score), which is 0 by default. This score may be raised or lowered either interactively or by score files. Articles that have a score lower than gnus-summary-mark-below are marked as read.

Gnus will read any *score files* that apply to the current group before generating the summary buffer.

There are several commands in the summary buffer that insert score entries based on the current article. You can, for instance, ask Gnus to lower or increase the score of all articles with a certain subject.

There are two sorts of scoring entries: Permanent and temporary. Temporary score entries are self-expiring entries. Any entries that are temporary and have not been used for, say, a week, will be removed silently to help keep the sizes of the score files down.

## 7.1 Summary Score Commands

The score commands that alter score entries do not actually modify real score files. That would be too inefficient. Gnus maintains a cache of previously loaded score files, one of which is considered the *current score file alist*. The score commands simply insert entries into this list, and upon group exit, this list is saved.

The current score file is by default the group's local score file, even if no such score file actually exists. To insert score commands into some other score file (e.g. 'all.SCORE'), you must first make this score file the current one.

General score commands that don't actually change the score file:

'V s' Set the score of the current article (gnus-summary-set-score).

'V S' Display the score of the current article (gnus-summary-current-score).

'V t' Display all score rules that have been used on the current article (gnus-score-find-trace). In the *Score Trace* buffer, you can use 'q' to quit. 'e' edits the corresponding score file. When point is on a string within the match element, 'e' will try to bring you to this string in the score file.

'V w' List words used in scoring (gnus-score-find-favourite-words).

'V R' Run the current summary through the scoring process (gnus-summary-rescore). This might be useful if you're playing around with your score files behind Gnus' back and want to see the effect you're having.

'V c' Make a different score file the current (gnus-score-change-score-file).

'V e' Edit the current score file (gnus-score-edit-current-scores). You will be popped into a gnus-score-mode buffer (see "Score File Editing" on page 244).

'V f' Edit a score file and make this score file the current one (gnus-score-edit-file).

'V F' Flush the score cache (gnus-score-flush-cache). This is useful after editing score files.

'V C' Customize a score file in a visually pleasing manner (gnus-score-customize).

The rest of these commands modify the local score file.

'V m' Prompt for a score, and mark all articles with a score below this as read (gnus-score-set-mark-below).

'V x' Prompt for a score, and add a score rule to the current score file to expunge all articles below this score (gnus-score-set-expunge-below).

The keystrokes for actually making score entries follow a very regular pattern, so there's no need to list all the commands. (Hundreds of them.)

1. The first key is either 'I' (upper case i) for increasing the score or 'L' for lowering the score.
2. The second key says what header you want to score on. The following keys are available:

   'a' Score on the author name.

   's' Score on the subject line.

   'x' Score on the Xref line—i.e., the cross-posting line.

   'r' Score on the References line.

   'd' Score on the date.

   'l' Score on the number of lines.

   'i' Score on the Message-ID header.

   'e' Score on an "extra" header, that is, one of those in gnus-extra-headers, if your NNTP server tracks additional header data in overviews.

   'f' Score on followups—this matches the author name, and adds scores to the followups to this author. (Using this key leads to the creation of 'ADAPT' files.)

   'b' Score on the body.

   'h' Score on the head.

   't' Score on thread. (Using this key leads to the creation of 'ADAPT' files.)
3. The third key is the match type. Which match types are valid depends on what headers you are scoring on.

strings ‘e’ Exact matching.
‘s’ Substring matching.
‘f’ Fuzzy matching (see “Fuzzy Matching” on page 345).
‘r’ Regexp matching

date ‘b’ Before date.
‘a’ After date.
‘n’ This date.

number ‘<’ Less than number.
‘=’ Equal to number.
‘>’ Greater than number.

4. The fourth and usually final key says whether this is a temporary (i.e., expiring) score entry, or a permanent (i.e., non-expiring) score entry, or whether it is to be done immediately, without adding to the score file.

   ‘t’ Temporary score entry.

   ‘p’ Permanent score entry.

   ‘i’ Immediately scoring.

5. If you are scoring on ‘e’ (extra) headers, you will then be prompted for the header name on which you wish to score. This must be a header named in gnus-extra-headers, and “TAB” completion is available.

So, let’s say you want to increase the score on the current author with exact matching permanently: ‘I a e p’. If you want to lower the score based on the subject line, using substring matching, and make a temporary score entry: ‘L s s t’. Pretty easy.

To make things a bit more complicated, there are shortcuts. If you use a capital letter on either the second or third keys, Gnus will use defaults for the remaining one or two keystrokes. The defaults are “substring” and “temporary”. So ‘I A’ is the same as ‘I a s t’, and ‘I a R’ is the same as ‘I a r t’.

These functions take both the numerical prefix and the symbolic prefix (see “Symbolic Prefixes” on page 325). A numerical prefix says how much to lower (or increase) the score of the article. A symbolic prefix of a says to use the ‘all.SCORE’ file for the command instead of the current score file.

The gnus-score-mimic-keymap says whether these commands will pretend they are keymaps or not.

## 7.2 Group Score Commands

There aren’t many of these as yet, I’m afraid.

'W f' Gnus maintains a cache of score alists to avoid having to reload them all the time. This command will flush the cache (gnus-score-flush-cache).

You can do scoring from the command line by saying something like:

```
$ emacs -batch -l ~/.emacs -l ~/.gnus.el -f gnus-batch-score
```

## 7.3 Score Variables

gnus-use-scoring If nil, Gnus will not check for score files, and will not, in general, do any score-related work. This is t by default.

gnus-kill-killed If this variable is nil, Gnus will never apply score files to articles that have already been through the kill process. While this may save you lots of time, it also means that if you apply a kill file to a group, and then change the kill file and want to run it over you group again to kill more articles, it won't work. You have to set this variable to t to do that. (It is t by default.)

gnus-kill-files-directory All kill and score files will be stored in this directory, which is initialized from the SAVEDIR environment variable by default. This is '~/News/' by default.

gnus-score-file-suffix Suffix to add to the group name to arrive at the score file name ('SCORE' by default.)

gnus-score-uncacheable-files All score files are normally cached to avoid excessive re-loading of score files. However, if this might make your Emacs grow big and bloated, so this regexp can be used to weed out score files unlikely to be needed again. It would be a bad idea to deny caching of 'all.SCORE', while it might be a good idea to not cache 'comp.infosystems.www.authoring.misc.ADAPT'. In fact, this variable is "ADAPT$" by default, so no adaptive score files will be cached.

gnus-save-score If you have really complicated score files, and do lots of batch scoring, then you might set this variable to t. This will make Gnus save the scores into the '.newsrc.eld' file.

If you do not set this to t, then manual scores (like those set with 'V s' (gnus-summary-set-score)) will not be preserved across group visits.

gnus-score-interactive-default-score Score used by all the interactive raise/lower commands to raise/lower score with. Default is 1000, which may seem excessive, but this is to ensure that the adaptive scoring scheme gets enough room to play with. We don't want the small changes from the adaptive scoring to overwrite manually entered data.

gnus-summary-default-score Default score of an article, which is 0 by default.

gnus-summary-expunge-below Don't display the summary lines of articles that have scores lower than this variable. This is nil by default, which means that no articles will be hidden. This variable is local to the summary buffers, and has to be set from gnus-summary-mode-hook.

gnus-score-over-mark Mark (in the third column) used for articles with a score over the default. Default is "+".

gnus-score-below-mark Mark (in the third column) used for articles with a score below the default. Default is "-".

gnus-score-find-score-files-function Function used to find score files for the current group. This function is called with the name of the group as the argument.

Predefined functions available are:

gnus-score-find-single Only apply the group's own score file.

gnus-score-find-bnews Apply all score files that match, using bnews syntax. This is the default. If the current group is "gnu.emacs.gnus", for instance, 'all.emacs.all.SCORE', 'not.alt.all.SCORE' and 'gnu.all.SCORE' would all apply. In short, the instances of "all" in the score file names are translated into ".*", and then a regexp match is done.

This means that if you have some score entries that you want to apply to all groups, then you put those entries in the 'all.SCORE' file.

The score files are applied in a semi-random order, although Gnus will try to apply the more general score files before the more specific score files. It does this by looking at the number of elements in the score file names—discarding the "all" elements.

gnus-score-find-hierarchical Apply all score files from all the parent groups. This means that you can't have score files like 'all.SCORE', but you can have 'SCORE', 'comp.SCORE' and 'comp.emacs.SCORE' for each server.

This variable can also be a list of functions. In that case, all these functions will be called with the group name as argument, and all the returned lists of score files will be applied. These functions can also return lists of lists of score alists directly. In that case, the functions that return these non-file score alists should probably be placed before the "real" score file functions, to ensure that the last score file returned is the local score file. Phu.

For example, to do hierarchical scoring but use a non-server-specific overall score file, you could use the value

```
(list (lambda (group) ("all.SCORE"))
      'gnus-score-find-hierarchical)
```

gnus-score-expiry-days This variable says how many days should pass before an unused score file entry is expired. If this variable is nil, no score file entries are expired. It's 7 by default.

gnus-update-score-entry-dates If this variable is non-nil, temporary score entries that have been triggered (matched) will have their dates updated. (This is how Gnus controls expiry—all non-matched-entries will become too old while matched entries will stay fresh and young.) However, if you set this variable to nil, even matched entries will grow old and will have to face that oh-so grim reaper.

gnus-score-after-write-file-function Function called with the name of the score file just written.

gnus-score-thread-simplify If this variable is non-nil, article subjects will be simplified for subject scoring purposes in the same manner as with threading—according to the current value of gnus-simplify-subject-functions. If the scoring entry uses substring or exact matching, the match will also be simplified in this manner.

## 7.4 Score File Format

A score file is an emacs-lisp file that normally contains just a single form. Casual users are not expected to edit these files; everything can be changed from the summary buffer.

Anyway, if you'd like to dig into it yourself, here's an example:

```
(("from"
  ("Lars Ingebrigtsen" -10000)
  ("Per Abrahamsen")
  ("larsi\\|lmi" -50000 nil R))
 ("subject"
  ("Ding is Badd" nil 728373))
 ("xref"
  ("alt.politics" -1000 728372 s))
 ("lines"
  (2 -100 nil <))
 (mark 0)
 (expunge -1000)
 (mark-and-expunge -10)
 (read-only nil)
 (orphan -10)
 (adapt t)
 (files "/hom/larsi/News/gnu.SCORE")
```

```
(exclude-files "all.SCORE")
(local (gnus-newsgroup-auto-expire t)
       (gnus-summary-make-false-root empty))
(eval (ding)))
```

This example demonstrates most score file elements. See "Advanced Scoring" on page 255, for a different approach.

Even though this looks much like Lisp code, nothing here is actually eval ed. The Lisp reader is used to read this form, though, so it has to be valid syntactically, if not semantically.

Six keys are supported by this alist:

STRING If the key is a string, it is the name of the header to perform the match on. Scoring can only be performed on these eight headers: From, Subject, References, Message-ID, Xref, Lines, Chars and Date. In addition to these headers, there are three strings to tell Gnus to fetch the entire article and do the match on larger parts of the article: Body will perform the match on the body of the article, Head will perform the match on the head of the article, and All will perform the match on the entire article. Note that using any of these last three keys will slow down group entry *considerably*. The final "header" you can score on is Followup. These score entries will result in new score entries being added for all follow-ups to articles that matches these score entries.

Following this key is an arbitrary number of score entries, where each score entry has one to four elements.

1. The first element is the *match element*. On most headers this will be a string, but on the Lines and Chars headers, this must be an integer.
2. If the second element is present, it should be a number—the *score element*. This number should be an integer in the neginf to posinf interval. This number is added to the score of the article if the match is successful. If this element is not present, the gnus-score-interactive-default-score number will be used instead. This is 1000 by default.
3. If the third element is present, it should be a number—the *date element*. This date says when the last time this score entry matched, which provides a mechanism for expiring the score entries. It this element is not present, the score entry is permanent. The date is represented by the number of days since December 31, 1 BCE.
4. If the fourth element is present, it should be a symbol—the *type element*. This element specifies what function should be used to see whether this score entry matches the article. What match types that can be used depends on what header you wish to perform the match on.

*From, Subject, References, Xref, Message-ID* For most header types, there are the r and R (regexp), as well as s and S (substring) types, and e and E (exact match), and w (word match) types. If this element is not present, Gnus will assume that substring matching should be used. R, S, and E differ from the others in that the matches will be done in a case-sensitive manner. All these one-letter types are really just abbreviations for the regexp, string, exact, and word types, which you can use instead, if you feel like.

*Extra* Just as for the standard string overview headers, if you are using gnus-extra-headers, you can score on these headers' values. In this case, there is a 5th element in the score entry, being the name of the header to be scored. The following entry is useful in your 'all.SCORE' file in case of spam attacks from a single origin host, if your NNTP server tracks NNTP-Posting-Host in overviews:

```
("111.222.333.444" -1000 nil s "NNTP-Posting-Host")
```

*Lines, Chars* These two headers use different match types: <, >, =, >= and <=.

These predicates are true if

```
(PREDICATE HEADER MATCH)
```

evaluates to non-nil. For instance, the advanced match ("lines" 4 <) (see "Advanced Scoring" on page 255) will result in the following form:

```
(< header-value 4)
```

Or to put it another way: When using < on Lines with 4 as the match, we get the score added if the article has less than 4 lines. (It's easy to get confused and think it's the other way around. But it's not. I think.)

When matching on Lines, be careful because some back ends (like nndir) do not generate Lines header, so every article ends up being marked as having 0 lines. This can lead to strange results if you happen to lower score of the articles with few lines.

*Date* For the Date header we have three kinda silly match types: before, at and after. I can't really imagine this ever being useful, but, like, it would feel kinda silly not to provide this function. Just in case. You never know. Better safe than sorry. Once burnt, twice shy. Don't judge a book by its cover. Never not have sex on a first date. (I have been told that at least one person, and I quote, "found this function indispensable", however.)

A more useful match type is regexp. With it, you can match the date string using a regular expression. The date is normalized to ISO8601 compact format first—YYYYMMDDTHHMMSS. If you want to match all articles that have been posted on April 1st in every year, you could use "....0401....." as a match string, for

instance. (Note that the date is kept in its original time zone, so this will match articles that were posted when it was April 1st where the article was posted from. Time zones are such wholesome fun for the whole family, eh?)

*Head, Body, All* These three match keys use the same match types as the From (etc) header uses.

*Followup* This match key is somewhat special, in that it will match the From header, and affect the score of not only the matching articles, but also all followups to the matching articles. This allows you e.g. increase the score of followups to your own articles, or decrease the score of followups to the articles of some known trouble-maker. Uses the same match types as the From header uses. (Using this match key will lead to creation of 'ADAPT' files.)

*Thread* This match key works along the same lines as the Followup match key. If you say that you want to score on a (sub-)thread started by an article with a Message-ID x, then you add a "thread" match. This will add a new "thread" match for each article that has x in its References header. (These new "thread" matches will use the Message-IDs of these matching articles.) This will ensure that you can raise/lower the score of an entire thread, even though some articles in the thread may not have complete References headers. Note that using this may lead to undeterministic scores of the articles in the thread. (Using this match key will lead to creation of 'ADAPT' files.)

mark The value of this entry should be a number. Any articles with a score lower than this number will be marked as read.

expunge The value of this entry should be a number. Any articles with a score lower than this number will be removed from the summary buffer.

mark-and-expunge The value of this entry should be a number. Any articles with a score lower than this number will be marked as read and removed from the summary buffer.

thread-mark-and-expunge The value of this entry should be a number. All articles that belong to a thread that has a total score below this number will be marked as read and removed from the summary buffer. gnus-thread-score-function says how to compute the total score for a thread.

files The value of this entry should be any number of file names. These files are assumed to be score files as well, and will be loaded the same way this one was.

**exclude-files** The clue of this entry should be any number of files. These files will not be loaded, even though they would normally be so, for some reason or other.

**eval** The value of this entry will be **eval**el. This element will be ignored when handling global score files.

**read-only** Read-only score files will not be updated or saved. Global score files should feature this atom (see "Global Score Files" on page 250). (Note: *Global* here really means *global*; not your personal apply-to-all-groups score files.)

**orphan** The value of this entry should be a number. Articles that do not have parents will get this number added to their scores. Imagine you follow some high-volume newsgroup, like "**comp.lang.c**". Most likely you will only follow a few of the threads, also want to see any new threads.

You can do this with the following two score file entries:

```
(orphan -500)
(mark-and-expunge -100)
```

When you enter the group the first time, you will only see the new threads. You then raise the score of the threads that you find interesting (with '**I T**' or '**I S**'), and ignore ('**C y**') the rest. Next time you enter the group, you will see new articles in the interesting threads, plus any new threads.

I.e.—the orphan score atom is for high-volume groups where a few interesting threads which can't be found automatically by ordinary scoring rules exist.

**adapt** This entry controls the adaptive scoring. If it is **t**, the default adaptive scoring rules will be used. If it is **ignore**, no adaptive scoring will be performed on this group. If it is a list, this list will be used as the adaptive scoring rules. If it isn't present, or is something other than **t** or **ignore**, the default adaptive scoring rules will be used. If you want to use adaptive scoring on most groups, you'd set **gnus-use-adaptive-scoring** to **t**, and insert an **(adapt ignore)** in the groups where you do not want adaptive scoring. If you only want adaptive scoring in a few groups, you'd set **gnus-use-adaptive-scoring** to **nil**, and insert **(adapt t)** in the score files of the groups where you want it.

**adapt-file** All adaptive score entries will go to the file named by this entry. It will also be applied when entering the group. This atom might be handy if you want to adapt on several groups at once, using the same adaptive file for a number of groups.

local The value of this entry should be a list of (var value) pairs. Each var will be made buffer-local to the current summary buffer, and set to the value specified. This is a convenient, if somewhat strange, way of setting variables in some groups if you don't like hooks much. Note that the value won't be evaluated.

## 7.5 Score File Editing

You normally enter all scoring commands from the summary buffer, but you might feel the urge to edit them by hand as well, so we've supplied you with a mode for that.

It's simply a slightly customized emacs-lisp mode, with these additional commands:

'C-c C-c' Save the changes you have made and return to the summary buffer (gnus-score-edit-done).

'C-c C-d' Insert the current date in numerical format (gnus-score-edit-insert-date). This is really the day number, if you were wondering.

'C-c C-p' The adaptive score files are saved in an unformatted fashion. If you intend to read one of these files, you want to *pretty print* it first. This command (gnus-score-pretty-print) does that for you.

Type 'M-x gnus-score-mode' to use this mode.

gnus-score-menu-hook is run in score mode buffers.

In the summary buffer you can use commands like 'V f' and 'V e' to begin editing score files.

## 7.6 Adaptive Scoring

If all this scoring is getting you down, Gnus has a way of making it all happen automatically—as if by magic. Or rather, as if by artificial stupidity, to be precise.

When you read an article, or mark an article as read, or kill an article, you leave marks behind. On exit from the group, Gnus can sniff these marks and add score elements depending on what marks it finds. You turn on this ability by setting gnus-use-adaptive-scoring to t or (line). If you want score adaptively on separate words appearing in the subjects, you should set this variable to (word). If you want to use both adaptive methods, set this variable to (word line).

To give you complete control over the scoring process, you can customize the gnus-default-adaptive-score-alist variable. For instance, it might look something like this:

```
(setq gnus-default-adaptive-score-alist
  '((gnus-unread-mark)
    (gnus-ticked-mark (from 4))
    (gnus-dormant-mark (from 5))
    (gnus-del-mark (from -4) (subject -1))
    (gnus-read-mark (from 4) (subject 2))
    (gnus-expirable-mark (from -1) (subject -1))
    (gnus-killed-mark (from -1) (subject -3))
    (gnus-kill-file-mark)
    (gnus-ancient-mark)
    (gnus-low-score-mark)
    (gnus-catchup-mark (from -1) (subject -1))))
```

As you see, each element in this alist has a mark as a key (either a variable name or a "real" mark—a character). Following this key is a arbitrary number of header/score pairs. If there are no header/score pairs following the key, no adaptive scoring will be done on articles that have that key as the article mark. For instance, articles with gnus-unread-mark in the example above will not get adaptive score entries.

Each article can have only one mark, so just a single of these rules will be applied to each article.

To take gnus-del-mark as an example—this alist says that all articles that have that mark (i.e., are marked with "e") will have a score entry added to lower based on the From header by -4, and lowered by Subject by -1. Change this to fit your prejudices.

If you have marked 10 articles with the same subject with gnus-del-mark, the rule for that mark will be applied ten times. That means that that subject will get a score of ten times -1, which should be, unless I'm much mistaken, -10.

If you have auto-expirable (mail) groups (see "Expiring Mail" on page 175), all the read articles will be marked with the "E" mark. This'll probably make adaptive scoring slightly impossible, so auto-expiring and adaptive scoring doesn't really mix very well.

The headers you can score on are from, subject, message-id, references, xref, lines, chars and date. In addition, you can score on followup, which will create an adaptive score entry that matches on the References header using the Message-ID of the current article, thereby matching the following thread.

If you use this scheme, you should set the score file atom mark to something small—like -300, perhaps, to avoid having small random changes result in articles getting marked as read.

After using adaptive scoring for a week or so, Gnus should start to become properly trained and enhance the authors you like best, and kill the authors you like least, without you having to say so explicitly.

You can control what groups the adaptive scoring is to be performed on by using the score files (see "Score File Format" on page 239). This will also let you

use different rules in different groups.

The adaptive score entries will be put into a file where the name is the group name with gnus-adaptive-file-suffix appended. The default is 'ADAPT'.

When doing adaptive scoring, substring or fuzzy matching would probably give you the best results in most cases. However, if the header one matches is short, the possibility for false positives is great, so if the length of the match is less than gnus-score-exact-adapt-limit, exact matching will be used. If this variable is nil, exact matching will always be used to avoid this problem.

As mentioned above, you can adapt either on individual words or entire headers. If you adapt on words, the gnus-default-adaptive-word-score-alist variable says what score each instance of a word should add given a mark.

```
(setq gnus-default-adaptive-word-score-alist
      `((,gnus-read-mark . 30)
        (,gnus-catchup-mark . -10)
        (,gnus-killed-mark . -20)
        (,gnus-del-mark . -15)))
```

This is the default value. If you have adaption on words enabled, every word that appears in subjects of articles marked with gnus-read-mark will result in a score rule that increase the score with 30 points.

Words that appear in the gnus-default-ignored-adaptive-words list will be ignored. If you wish to add more words to be ignored, use the gnus-ignored-adaptive-words list instead.

Some may feel that short words shouldn't count when doing adaptive scoring. If so, you may set gnus-adaptive-word-length-limit to an integer. Words shorter than this number will be ignored. This variable defaults to nil.

When the scoring is done, gnus-adaptive-word-syntax-table is the syntax table in effect. It is similar to the standard syntax table, but it considers numbers to be non-word-constituent characters.

If gnus-adaptive-word-minimum is set to a number, the adaptive word scoring process will never bring down the score of an article to below this number. The default is nil.

If gnus-adaptive-word-no-group-words is set to t, gnus won't adaptively word score any of the words in the group name. Useful for groups like "comp.editors.emacs", where most of the subject lines contain the word "emacs".

After using this scheme for a while, it might be nice to write a gnus-psychoanalyze-user command to go through the rules and see what words you like and what words you don't like. Or perhaps not.

Note that the adaptive word scoring thing is highly experimental and is likely to change in the future. Initial impressions seem to indicate that it's totally useless as it stands. Some more work (involving more rigorous statistical methods) will have to be done to make this useful.

## 7.7 Home Score File

The score file where new score file entries will go is called the *home score file*. This is normally (and by default) the score file for the group itself. For instance, the home score file for "gnu.emacs.gnus" is 'gnu.emacs.gnus.SCORE'.

However, this may not be what you want. It is often convenient to share a common home score file among many groups—all "emacs" groups could perhaps use the same home score file.

The variable that controls this is gnus-home-score-file. It can be:

1. A string. Then this file will be used as the home score file for all groups.
2. A function. The result of this function will be used as the home score file. The function will be called with the name of the group as the parameter.
3. A list. The elements in this list can be:

   (a) (regexp file-name). If the regexp matches the group name, the file-name will be used as the home score file.

   (b) A function. If the function returns non-nil, the result will be used as the home score file.

   (c) A string. Use the string as the home score file.

   The list will be traversed from the beginning towards the end looking for matches.

So, if you want to use just a single score file, you could say:

```
(setq gnus-home-score-file
      "my-total-score-file.SCORE")
```

If you want to use 'gnu.SCORE' for all "gnu" groups and 'rec.SCORE' for all "rec" groups (and so on), you can say:

```
(setq gnus-home-score-file
      'gnus-hierarchial-home-score-file)
```

This is a ready-made function provided for your convenience. Other functions include

gnus-current-home-score-file Return the "current" regular score file. This will make scoring commands add entry to the "innermost" matching score file.

If you want to have one score file for the "emacs" groups and another for the "comp" groups, while letting all other groups use their own home score files:

```
(setq gnus-home-score-file
      ;; \gnusr{All groups that match the regexp \gnuscode{"\\.emacs"
      '(("\\.emacs" "emacs.SCORE")
        ;; \gnusr{All the comp groups in one score file}
        ("^comp" "comp.SCORE")))
```

gnus-home-adapt-file works exactly the same way as gnus-home-score-file, but says what the home adaptive score file is instead. All new adaptive file entries will go into the file specified by this variable, and the same syntax is allowed.

In addition to using gnus-home-score-file and gnus-home-adapt-file, you can also use group parameters (see "Group Parameters" on page 25) and topic parameters (see "Topic Parameters" on page 41) to achieve much the same. Group and topic parameters take precedence over this variable.

## 7.8 Followups To Yourself

Gnus offers two commands for picking out the Message-ID header in the current buffer. Gnus will then add a score rule that scores using this Message-ID on the References header of other articles. This will, in effect, increase the score of all articles that respond to the article in the current buffer. Quite useful if you want to easily note when people answer what you've said.

gnus-score-followup-article This will add a score to articles that directly follow up your own article.

gnus-score-followup-thread This will add a score to all articles that appear in a thread "below" your own article.

These two functions are both primarily meant to be used in hooks like message-sent-hook, like this:

```
(add-hook 'message-sent-hook 'gnus-score-followup-thread)
```

If you look closely at your own Message-ID, you'll notice that the first two or three characters are always the same. Here's two of mine:

```
<x6u3u47icf.fsf@eyesore.no>
<x6sp9o7ibw.fsf@eyesore.no>
```

So "my" ident on this machine is "x6". This can be exploited—the following rule will raise the score on all followups to myself:

```
("references"
 ("<x6[0-9a-z]+\\.fsf\\(_-_\\)?@.*eyesore\\.no>"
  1000 nil r))
```

Whether it's the first two or first three characters that are "yours" is system-dependent.

## 7.9 Scoring On Other Headers

Gnus is quite fast when scoring the "traditional" headers—"From", "Subject" and so on. However, scoring other headers requires writing a head scoring rule, which means that Gnus has to request every single article from the back end to find matches. This takes a long time in big groups.

Now, there's not much you can do about this for news groups, but for mail groups, you have greater control. In "To From Newsgroups" on page 51, it's explained in greater detail what this mechanism does, but here's a cookbook example for nnml on how to allow scoring on the "To" and "Cc" headers.

Put the following in your '~/.gnus.el' file.

```
(setq gnus-extra-headers '(To Cc Newsgroups Keywords)
      nnmail-extra-headers gnus-extra-headers)
```

Restart Gnus and rebuild your nnml overview files with the 'M-x nnml-generate-nov-databases' command. This will take a long time if you have much mail.

Now you can score on "To" and "Cc" as "extra headers" like so: 'I e s p To RET <your name> RET'.

See? Simple.

## 7.10 Scoring Tips

*Crossposts* If you want to lower the score of crossposts, the line to match on is the Xref header.

```
("xref" (" talk.politics.misc:" -1000))
```

*Multiple crossposts* If you want to lower the score of articles that have been crossposted to more than, say, 3 groups:

```
("xref"
  ("[^:\n]+:[0-9]+ +[^:\n]+:[0-9]+ +[^:\n]+:[0-9]+"
   -1000 nil r))
```

*Matching on the body* This is generally not a very good idea—it takes a very long time. Gnus actually has to fetch each individual article from the server. But you might want to anyway, I guess. Even though there are three match keys (Head, Body and All), you should choose one and stick with it in each score file. If you use any two, each article will be fetched *twice*. If you want to match a bit on the Head and a bit on the Body, just use All for all the matches.

*Marking as read* You will probably want to mark articles that have scores below a certain number as read. This is most easily achieved by putting the following in your 'all.SCORE' file:

```
((mark -100))
```

You may also consider doing something similar with expunge.

*Negated character classes* If you say stuff like [^abcd]*, you may get unexpected results. That will match newlines, which might lead to, well, The Unknown. Say [^abcd/n]* instead.

## 7.11 Reverse Scoring

If you want to keep just articles that have "Sex with Emacs" in the subject header, and expunge all other articles, you could put something like this in your score file:

```
(("subject"
  ("Sex with Emacs" 2))
 (mark 1)
 (expunge 1))
```

So, you raise all articles that match "Sex with Emacs" and mark the rest as read, and expunge them to boot.

## 7.12 Global Score Files

Sure, other newsreaders have "global kill files". These are usually nothing more than a single kill file that applies to all groups, stored in the user's home directory. Bah! Puny, weak newsreaders!

What I'm talking about here are Global Score Files. Score files from all over the world, from users everywhere, uniting all nations in one big, happy score file union! Ange-score! New and untested!

All you have to do to use other people's score files is to set the gnus-global-score-files variable. One entry for each score file, or each score file directory. Gnus will decide by itself what score files are applicable to which group.

To use the score file '/ftp@ftp.gnus.org:/pub/larsi/ding/score/soc.motss.SCORE' and all score files in the '/ftp@ftp.some-where:/pub/score' directory, say this:

```
(setq gnus-global-score-files
      '("/ftp@ftp.gnus.org:/pub/larsi/ding/score/soc.motss.SCORE"
        "/ftp@ftp.some-where:/pub/score/"))
```

Simple, eh? Directory names must end with a "/". These directories are typically scanned only once during each Gnus session. If you feel the need to manually re-scan the remote directories, you can use the gnus-score-search-global-directories command.

Note that, at present, using this option will slow down group entry somewhat. (That is—a lot.)

If you want to start maintaining score files for other people to use, just put your score file up for anonymous ftp and announce it to the world. Become a retro-moderator! Participate in the retro-moderator wars sure to ensue, where retro-moderators battle it out for the sympathy of the people, luring them to use their score files on false premises! Yay! The net is saved!

Here are some tips for the would-be retro-moderator, off the top of my head:

- Articles heavily crossposted are probably junk.
- To lower a single inappropriate article, lower by Message-ID.
- Particularly brilliant authors can be raised on a permanent basis.
- Authors that repeatedly post off-charter for the group can safely be lowered out of existence.
- Set the mark and expunge atoms to obliterate the nastiest articles completely.
- Use expiring score entries to keep the size of the file down. You should probably have a long expiry period, though, as some sites keep old articles for a long time.

... I wonder whether other newsreaders will support global score files in the future. *Snicker*. Yup, any day now, newsreaders like Blue Wave, xrn and 1stReader are bound to implement scoring. Should we start holding our breath yet?

## 7.13 Kill Files

Gnus still supports those pesky old kill files. In fact, the kill file entries can now be expiring, which is something I wrote before Daniel Quinlan thought of doing score files, so I've left the code in there.

In short, kill processing is a lot slower (and I do mean *a lot*) than score processing, so it might be a good idea to rewrite your kill files into score files.

Anyway, a kill file is a normal emacs-lisp file. You can put any forms into this file, which means that you can use kill files as some sort of primitive hook function to be run on group entry, even though that isn't a very good idea.

Normal kill files look like this:

```
(gnus-kill "From" "Lars Ingebrigtsen")
(gnus-kill "Subject" "ding")
(gnus-expunge "X")
```

This will mark every article written by me as read, and remove the marked articles from the summary buffer. Very useful, you'll agree.

Other programs use a totally different kill file syntax. If Gnus encounters what looks like a rn kill file, it will take a stab at interpreting it.

Two summary functions for editing a GNUS kill file:

'M-k' Edit this group's kill file (gnus-summary-edit-local-kill).

'M-K' Edit the general kill file (gnus-summary-edit-global-kill).

Two group mode functions for editing the kill files:

'M-k' Edit this group's kill file (gnus-group-edit-local-kill).

'M-K' Edit the general kill file (gnus-group-edit-global-kill).

Kill file variables:

gnus-kill-file-name A kill file for the group "soc.motss" is normally called 'soc.motss.KILL'. The suffix appended to the group name to get this file name is detailed by the gnus-kill-file-name variable. The "global" kill file (not in the score file sense of "global", of course) is just called 'KILL'.

gnus-kill-save-kill-file If this variable is non-nil, Gnus will save the kill file after processing, which is necessary if you use expiring kills.

gnus-apply-kill-hook A hook called to apply kill files to a group. It is (gnus-apply-kill-file) by default. If you want to ignore the kill file if you have a score file for the same group, you can set this hook to (gnus-apply-kill-file-unless-scored). If you don't want kill files to be processed, you should set this variable to nil.

gnus-kill-file-mode-hook A hook called in kill-file mode buffers.

## 7.14 Converting Kill Files

If you have loads of old kill files, you may want to convert them into score files. If they are "regular", you can use the 'gnus-kill-to-score.el' package; if not, you'll have to do it by hand.

The kill to score conversion package isn't included in Gnus by default. You can fetch it from http://www.stud.ifi.uio.no/~larsi/ding-various/gnus-kill-to-score.el.

If your old kill files are very complex—if they contain more non-gnus-kill forms than not, you'll have to convert them by hand. Or just let them be as they are. Gnus will still use them as before.

## 7.15 GroupLens

NOTE: Unfortunately the GroupLens system seems to have shut down, so this section is mostly of historical interest.

http://www.cs.umn.edu/Research/GroupLens/, GroupLens is a collaborative filtering system that helps you work together with other people to find the quality news articles out of the huge volume of news articles generated every day.

To accomplish this the GroupLens system combines your opinions about articles you have already read with the opinions of others who have done likewise and gives you a personalized prediction for each unread news article. Think of GroupLens as a matchmaker. GroupLens watches how you rate articles, and finds other people that rate articles the same way. Once it has found some people you agree with it tells you, in the form of a prediction, what they thought of the article. You can use this prediction to help you decide whether or not you want to read the article.

### 7.15.1 Using GroupLens

To use GroupLens you must register a pseudonym with your local http://www.cs.umn.edu/Research/GroupLens/bbb.l Better Bit Bureau (BBB) is the only better bit in town at the moment.

Once you have registered you'll need to set a couple of variables.

gnus-use-grouplens Setting this variable to a non-nil value will make Gnus hook into all the relevant GroupLens functions.

grouplens-pseudonym This variable should be set to the pseudonym you got when registering with the Better Bit Bureau.

grouplens-newsgroups A list of groups that you want to get GroupLens predictions for.

That's the minimum of what you need to get up and running with GroupLens. Once you've registered, GroupLens will start giving you scores for articles based on the average of what other people think. But, to get the real benefit of GroupLens you need to start rating articles yourself. Then the scores GroupLens gives you will be personalized for you, based on how the people you usually agree with have already rated.

### 7.15.2 Rating Articles

In GroupLens, an article is rated on a scale from 1 to 5, inclusive. Where 1 means something like this article is a waste of bandwidth and 5 means that the article was really good. The basic question to ask yourself is, "on a scale from 1 to 5 would I like to see more articles like this one?"

There are four ways to enter a rating for an article in GroupLens.

'r' This function will prompt you for a rating on a scale of one to five.

'k' This function will prompt you for a rating, and rate all the articles in the thread. This is really useful for some of those long running giant threads in rec.humor.

The next two commands, 'n' and ',' take a numerical prefix to be the score of the article you're reading.

'1-5 n' Rate the article and go to the next unread article.

'1-5 ,' Rate the article and go to the next unread article with the highest score.

If you want to give the current article a score of 4 and then go to the next article, just type '4 n'.

### 7.15.3 Displaying Predictions

GroupLens makes a prediction for you about how much you will like a news article. The predictions from GroupLens are on a scale from 1 to 5, where 1 is the worst and 5 is the best. You can use the predictions from GroupLens in one of three ways controlled by the variable gnus-grouplens-override-scoring.

There are three ways to display predictions in grouplens. You may choose to have the GroupLens scores contribute to, or override the regular Gnus scoring mechanism. override is the default; however, some people prefer to see the Gnus scores plus the grouplens scores. To get the separate scoring behavior you need to set gnus-grouplens-override-scoring to 'separate. To have the GroupLens predictions combined with the grouplens scores set it to 'override and to combine the scores set gnus-grouplens-override-scoring to 'combine. When you use the combine option you will also want to set the values for grouplens-prediction-offset and grouplens-score-scale-factor.

In either case, GroupLens gives you a few choices for how you would like to see your predictions displayed. The display of predictions is controlled by the grouplens-prediction-display variable.

The following are valid values for that variable.

prediction-spot The higher the prediction, the further to the right an "*" is displayed.

confidence-interval A numeric confidence interval.

prediction-bar The higher the prediction, the longer the bar.

confidence-bar Numerical confidence.

confidence-spot The spot gets bigger with more confidence.

prediction-num Plain-old numeric value.

confidence-plus-minus Prediction +/- confidence.

### 7.15.4 GroupLens Variables

gnus-summary-grouplens-line-format The summary line format used in GroupLens-enhanced summary buffers. It accepts the same specs as the normal summary line format (see "Summary Buffer Lines" on page 48). The default is "%U%R%z%l%I%(%[%4L: %-23,23n%]%) %s/n".

grouplens-bbb-host Host running the bbbd server. "grouplens.cs.umn.edu" is the default.

grouplens-bbb-port Port of the host running the bbbd server. The default is 9000.

grouplens-score-offset Offset the prediction by this value. In other words, subtract the prediction value by this number to arrive at the effective score. The default is 0.

grouplens-score-scale-factor This variable allows the user to magnify the effect of GroupLens scores. The scale factor is applied after the offset. The default is 1.

## 7.16 Advanced Scoring

Scoring on Subjects and From headers is nice enough, but what if you're really interested in what a person has to say only when she's talking about a particular subject? Or what if you really don't want to read what person A has to say when she's following up to person B, but want to read what she says when she's following up to person C?

By using advanced scoring rules you may create arbitrarily complex scoring patterns.

### 7.16.1 Advanced Scoring Syntax

Ordinary scoring rules have a string as the first element in the rule. Advanced scoring rules have a list as the first element. The second element is the score to be applied if the first element evaluated to a non-nil value.

These lists may consist of three logical operators, one redirection operator, and various match operators.

Logical operators:

&
and This logical operator will evaluate each of its arguments until it finds one that evaluates to false, and then it'll stop. If all arguments evaluate to true values, then this operator will return true.

—

**or** This logical operator will evaluate each of its arguments until it finds one that evaluates to **true**. If no arguments are **true**, then this operator will return **false**.

**!**
**not**
**¬** This logical operator only takes a single argument. It returns the logical negation of the value of its argument.

There is an *indirection operator* that will make its arguments apply to the ancestors of the current article being scored. For instance, **1-** will make score rules apply to the parent of the current article. **2-** will make score rules apply to the grandparent of the current article. Alternatively, you can write ^^, where the number of ^s (carets) says how far back into the ancestry you want to go.

Finally, we have the match operators. These are the ones that do the real work. Match operators are header name strings followed by a match and a match type. A typical match operator looks like "**("from" "Lars Ingebrigtsen" s)**". The header names are the same as when using simple scoring, and the match types are also the same.

### 7.16.2 Advanced Scoring Examples

Please note that the following examples are score file rules. To make a complete score file from them, surround them with another pair of parentheses.

Let's say you want to increase the score of articles written by Lars when he's talking about Gnus:

```
((&
  ("from" "Lars Ingebrigtsen")
  ("subject" "Gnus"))
 1000)
```

Quite simple, huh?

When he writes long articles, he sometimes has something nice to say:

```
((&
  ("from" "Lars Ingebrigtsen")
  (|
   ("subject" "Gnus")
   ("lines" 100 >)))
 1000)
```

However, when he responds to things written by Reig Eigil Logge, you really don't want to read what he's written:

```
((&
  ("from" "Lars Ingebrigtsen")
  (1- ("from" "Reig Eigir Logge")))
 -100000)
```

Everybody that follows up Redmondo when he writes about disappearing socks should have their scores raised, but only when they talk about white socks. However, when Lars talks about socks, it's usually not very interesting:

```
((&
  (1-
   (&
    ("from" "redmondo@.*no" r)
    ("body" "disappearing.*socks" t)))
  (! ("from" "Lars Ingebrigtsen"))
  ("body" "white.*socks"))
 1000)
```

The possibilities are endless.

### 7.16.3 Advanced Scoring Tips

The & and — logical operators do short-circuit logic. That is, they stop processing their arguments when it's clear what the result of the operation will be. For instance, if one of the arguments of an & evaluates to false, there's no point in evaluating the rest of the arguments. This means that you should put slow matches ("body", "header") last and quick matches ("from", "subject") first.

The indirection arguments (1- and so on) will make their arguments work on previous generations of the thread. If you say something like:

```
...
(1-
 (1-
  ("from" "lars")))
...
```

Then that means "score on the from header of the grandparent of the current article". An indirection is quite fast, but it's better to say:

```
(1-
 (&
  ("from" "Lars")
  ("subject" "Gnus")))
```

than it is to say:

```
(&
 (1- ("from" "Lars"))
 (1- ("subject" "Gnus")))
```

## 7.17 Score Decays

You may find that your scores have a tendency to grow without bounds, especially if you're using adaptive scoring. If scores get too big, they lose all meaning—they simply max out and it's difficult to use them in any sensible way.

Gnus provides a mechanism for decaying scores to help with this problem. When score files are loaded and gnus-decay-scores is non-nil, Gnus will run the score files through the decaying mechanism thereby lowering the scores of all non-permanent score rules. The decay itself if performed by the gnus-decay-score-function function, which is gnus-decay-score by default. Here's the definition of that function:

```
(defun gnus-decay-score (score)
  "Decay SCORE.
This is done according to `gnus-score-decay-constant'
and `gnus-score-decay-scale'."
  (floor
   (- score
      (* (if (< score 0) 1 -1)
         (min (abs score)
              (max gnus-score-decay-constant
                   (* (abs score)
                      gnus-score-decay-scale)))))))
```

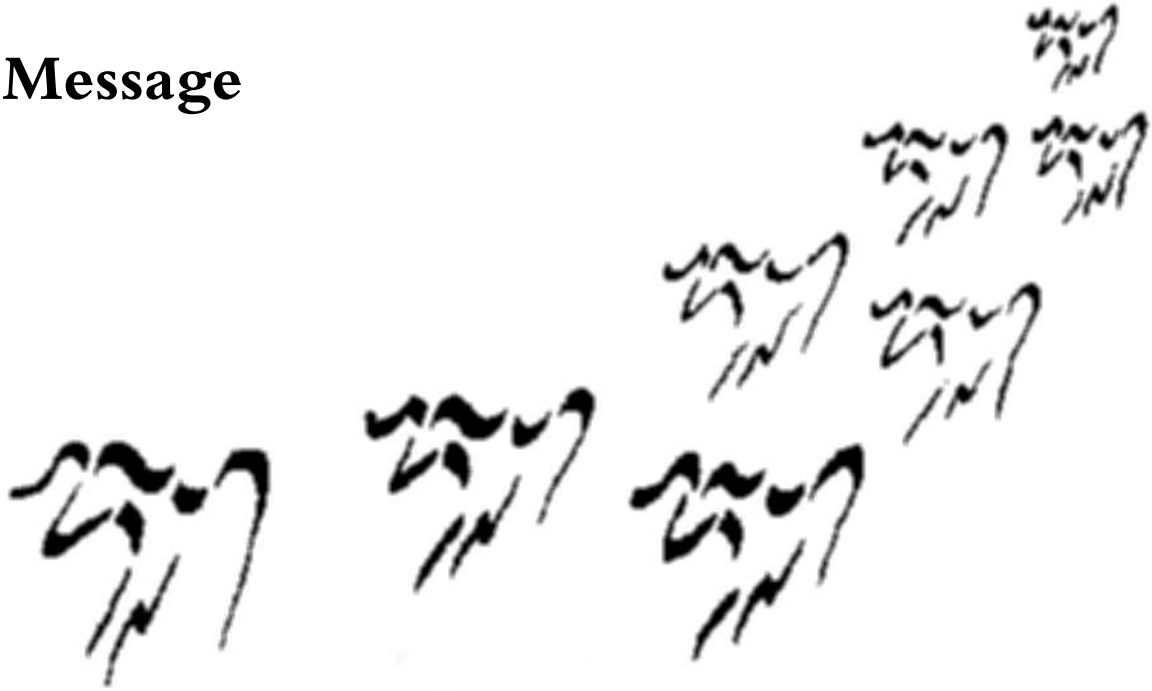
gnus-score-decay-constant is 3 by default and gnus-score-decay-scale is 0.05. This should cause the following:

1. Scores between -3 and 3 will be set to 0 when this function is called.
2. Scores with magnitudes between 3 and 60 will be shrunk by 3.
3. Scores with magnitudes greater than 60 will be shrunk by 5% of the score.

If you don't like this decay function, write your own. It is called with the score to be decayed as its only parameter, and it should return the new score, which should be an integer.

Gnus will try to decay scores once a day. If you haven't run Gnus for four days, Gnus will decay the scores four times, for instance.

# Message



All message composition from Gnus (both mail and news) takes place in Message mode buffers.

This manual corresponds to Message 5.10.1. Message is distributed with the Gnus distribution bearing the same version number as this manual.

## 8.1 Interface

When a program (or a person) wants to respond to a message – reply, follow up, forward, cancel – the program (or person) should just put point in the buffer where the message is and call the required command. Message will then pop up a new message mode buffer with appropriate headers filled out, and the user can edit the message before sending it.

### 8.1.1 New Mail Message

The message-mail command pops up a new message buffer.

Two optional parameters are accepted: The first will be used as the To header and the second as the Subject header. If these are nil, those two headers will be empty.

### 8.1.2 New News Message

The message-news command pops up a new message buffer.

This function accepts two optional parameters. The first will be used as the Newsgroups header and the second as the Subject header. If these are nil, those two headers will be empty.

### 8.1.3 Reply

The message-reply function pops up a message buffer that's a reply to the message in the current buffer.

Message uses the normal methods to determine where replies are to go (see "Responses" on page 285), but you can change the behavior to suit your needs by fiddling with the message-reply-to-function variable.

If you want the replies to go to the Sender instead of the From, you could do something like this:

```
(setq message-reply-to-function
      (lambda ()
       (cond ((equal (mail-fetch-field "from") "somebody")
              (list (cons 'To (mail-fetch-field "sender"))))
             (t
              nil))))
```

This function will be called narrowed to the head of the article that is being replied to.

As you can see, this function should return a string if it has an opinion as to what the To header should be. If it does not, it should just return nil, and the normal methods for determining the To header will be used.

This function can also return a list. In that case, each list element should be a cons, where the CAR should be the name of a header (e.g. Cc) and the CDR should be the header value (e.g. "larsi@ifi.uio.no"). All these headers will be inserted into the head of the outgoing mail.

### 8.1.4 Wide Reply

The message-wide-reply pops up a message buffer that's a wide reply to the message in the current buffer. A *wide reply* is a reply that goes out to all people listed in the To, From (or Reply-to) and Cc headers.

Message uses the normal methods to determine where wide replies are to go, but you can change the behavior to suit your needs by fiddling with the message-wide-reply-to-function. It is used in the same way as message-reply-to-function (see "Reply" on page 260).

Addresses that match the message-dont-reply-to-names regular expression will be removed from the Cc header.

If message-wide-reply-confirm-recipients is non-nil you will be asked to confirm that you want to reply to multiple recipients. The default is nil.

### 8.1.5 Followup

The message-followup command pops up a message buffer that's a followup to the message in the current buffer.

Message uses the normal methods to determine where followups are to go, but you can change the behavior to suit your needs by fiddling with the message-followup-to-function. It is used in the same way as message-reply-to-function (see "Reply" on page 260).

The message-use-followup-to variable says what to do about Followup-To headers. If it is use, always use the value. If it is ask (which is the default), ask whether to use the value. If it is t, use the value unless it is "poster". If it is nil, don't use the value.

### 8.1.6 Canceling News

The message-cancel-news command cancels the article in the current buffer.

The value of message-cancel-message is inserted in the body of the cancel message. The default is "I am canceling my own article.".

When Message posts news messages, it inserts Cancel-Lock headers by default. This is a cryptographic header that ensures that only you can cancel your own messages, which is nice. The downside is that if you lose your '.emacs' file (which is

where Gnus stores the secret cancel lock password (which is generated automatically the first time you use this feature)), you won't be able to cancel your message.

Whether to insert the header or not is controlled by the message-insert-canlock variable.

Not many news servers respect the Cancel-Lock header yet, but this is expected to change in the future.

### 8.1.7 Superseding

The message-supersede command pops up a message buffer that will supersede the message in the current buffer.

Headers matching the message-ignored-supersedes-headers are removed before popping up the new message buffer. The default is
"^Path:/—^Date/—^NNTP-Posting-Host:/—^Xref:/—^Lines:/—
^Received:/—^X-From-Line:/—Return-Path:/—^Supersedes:".

### 8.1.8 Forwarding

The message-forward command pops up a message buffer to forward the message in the current buffer. If given a prefix, forward using news.

message-forward-ignored-headers All headers that match this regexp will be deleted when forwarding a message.

message-make-forward-subject-function A list of functions that are called to generate a subject header for forwarded messages. The subject generated by the previous function is passed into each successive function.

The provided functions are:

message-forward-subject-author-subject Source of article (author or newsgroup), in brackets followed by the subject.

message-forward-subject-fwd Subject of article with "Fwd:" prepended to it.

message-wash-forwarded-subjects If this variable is t, the subjects of forwarded messages have the evidence of previous forwards (such as "Fwd:", "Re:", "(fwd)") removed before the new subject is constructed. The default value is nil.

message-forward-as-mime If this variable is t (the default), forwarded messages are included as inline MIME RFC822 parts. If it's nil, forwarded messages will just be copied inline to the new message, like previous, non MIME-savvy versions of Gnus would do.

message-forward-before-signature If non-nil, put forwarded message before signature, else after.

### 8.1.9 Resending

The message-resend command will prompt the user for an address and resend the message in the current buffer to that address.

Headers that match the message-ignored-resent-headers regexp will be removed before sending the message. The default is "^Return-receipt".

### 8.1.10 Bouncing

The message-bounce command will, if the current buffer contains a bounced mail message, pop up a message buffer stripped of the bounce information. A *bounced message* is typically a mail you've sent out that has been returned by some mailer-daemon as undeliverable.

Headers that match the message-ignored-bounced-headers regexp will be removed before popping up the buffer. The default is "^/(Received/—Return-Path/):".

### 8.1.11 Mailing Lists

Sometimes while posting to mailing lists, the poster needs to direct followups to the post to specific places. The Mail-Followup-To (MFT) was created to enable just this. Two example scenarios where this is useful:

- A mailing list poster can use MFT to express that responses should be sent to just the list, and not the poster as well. This will happen if the poster is already subscribed to the list.
- A mailing list poster can use MFT to express that responses should be sent to the list and the poster as well. This will happen if the poster is not subscribed to the list.
- If a message is posted to several mailing lists, MFT may also be used to direct the following discussion to one list only, because discussions that are spread over several lists tend to be fragmented and very difficult to follow.

Gnus honors the MFT header in other's messages (i.e. while following up to someone else's post) and also provides support for generating sensible MFT headers for outgoing messages as well.

#### 8.1.11.1 Composing a correct MFT header automagically

The first step in getting Gnus to automagically generate a MFT header in posts you make is to give Gnus a list of the mailing lists addresses you are subscribed to. You can do this in more than one way. The following variables would come in handy.

message-subscribed-addresses This should be a list of addresses the user is subscribed to. Its default value is nil. Example:

```
(setq message-subscribed-addresses
      '("ding@gnus.org" "bing@noose.org"))
```

**message-subscribed-regexps** This should be a list of regexps denoting the addresses of mailing lists subscribed to. Default value is nil. Example: If you want to achieve the same result as above:

```
(setq message-subscribed-regexps
      '("\\(ding@gnus\\)\\|\\(bing@noose\\)\\.org")
```

**message-subscribed-address-functions** This can be a list of functions to be called (one at a time!!) to determine the value of MFT headers. It is advisable that these functions not take any arguments. Default value is nil.

There is a pre-defined function in Gnus that is a good candidate for this variable. gnus-find-subscribed-addresses is a function that returns a list of addresses corresponding to the groups that have the subscribed (see "Group Parameters, ,Group Parameters, gnus, The Gnus Manual" on page **??**) group parameter set to a non-nil value. This is how you would do it.

```
(setq message-subscribed-address-functions
      '(gnus-find-subscribed-addresses))
```

**message-subscribed-address-file** You might be one organised human freak and have a list of addresses of all subscribed mailing lists in a separate file! Then you can just set this variable to the name of the file and life would be good.

You can use one or more of the above variables. All their values are "added" in some way that works :-)

Now you are all set. Just start composing a message as you normally do. And just send it; as always. Just before the message is sent out, Gnus' MFT generation thingy kicks in and checks if the message already has a MFT field. If there is one, it is left alone. (Except if it's empty - in that case, the field is removed and is not replaced with an automatically generated one. This lets you disable MFT generation on a per-message basis.) If there is none, then the list of recipient addresses (in the To: and Cc: headers) is checked to see if one of them is a list address you are subscribed to. If none of them is a list address, then no MFT is generated; otherwise, a MFT is added to the other headers and set to the value of all addresses in To: and Cc:

Hm. "So", you ask, "what if I send an email to a list I am not subscribed to? I want my MFT to say that I want an extra copy." (This is supposed to be interpreted by others the same way as if there were no MFT, but you can use an explicit MFT to override someone else's to-address group parameter.) The function message-generate-unsubscribed-mail-followup-to might come in handy. It is bound to 'C-c C-f C-a' by default. In any case, you can insert a MFT of your own choice; 'C-c C-f C-m' (message-goto-mail-followup-to) will help you get started.

#### 8.1.11.2 Honoring an MFT post

When you followup to a post on a mailing list, and the post has a MFT header, Gnus' action will depend on the value of the variable message-use-mail-followup-to. This variable can be one of:

use Always honor MFTs. The To: and Cc: headers in your followup will be derived from the MFT header of the original post. This is the default.

nil Always dishonor MFTs (just ignore the darned thing)

ask Gnus will prompt you for an action.

It is considered good nettiquette to honor MFT, as it is assumed the fellow who posted a message knows where the followups need to go better than you do.

## 8.2 Commands

### 8.2.1 Buffer Entry

You most often end up in a Message buffer when responding to some other message of some sort. Message does lots of handling of quoted text, and may remove signatures, reformat the text, or the like—depending on which used settings you're using. Message usually gets things right, but sometimes it stumbles. To help the user unwind these stumblings, Message sets the undo boundary before each major automatic action it takes. If you press the undo key (usually located at 'C-˙') a few times, you will get back the un-edited message you're responding to.

### 8.2.2 Header Commands

#### 8.2.2.1 Commands for moving to headers

These following commands move to the header in question. If it doesn't exist, it will be inserted.

'C-c ?' Describe the message mode.

'C-c C-f C-t' Go to the To header (message-goto-to).

'C-c C-f C-o' Go to the From header (message-goto-from). (The "o" in the key binding is for Originator.)

'C-c C-f C-b' Go to the Bcc header (message-goto-bcc).

'C-c C-f C-f' Go to the Fcc header (message-goto-fcc).

'C-c C-f C-c' Go to the Cc header (message-goto-cc).

'C-c C-f C-s' Go to the Subject header (message-goto-subject).

'C-c C-f C-r' Go to the Reply-To header (message-goto-reply-to).

'C-c C-f C-n' Go to the Newsgroups header (message-goto-newsgroups).

'C-c C-f C-d' Go to the Distribution header (message-goto-distribution).

'C-c C-f C-o' Go to the Followup-To header (message-goto-followup-to).

'C-c C-f C-k' Go to the Keywords header (message-goto-keywords).

'C-c C-f C-u' Go to the Summary header (message-goto-summary).

'C-c C-f C-i' This inserts the "Importance:" header with a value of "high". This header is used to signal the importance of the message to the receiver. If the header is already present in the buffer, it cycles between the three valid values according to RFC 1376: "low", "normal" and "high".

'C-c C-f C-a' Insert a reasonable "Mail-Followup-To:" header (see "Mailing Lists" on page 263) in a post to an unsubscribed list. When making original posts to a mailing list you are not subscribed to, you have to type in a "Mail-Followup-To:" header by hand. The contents, usually, are the addresses of the list and your own address. This function inserts such a header automatically. It fetches the contents of the "To:" header in the current mail buffer, and appends the current user-mail-address.

If the optional argument include-cc is non-nil, the addresses in the "Cc:" header are also put into the "Mail-Followup-To:" header.

#### 8.2.2.2 Commands to change headers

'C-c C-o' Sort headers according to message-header-format-alist (message-sort-headers).

'C-c C-t' Insert a To header that contains the Reply-To or From header of the message you're following up (message-insert-to).

'C-c C-n' Insert a Newsgroups header that reflects the Followup-To or Newsgroups header of the article you're replying to (message-insert-newsgroups).

'C-c C-l' Send a message to the list only. Remove all addresses but the list address from To: and Cc: headers.

'C-c M-n' Insert a request for a disposition notification. (message-insert-disposition-notification-to). This means that if the recipient support RFC 2298 she might send you a notification that she received the message.

'M-x message-insert-importance-high' Insert an "Importance" header with a value of "high", deleting headers if necessary.

'M-x message-insert-importance-low' Insert an "Importance" header with a value of "low", deleting headers if necessary.

'C-c C-f s' Change the current "Subject" header. Ask for new "Subject" header and append "(was: <Old Subject>)". The old subject can be stripped on replying, see message-subject-trailing-was-query (see "Message Headers" on page 274).

'C-c C-f x' Ask for an additional "Newsgroups" and "FollowUp-To" for a cross-post. message-cross-post-followup-to mangles "FollowUp-To" and "Newsgroups" header to point to group. If message-cross-post-default is nil or if called with a prefix-argument "Follow-Up" is set, but the message is not cross-posted.

'C-c C-f t' Replace contents of "To" header with contents of "Cc" or "Bcc" header.

'C-c C-f w' Insert "To" and "Cc" headers as if you were doing a wide reply.

'C-c C-f a' Insert "X-No-Archive: Yes" in the header and a note in the body. The header and the note can be customized using message-archive-header and message-archive-note. When called with a prefix argument, ask for a text to insert. If you don't want the note in the body, set message-archive-note to nil.

### 8.2.3 Movement

'C-c C-b' Move to the beginning of the body of the message (message-goto-body).

'C-c C-i' Move to the signature of the message (message-goto-signature).

'C-a' If at beginning of header value, go to beginning of line, else go to beginning of header value. (The header value comes after the header name and the colon.) This behaviour can be disabled by toggling the variable message-beginning-of-line.

### 8.2.4 Insertion

'C-c C-y' Yank the message that's being replied to into the message buffer (message-yank-original).

'C-c C-M-y' Prompt for a buffer name and yank the contents of that buffer into the message buffer (message-yank-buffer).

'C-c C-q' Fill the yanked message (message-fill-yanked-message). Warning: Can severely mess up the yanked text if its quoting conventions are strange. You'll quickly get a feel for when it's safe, though. Anyway, just remember that 'C-x u' (undo) is available and you'll be all right.

'C-c C-w' Insert a signature at the end of the buffer (message-insert-signature).

'C-c M-h' Insert the message headers (message-insert-headers).

'C-c M-m' Mark some region in the current article with enclosing tags. See message-mark-insert-begin and message-mark-insert-end.

'C-c M-f' Insert a file in the current article with enclosing tags. See message-mark-insert-begin and message-mark-insert-end.

### 8.2.5 MIME

Message is a MIME-compliant posting agent. The user generally doesn't have to do anything to make the MIME happen—Message will automatically add the Content-Type and Content-Transfer-Encoding headers.

The most typical thing users want to use the multipart things in MIME for is to add "attachments" to mail they send out. This can be done with the 'C-c C-a' command, which will prompt for a file name and a MIME type.

You can also create arbitrarily complex multiparts using the MML language (see "Composing, , Composing, emacs-mime, The Emacs MIME Manual" on page ??).

### 8.2.6 IDNA

Message is a IDNA-compliant posting agent. The user generally doesn't have to do anything to make the IDNA happen—Message will encode non-ASCII domain names in From, To, and Cc headers automatically.

Until IDNA becomes more well known, Message queries you whether IDNA encoding of the domain name really should occur. Some users might not be aware that domain names can contain non-ASCII now, so this gives them a safety net if they accidently typed a non-ASCII domain name.

The message-use-idna variable control whether IDNA is used. If the variable is nil no IDNA encoding will ever happen, if it is set to the symbol ask the user will be queried (the default), and if set to t IDNA encoding happens automatically.

If you want to experiment with the IDNA encoding, you can invoke 'M-x message-idna-to-ascii-rhs RET' in the message buffer to have the non-ASCII domain names encoded while you edit the message.

Note that you must have http://www.gnu.org/software/libidn/, GNU Libidn installed in order to use this functionality.

### 8.2.7 Security

Using the MML language, Message is able to create digitally signed and digitally encrypted messages. Message (or rather MML) currently support PGP (RFC 1991), PGP/MIME (RFC 2015/3156) and S/MIME. Instructing MML to perform security operations on a MIME part is done using the 'C-c C-m s' key map for signing and the 'C-c C-m c' key map for encryption, as follows.

'C-c C-m s s' Digitally sign current message using S/MIME.

'C-c C-m s o' Digitally sign current message using PGP.

'C-c C-m s p' Digitally sign current message using PGP/MIME.

'C-c C-m c s' Digitally encrypt current message using S/MIME.

'C-c C-m c o' Digitally encrypt current message using PGP.

'C-c C-m c p' Digitally encrypt current message using PGP/MIME.

'C-c C-m C-n' Remove security related MML tags from message.

These commands do not immediately sign or encrypt the message, they merely insert the proper MML secure tag to instruct the MML engine to perform that operation when the message is actually sent. They may perform other operations too, such as locating and retrieving a S/MIME certificate of the person you wish to send encrypted mail to. When the mml parsing engine converts your MML into a properly encoded MIME message, the secure tag will be replaced with either a part or a multipart tag. If your message contains other mml parts, a multipart tag will be used; if no other parts are present in your message a single part tag will be used. This way, message mode will do the Right Thing (TM) with signed/encrypted multipart messages.

Since signing and especially encryption often is used when sensitive information is sent, you may want to have some way to ensure that your mail is actually signed or encrypted. After invoking the above sign/encrypt commands, it is possible to preview the raw article by using 'C-u C-c RET P' (mml-preview). Then you can verify that your long rant about what your ex-significant other or whomever actually did with that funny looking person at that strange party the other night, actually will be sent encrypted.

*Note!* Neither PGP/MIME nor S/MIME encrypt/signs RFC822 headers. They only operate on the MIME object. Keep this in mind before sending mail with a sensitive Subject line.

By default, when encrypting a message, Gnus will use the "signencrypt" mode, which means the message is both signed and encrypted. If you would like to disable this for a particular message, give the mml-secure-message-encrypt-* command a prefix argument, e.g., 'C-u C-c C-m c p'.

Actually using the security commands above is not very difficult. At least not compared with making sure all involved programs talk with each other properly. Thus, we now describe what external libraries or programs are required to make things work, and some small general hints.

#### 8.2.7.1 Using S/MIME

*Note!* This section assume you have a basic familiarity with modern cryptography, S/MIME, various PKCS standards, OpenSSL and so on.

The S/MIME support in Message (and MML) require OpenSSL. OpenSSL performs the actual S/MIME sign/encrypt operations. OpenSSL can be found at http://www.openssl.org/. OpenSSL 0.9.6 and later should work. Version 0.9.5a cannot extract mail addresses from certificates, and it insert a spurious CR character into MIME separators so you may wish to avoid it if you would like to avoid being regarded as someone who send strange mail. (Although by sending S/MIME messages you've probably already lost that contest.)

To be able to send encrypted mail, a personal certificate is not required. Message (MML) need a certificate for the person to whom you wish to communicate with though. You're asked for this when you type 'C-c C-m c s'. Currently there are two ways to retrieve this certificate, from a local file or from DNS. If you chose a local file, it need to contain a X.509 certificate in PEM format. If you chose DNS, you're asked for the domain name where the certificate is stored, the default is a good guess. To my belief, Message (MML) is the first mail agent in the world to support retrieving S/MIME certificates from DNS, so you're not likely to find very many certificates out there. At least there should be one, stored at the domain simon.josefsson.org. LDAP is a more popular method of distributing certificates, support for it is planned. (Meanwhile, you can use ldapsearch from the command line to retrieve a certificate into a file and use it.)

As for signing messages, OpenSSL can't perform signing operations without some kind of configuration. Especially, you need to tell it where your private key and your certificate is stored. MML uses an Emacs interface to OpenSSL, aptly named smime.el, and it contain a custom group used for this configuration. So, try 'M-x customize-group RET smime RET' and look around.

Currently there is no support for talking to a CA (or RA) to create your own certificate. None is planned either. You need to do this manually with OpenSSL or using some other program. I used Netscape and got a free S/MIME certificate from one of the big CA's on the net. Netscape is able to export your private key and certificate in PKCS #12 format. Use OpenSSL to convert this into a plain X.509 certificate in PEM format as follows.

```
$ openssl pkcs12 -in ns.p12 -clcerts -nodes > key+cert.pem
```

The 'key+cert.pem' file should be pointed to from the smime-keys variable. You should now be able to send signed mail.

*Note!* Your private key is now stored unencrypted in the file, so take care in handling it. Storing encrypted keys on the disk are supported, and Gnus will ask you for a passphrase before invoking OpenSSL. Read the OpenSSL documentation for how to achieve this. If you use unencrypted keys (e.g., if they are on a secure storage, or if you are on a secure single user machine) simply press RET at the passphrase prompt.

#### 8.2.7.2 Using PGP/MIME

PGP/MIME requires an external OpenPGP implementation, such as http://www.gnupg.org/, GNU Privacy Guard. Pre-OpenPGP implementations such as PGP 2.x and PGP 5.x are also supported. One Emacs interface to the PGP implementations, PGG (see "Top, ,PGG, pgg, PGG Manual" on page ??), is included, but Mailcrypt and Florian Weimer's gpg.el are also supported.

Note, if you are using the gpg.el you must make sure that the directory specified by gpg-temp-directory have permissions 0700.

Creating your own key is described in detail in the documentation of your PGP implementation, so we refer to it.

If you have imported your old PGP 2.x key into GnuPG, and want to send signed and encrypted messages to your fellow PGP 2.x users, you'll discover that the receiver cannot understand what you send. One solution is to use PGP 2.x instead (i.e., if you use pgg, set pgg-default-scheme to pgp). If you do want to use GnuPG, you can use a compatibility script called gpg-2comp available from http://muppet.faveve.uni-stuttgart.de/~gero/gpg-2comp/. You could also convince your fellow PGP 2.x users to convert to GnuPG. As a final workaround, you can make the sign and encryption work in two steps; separately sign, then encrypt a message. If you would like to change this behavior you can customize the mml-signencrypt-style-alist variable. For example:

```
(setq mml-signencrypt-style-alist '(("smime" separate)
                                    ("pgp" separate)
                                    ("pgpauto" separate)
                                    ("pgpmime" separate)))
```

This causes to sign and encrypt in two passes, thus generating a message that can be understood by PGP version 2.

(Refer to http://www.gnupg.org/gph/en/pgp2x.html for more information about the problem.)

### 8.2.8 Various Commands

'C-c C-r' Caesar rotate (aka. rot13) the current message (message-caesar-buffer-body). If narrowing is in effect, just rotate the visible portion of the buffer. A numerical prefix says how many places to rotate the text. The default is 13.

'C-c C-e' Elide the text between point and mark (message-elide-region). The text is killed and replaced with the contents of the variable message-elide-ellipsis. The default value is to use an ellipsis ("[...]").

'C-c C-z' Kill all the text up to the signature, or if that's missing, up to the end of the message (message-kill-to-signature).

'C-c C-v' Delete all text in the body of the message that is outside the region (message-delete-not-region).

'M-RET' Insert four newlines, and then reformat if inside quoted text.

Here's an example:

```
> This is some quoted text.  And here's more quoted text.
```

If point is before "And" and you press 'M-RET', you'll get:

```
> This is some quoted text.

*

> And here's more quoted text.
```

"*" says where point will be placed.

'C-c M-r' Rename the buffer (message-rename-buffer). If given a prefix, prompt for a new buffer name.

'TAB' If non-nil execute the function specified in message-tab-body-function. Otherwise use the function bound to 'TAB' in text-mode-map or global-map.

### 8.2.9 Sending

'C-c C-c' Send the message and bury the current buffer (message-send-and-exit).

'C-c C-s' Send the message (message-send).

'C-c C-d' Bury the message buffer and exit (message-dont-send).

'C-c C-k' Kill the message buffer and exit (message-kill-buffer).

### 8.2.10 Mail Aliases

The message-mail-alias-type variable controls what type of mail alias expansion to use. Currently only one form is supported—Message uses mailabbrev to handle mail aliases. If this variable is nil, no mail alias expansion will be performed.

mailabbrev works by parsing the '/etc/mailrc' and '~/.mailrc' files. These files look like:

```
alias lmi "Lars Magne Ingebrigtsen <larsi@ifi.uio.no>"
alias ding "ding@ifi.uio.no (ding mailing list)"
```

After adding lines like this to your '~/.mailrc' file, you should be able to just write "lmi" in the To or Cc (and so on) headers and press 'SPC' to expand the alias.

No expansion will be performed upon sending of the message—all expansions have to be done explicitly.

### 8.2.11 Spelling

There are two popular ways to have Emacs spell-check your messages: ispell and flyspell. ispell is the older and probably more popular package. You typically first write the message, and then run the entire thing through ispell and fix all the typos. To have this happen automatically when you send a message, put something like the following in your '.emacs' file:

```
(add-hook 'message-send-hook 'ispell-message)
```

If you're in the habit of writing in different languages, this can be controlled by the ispell-message-dictionary-alist variable:

```
(setq ispell-message-dictionary-alist
      '(("^Newsgroups:.*\\bde\\." . "deutsch8")
(".*" . "default")))
```

ispell depends on having the external "ispell" command installed.

The other popular method is using flyspell. This package checks your spelling while you're writing, and marks any mis-spelled words in various ways.

To use flyspell, put something like the following in your '.emacs' file:

```
(defun my-message-setup-routine ()
  (flyspell-mode 1))
(add-hook 'message-setup-hook 'my-message-setup-routine)
```

flyspell depends on having the external "ispell" command installed.

## 8.3 Variables

### 8.3.1 Message Headers

Message is quite aggressive on the message generation front. It has to be – it's a combined news and mail agent. To be able to send combined messages, it has to generate all headers itself (instead of letting the mail/news system do it) to ensure that mail and news copies of messages look sufficiently similar.

**message-generate-headers-first** If **t**, generate all required headers before starting to compose the message. This can also be a list of headers to generate:

```
(setq message-generate-headers-first
      '(References))
```

The variables **message-required-headers**, **message-required-mail-headers** and **message-required-news-headers** specify which headers are required.

Note that some headers will be removed and re-generated before posting, because of the variable **message-deletable-headers** (see below).

**message-draft-headers** When running Message from Gnus, the message buffers are associated with a draft group. **message-draft-headers** says which headers should be generated when a draft is written to the draft group.

**message-from-style** Specifies how **From** headers should look. There are four valid values:

- **nil** Just the address – "king@grassland.com".
- **parens** "king@grassland.com (Elvis Parsley)".
- **angles** "Elvis Parsley <king@grassland.com>".
- **default** Look like **angles** if that doesn't require quoting, and **parens** if it does. If even **parens** requires quoting, use **angles** anyway.

**message-deletable-headers** Headers in this list that were previously generated by Message will be deleted before posting. Let's say you post an article. Then you decide to post it again to some other group, you naughty boy, so you jump back to the ***post-buf*** buffer, edit the **Newsgroups** line, and ship it off again. By default, this variable makes sure that the old generated **Message-ID** is deleted, and a new one generated. If this isn't done, the entire empire would probably crumble, anarchy would prevail, and cats would start walking on two legs and rule the world. Allegedly.

**message-default-headers** This string is inserted at the end of the headers in all message buffers.

**message-subject-re-regexp** Responses to messages have subjects that start with "Re: ". This is *not* an abbreviation of the English word "response", but is Latin, and means "in response to". Some illiterate nincompoops have failed to grasp this fact, and have "internationalized" their software to use abominations like "Aw: " ("antwort") or "Sv: " ("svar") instead, which is meaningless and evil. However, you may have to deal with users that use these evil tools, in which case you may set this variable to a regexp that matches these prefixes. Myself, I just throw away non-compliant mail.

Here's an example of a value to deal with these headers when responding to a message:

```
(setq message-subject-re-regexp
      (concat
       "^[ \t]*"
         "\\("
           "\\("
             "[Aa][Nn][Tt][Ww]\\.?\\|"      ; antw
             "[Aa][Ww]\\|"                  ; aw
             "[Ff][Ww][Dd]?\\|"             ; fwd
             "[Oo][Dd][Pp]\\|"              ; odp
             "[Rr][Ee]\\|"                  ; re
             "[Rr][\311\351][Ff]\\.?\\|"    ; ref
             "[Ss][Vv]"                     ; sv
           "\\)"
           "\\(\[[0-9]*\]\\)"
           "*:[ \t]*"
         "\\)"
       "*[ \t]*"
       ))
```

**message-subject-trailing-was-query** Controls what to do with trailing "(was: <old subject>)" in subject lines. If nil, leave the subject unchanged. If it is the symbol ask, query the user what do do. In this case, the subject is matched against message-subject-trailing-was-ask-regexp. If message-subject-trailing-was-query is t, always strip the trailing old subject. In this case, message-subject-trailing-was-regexp is used.

**message-alternative-emails** A regexp to match the alternative email addresses. The first matched address (not primary one) is used in the From field.

**message-allow-no-recipients** Specifies what to do when there are no recipients other than Gcc or Fcc. If it is always, the posting is allowed. If it is never, the posting is not allowed. If it is ask (the default), you are prompted.

message-hidden-headers A regexp, a list of regexps, or a list where the first element is not and the rest are regexps. It says which headers to keep hidden when composing a message.

```
(setq message-hidden-headers
      '(not "From" "Subject" "To" "Cc" "Newsgroups"))
```

### 8.3.2 Mail Headers

message-required-mail-headers See "News Headers" on page 277, for the syntax of this variable. It is (From Date Subject (optional . In-Reply-To) Message-ID Lines (optional . User-Agent)) by default.

message-ignored-mail-headers Regexp of headers to be removed before mailing. The default is "^[GF]cc:/—^Resent-Fcc:/—^Xref:/—^X-Draft-From:".

message-default-mail-headers This string is inserted at the end of the headers in all message buffers that are initialized as mail.

### 8.3.3 Mail Variables

message-send-mail-function Function used to send the current buffer as mail. The default is message-send-mail-with-sendmail. Other valid values include message-send-mail-with-mh, message-send-mail-with-qmail, message-smtpmail-send-it, smtpmail-send-it and feedmail-send-it.

message-mh-deletable-headers Most versions of MH doesn't like being fed messages that contain the headers in this variable. If this variable is non-nil (which is the default), these headers will be removed before mailing when sending messages via MH. Set it to nil if your MH can handle these headers.

message-qmail-inject-program Location of the qmail-inject program.

message-qmail-inject-args Arguments passed to qmail-inject programs. This should be a list of strings, one string for each argument. It may also be a function.

For e.g., if you wish to set the envelope sender address so that bounces go to the right place or to deal with listserv's usage of that address, you might set this variable to '("-f" "you@some.where").

message-sendmail-f-is-evil Non-nil means don't add "-f username" to the sendmail command line. Doing so would be even more evil than leaving it out.

message-sendmail-envelope-from When message-sendmail-f-is-evil is nil, this specifies the address to use in the SMTP envelope. If it is nil, use user-mail-address. If it is the symbol header, use the "From" header of the message.

message-mailer-swallows-blank-line Set this to non-nil if the system's mailer runs the header and body together. (This problem exists on SunOS 4 when sendmail is run in remote mode.) The value should be an expression to test whether the problem will actually occur.

message-send-mail-partially-limit The limitation of messages sent as message/partial. The lower bound of message size in characters, beyond which the message should be sent in several parts. If it is nil, the size is unlimited.

### 8.3.4 News Headers

message-required-news-headers a list of header symbols. These headers will either be automatically generated, or, if that's impossible, they will be prompted for. The following symbols are valid:

From This required header will be filled out with the result of the message-make-from function, which depends on the message-from-style, user-full-name, user-mail-address variables.

Subject This required header will be prompted for if not present already.

Newsgroups This required header says which newsgroups the article is to be posted to. If it isn't present already, it will be prompted for.

Organization This optional header will be filled out depending on the message-user-organization variable. message-user-organization-file will be used if this variable is t. This variable can also be a string (in which case this string will be used), or it can be a function (which will be called with no parameters and should return a string to be used).

Lines This optional header will be computed by Message.

Message-ID This required header will be generated by Message. A unique ID will be created based on the date, time, user name and system name. For the domain part, message will look (in this order) at message-user-fqdn, system-name, mail-host-address and message-user-mail-address (i.e. user-mail-address) until a probably valid fully qualified domain name (FQDN) was found.

User-Agent This optional header will be filled out according to the message-newsreader local variable.

In-Reply-To This optional header is filled out using the Date and From header of the article being replied to.

Expires This extremely optional header will be inserted according to the message-expires variable. It is highly deprecated and shouldn't be used unless you know what you're doing.

**Distribution** This optional header is filled out according to the **message-distribution-function** variable. It is a deprecated and much misunderstood header.

**Path** This extremely optional header should probably never be used. However, some *very* old servers require that this header is present. **message-user-path** further controls how this **Path** header is to look. If it is **nil**, use the server name as the leaf node. If it is a string, use the string. If it is neither a string nor **nil**, use the user name only. However, it is highly unlikely that you should need to fiddle with this variable at all.

In addition, you can enter conses into this list. The CAR of this cons should be a symbol. This symbol's name is the name of the header, and the CDR can either be a string to be entered verbatim as the value of this header, or it can be a function to be called. This function should return a string to be inserted. For instance, if you want to insert **Mime-Version: 1.0**, you should enter **(Mime-Version . "1.0")** into the list. If you want to insert a funny quote, you could enter something like **(X-Yow . yow)** into the list. The function **yow** will then be called without any arguments.

If the list contains a cons where the CAR of the cons is **optional**, the CDR of this cons will only be inserted if it is non-**nil**.

If you want to delete an entry from this list, the following Lisp snippet might be useful. Adjust accordingly if you want to remove another element.

```
(setq message-required-news-headers
      (delq 'Message-ID message-required-news-headers))
```

Other variables for customizing outgoing news articles:

**message-syntax-checks** Controls what syntax checks should not be performed on outgoing posts. To disable checking of long signatures, for instance, add

```
(signature . disabled)
```

to this list.

Valid checks are:

**subject-cmsg** Check the subject for commands.

**sender** Insert a new **Sender** header if the **From** header looks odd.

**multiple-headers** Check for the existence of multiple equal headers.

**sendsys** Check for the existence of version and sendsys commands.

**message-id** Check whether the **Message-ID** looks ok.

**from** Check whether the **From** header seems nice.

**long-lines** Check for too long lines.

control-chars Check for invalid characters.

size Check for excessive size.

new-text Check whether there is any new text in the messages.

signature Check the length of the signature.

approved Check whether the article has an Approved header, which is something only moderators should include.

empty Check whether the article is empty.

invisible-text Check whether there is any invisible text in the buffer.

empty-headers Check whether any of the headers are empty.

existing-newsgroups Check whether the newsgroups mentioned in the Newsgroups and Followup-To headers exist.

valid-newsgroups Check whether the Newsgroups and Followup-to headers are valid syntactically.

repeated-newsgroups Check whether the Newsgroups and Followup-to headers contains repeated group names.

shorten-followup-to Check whether to add a Followup-to header to shorten the number of groups to post to.

All these conditions are checked by default.

message-ignored-news-headers Regexp of headers to be removed before posting. The default is "^NNTP-Posting-Host:/—^Xref:/—^[BGF]cc:/—^Resent-Fcc:/—^X-Draft-From:".

message-default-news-headers This string is inserted at the end of the headers in all message buffers that are initialized as news.

### 8.3.5 News Variables

message-send-news-function Function used to send the current buffer as news. The default is message-send-news.

message-post-method Gnusish *select method* (see the Gnus manual for details) used for posting a prepared news message.

### 8.3.6 Insertion Variables

message-ignored-cited-headers All headers that match this regexp will be removed from yanked messages. The default is ".", which means that all headers will be removed.

message-cite-prefix-regexp Regexp matching the longest possible citation prefix on a line.

message-citation-line-function Function called to insert the citation line. The default is message-insert-citation-line, which will lead to citation lines that look like:

```
Hallvard B Furuseth <h.b.furuseth@usit.uio.no> writes:
```

Point will be at the beginning of the body of the message when this function is called.

Note that Gnus provides a feature where clicking on 'writes:' hides the cited text. If you change the citation line too much, readers of your messages will have to adjust their Gnus, too. See the variable gnus-cite-attribution-suffix. See "Article Highlighting, , Article Highlighting, gnus, The Gnus Manual" on page ??, for details.

message-yank-prefix When you are replying to or following up an article, you normally want to quote the person you are answering. Inserting quoted text is done by *yanking*, and each line you yank will have message-yank-prefix prepended to it (except for quoted and empty lines which uses message-yank-cited-prefix). The default is "> ".

message-yank-cited-prefix When yanking text from an article which contains no text or already cited text, each line will be prefixed with the contents of this variable. The default is ">". See also message-yank-prefix.

message-indentation-spaces Number of spaces to indent yanked messages.

message-cite-function Function for citing an original message. The default is message-cite-original, which simply inserts the original message and prepends "> " to each line. message-cite-original-without-signature does the same, but elides the signature. You can also set it to sc-cite-original to use Supercite.

message-indent-citation-function Function for modifying a citation just inserted in the mail buffer. This can also be a list of functions. Each function can find the citation between (point) and (mark t). And each function should leave point and mark around the citation text as modified.

message-mark-insert-begin String to mark the beginning of some inserted text.

message-mark-insert-end String to mark the end of some inserted text.

message-signature String to be inserted at the end of the message buffer. If t (which is the default), the message-signature-file file will be inserted instead. If a function, the result from the function will be used instead. If a form, the result from the form will be used instead. If this variable is nil, no signature will be inserted at all.

**message-signature-file** File containing the signature to be inserted at the end of the buffer. The default is '~/.signature'.

**message-signature-insert-empty-line** If t (the default value) an empty line is inserted before the signature separator.

Note that RFC1036bis says that a signature should be preceded by the three characters "– " on a line by themselves. This is to make it easier for the recipient to automatically recognize and process the signature. So don't remove those characters, even though you might feel that they ruin your beautiful design, like, totally.

Also note that no signature should be more than four lines long. Including ASCII graphics is an efficient way to get everybody to believe that you are silly and have nothing important to say.

### 8.3.7 Various Message Variables

**message-default-charset** Symbol naming a MIME charset. Non-ASCII characters in messages are assumed to be encoded using this charset. The default is nil, which means ask the user. (This variable is used only on non-MULE Emacsen. See "Charset Translation, , Charset Translation, emacs-mime, Emacs MIME Manual" on page ??, for details on the MULE-to-MIME translation process.

**message-signature-separator** Regexp matching the signature separator. It is "^– *$" by default.

**mail-header-separator** String used to separate the headers from the body. It is "–text follows this line–" by default.

**message-directory** Directory used by many mailey things. The default is '~/Mail/'.

**message-auto-save-directory** Directory where Message auto-saves buffers if Gnus isn't running. If nil, Message won't auto-save. The default is '~/Mail/drafts/'.

**message-signature-setup-hook** Hook run when initializing the message buffer. It is run after the headers have been inserted but before the signature has been inserted.

**message-setup-hook** Hook run as the last thing when the message buffer has been initialized, but before yanked text is inserted.

**message-header-setup-hook** Hook called narrowed to the headers after initializing the headers.

For instance, if you're running Gnus and wish to insert a "Mail-Copies-To" header in all your news articles and all messages you send to mailing lists, you could do something like the following:

```
(defun my-message-header-setup-hook ()
  (let ((group (or gnus-newsgroup-name "")))
    (when (or (message-fetch-field "newsgroups")
              (gnus-group-find-parameter group 'to-address)
              (gnus-group-find-parameter group 'to-list))
      (insert "Mail-Copies-To: never\n"))))

(add-hook 'message-header-setup-hook
          'my-message-header-setup-hook)
```

**message-send-hook** Hook run before sending messages.

If you want to add certain headers before sending, you can use the **message-add-header** function in this hook. For instance:

```
(add-hook 'message-send-hook 'my-message-add-content)
(defun my-message-add-content ()
  (message-add-header "X-In-No-Sense: Nonsense")
  (message-add-header "X-Whatever: no"))
```

This function won't add the header if the header is already present.

**message-send-mail-hook** Hook run before sending mail messages. This hook is run very late – just before the message is actually sent as mail.

**message-send-news-hook** Hook run before sending news messages. This hook is run very late – just before the message is actually sent as news.

**message-sent-hook** Hook run after sending messages.

**message-cancel-hook** Hook run when canceling news articles.

**message-mode-syntax-table** Syntax table used in message mode buffers.

**message-strip-special-text-properties** Emacs has a number of special text properties which can break message composing in various ways. If this option is set, message will strip these properties from the message composition buffer. However, some packages requires these properties to be present in order to work. If you use one of these packages, turn this option off, and hope the message composition doesn't break too bad.

**message-send-method-alist** Alist of ways to send outgoing messages. Each element has the form

```
(\gnusvar{type} \gnusvar{predicate} \gnusvar{function})
```

`type` A symbol that names the method.

predicate A function called without any parameters to determine whether the message is a message of type type.

function A function to be called if predicate returns non-nil. function is called with one parameter – the prefix.

```
((news message-news-p message-send-via-news)
 (mail message-mail-p message-send-via-mail))
```

### 8.3.8 Sending Variables

message-fcc-handler-function A function called to save outgoing articles. This function will be called with the name of the file to store the article in. The default function is message-output which saves in Unix mailbox format.

message-courtesy-message When sending combined messages, this string is inserted at the start of the mailed copy. If the string contains the format spec "%s", the newsgroups the article has been posted to will be inserted there. If this variable is nil, no such courtesy message will be added. The default value is ""The following message is a courtesy copy of an article/nthat has been posted to %s as well./gnusbackslashn/gnusbackslashn"".

message-fcc-externalize-attachments If nil, attach files as normal parts in Fcc copies; if it is non-nil, attach local files as external parts.

message-interactive If non-nil wait for and display errors when sending a message; if nil let the mailer mail back a message to report errors.

### 8.3.9 Message Buffers

Message will generate new buffers with unique buffer names when you request a message buffer. When you send the message, the buffer isn't normally killed off. Its name is changed and a certain number of old message buffers are kept alive.

message-generate-new-buffers If non-nil, generate new buffers. The default is t. If this is a function, call that function with three parameters: The type, the to address and the group name. (Any of these may be nil.) The function should return the new buffer name.

message-max-buffers This variable says how many old message buffers to keep. If there are more message buffers than this, the oldest buffer will be killed. The default is 10. If this variable is nil, no old message buffers will ever be killed.

message-send-rename-function After sending a message, the buffer is renamed from, for instance, "*reply to Lars*" to "*sent reply to Lars*". If you don't like this, set this variable to a function that renames the buffer in a manner you like. If you don't want to rename the buffer at all, you can say:

```
(setq message-send-rename-function 'ignore)
```

message-kill-buffer-on-exit If non-nil, kill the buffer immediately on exit.

### 8.3.10 Message Actions

When Message is being used from a news/mail reader, the reader is likely to want to perform some task after the message has been sent. Perhaps return to the previous window configuration or mark an article as replied.

The user may exit from the message buffer in various ways. The most common is 'C-c C-c', which sends the message and exits. Other possibilities are 'C-c C-s' which just sends the message, 'C-c C-d' which postpones the message editing and buries the message buffer, and 'C-c C-k' which kills the message buffer. Each of these actions have lists associated with them that contains actions to be executed: message-send-actions, message-exit-actions, message-postpone-actions, and message-kill-actions.

Message provides a function to interface with these lists: message-add-action. The first parameter is the action to be added, and the rest of the arguments are which lists to add this action to. Here's an example from Gnus:

```
(message-add-action
 `(set-window-configuration ,(current-window-configuration))
 'exit 'postpone 'kill)
```

This restores the Gnus window configuration when the message buffer is killed, postponed or exited.

An *action* can be either: a normal function, or a list where the CAR is a function and the CDR is the list of arguments, or a form to be eval ed.

## 8.4 Compatibility

Message uses virtually only its own variables—older mail- variables aren't consulted. To force Message to take those variables into account, you can put the following in your '.emacs' file:

```
(require 'messcompat)
```

This will initialize many Message variables from the values in the corresponding mail variables.

## 8.5 Appendices

### 8.5.1 Responses

To determine where a message is to go, the following algorithm is used by default.

*reply* A *reply* is when you want to respond *just* to the person who sent the message via mail. There will only be one recipient. To determine who the recipient will be, the following headers are consulted, in turn:

Reply-To

From

*wide reply* A *wide reply* is a mail response that includes *all* entities mentioned in the message you are responded to. All mailboxes from the following headers will be concatenated to form the outgoing To/Cc headers:

From (unless there's a Reply-To, in which case that is used instead).

Cc

To

If a Mail-Copies-To header is present, it will also be included in the list of mailboxes. If this header is "never", that means that the From (or Reply-To) mailbox will be suppressed.

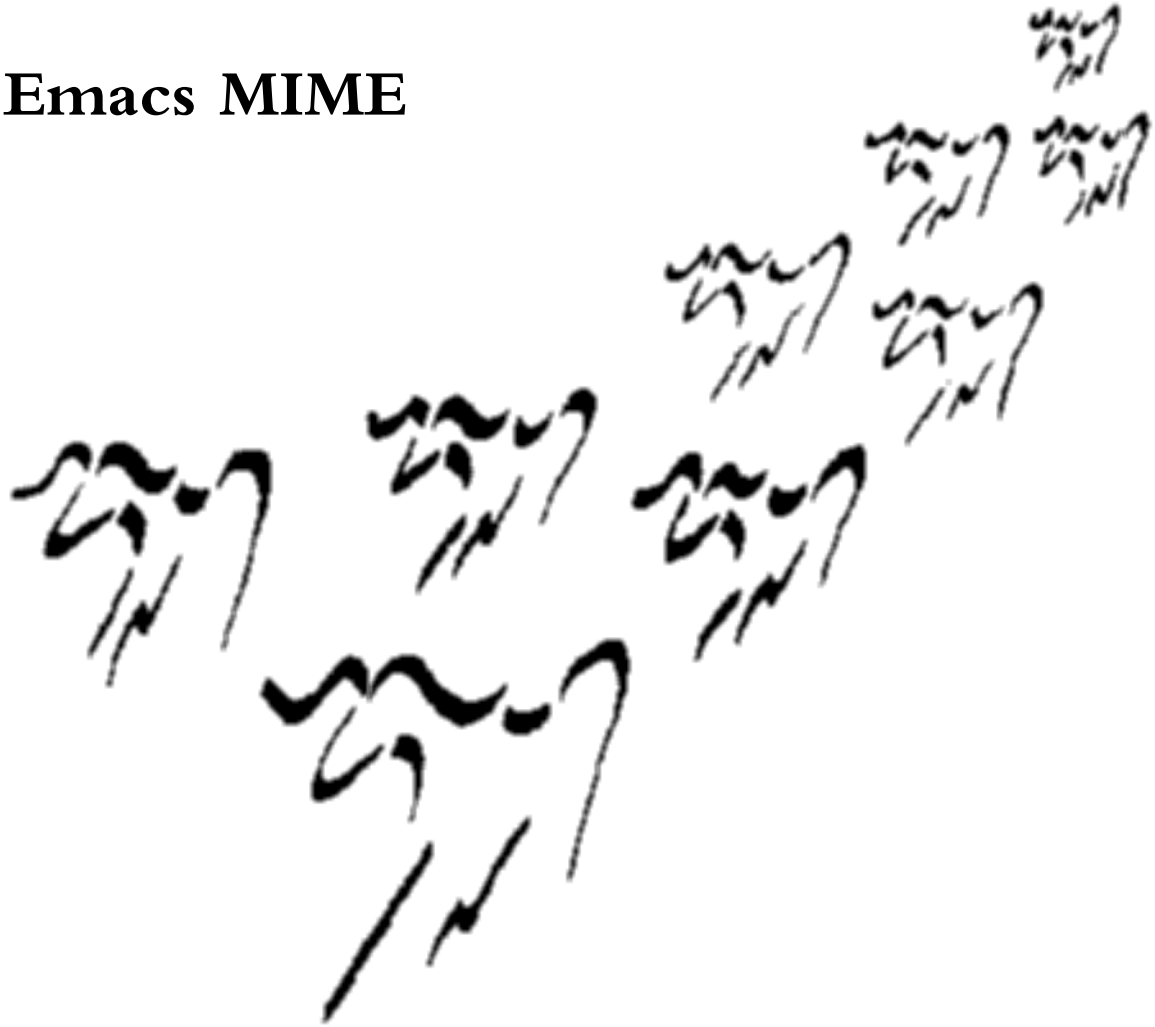
*followup* A *followup* is a response sent via news. The following headers (listed in order of precedence) determine where the response is to be sent:

Followup-To

Newsgroups

If a Mail-Copies-To header is present, it will be used as the basis of the new Cc header, except if this header is "never".

# Emacs MIME



This manual documents the libraries used to compose and display MIME messages.

This manual is directed at users who want to modify the behaviour of the MIME encoding/decoding process or want a more detailed picture of how the Emacs MIME library works, and people who want to write functions and commands that manipulate MIME elements.

MIME is short for *Multipurpose Internet Mail Extensions*. This standard is documented in a number of RFCs; mainly RFC2045 (Format of Internet Message Bodies), RFC2046 (Media Types), RFC2047 (Message Header Extensions for Non-ASCII Text), RFC2048 (Registration Procedures), RFC2049 (Conformance Criteria and Examples). It is highly recommended that anyone who intends writing MIME-compliant software read at least RFC2045 and RFC2047.

## 9.1 Decoding and Viewing

This chapter deals with decoding and viewing MIME messages on a higher level.

The main idea is to first analyze a MIME article, and then allow other programs to do things based on the list of *handles* that are returned as a result of this analysis.

### 9.1.1 Dissection

The mm-dissect-buffer is the function responsible for dissecting a MIME article. If given a multipart message, it will recursively descend the message, following the structure, and return a tree of MIME handles that describes the structure of the message.

### 9.1.2 Non-MIME

Gnus also understands some non-MIME attachments, such as postscript, uuencode, binhex, yenc, shar, forward, gnatsweb, pgp, diff. Each of these features can be disabled by add an item into mm-uu-configure-list. For example,

```
(require 'mm-uu)
(add-to-list 'mm-uu-configure-list '(pgp-signed . disabled))
```

postscript Postscript file.

uu Uuencoded file.

binhex Binhex encoded file.

yenc Yenc encoded file.

shar Shar archive file.

forward Non-MIME forwarded message.

gnatsweb Gnatsweb attachment.

pgp-signed PGP signed clear text.

pgp-encrypted PGP encrypted clear text.

pgp-key PGP public keys.

emacs-sources Emacs source code. This item works only in the groups matching mm-uu-emacs-sources-regexp.

diff Patches. This is intended for groups where diffs of committed files are automatically sent to. It only works in groups matching mm-uu-diff-groups-regexp.

### 9.1.3 Handles

A MIME handle is a list that fully describes a MIME component.

The following macros can be used to access elements in a handle:

mm-handle-buffer Return the buffer that holds the contents of the undecoded MIME part.

mm-handle-type Return the parsed Content-Type of the part.

mm-handle-encoding Return the Content-Transfer-Encoding of the part.

mm-handle-undisplayer Return the object that can be used to remove the displayed part (if it has been displayed).

mm-handle-set-undisplayer Set the undisplayer object.

mm-handle-disposition Return the parsed Content-Disposition of the part.

mm-handle-disposition Return the description of the part.

mm-get-content-id Returns the handle(s) referred to by Content-ID.

### 9.1.4 Display

Functions for displaying, removing and saving.

mm-display-part Display the part.

mm-remove-part Remove the part (if it has been displayed).

mm-inlinable-p Say whether a MIME type can be displayed inline.

mm-automatic-display-p Say whether a MIME type should be displayed automatically.

mm-destroy-part Free all resources occupied by a part.

mm-save-part Offer to save the part in a file.

mm-pipe-part Offer to pipe the part to some process.

mm-interactively-view-part Prompt for a mailcap method to use to view the part.

### 9.1.5 Display Customization

mm-inline-media-tests This is an alist where the key is a MIME type, the second element is a function to display the part *inline* (i.e., inside Emacs), and the third element is a form to be evaled to say whether the part can be displayed inline.

This variable specifies whether a part *can* be displayed inline, and, if so, how to do it. It does not say whether parts are *actually* displayed inline.

mm-inlined-types This, on the other hand, says what types are to be displayed inline, if they satisfy the conditions set by the variable above. It's a list of MIME media types.

mm-automatic-display This is a list of types that are to be displayed "automatically", but only if the above variable allows it. That is, only inlinable parts can be displayed automatically.

mm-automatic-external-display This is a list of types that will be displayed automatically in an external viewer.

mm-keep-viewer-alive-types This is a list of media types for which the external viewer will not be killed when selecting a different article.

mm-attachment-override-types Some MIME agents create parts that have a content-disposition of "attachment". This variable allows overriding that disposition and displaying the part inline. (Note that the disposition is only overridden if we are able to, and want to, display the part inline.)

mm-discouraged-alternatives List of MIME types that are discouraged when viewing "multipart/alternative". Viewing agents are supposed to view the last possible part of a message, as that is supposed to be the richest. However, users may prefer other types instead, and this list says what types are most unwanted. If, for instance, "text/html" parts are very unwanted, and "text/richtext" parts are somewhat unwanted, you could say something like:

```
(setq mm-discouraged-alternatives
      '("text/html" "text/richtext")
      mm-automatic-display
      (remove "text/html" mm-automatic-display))
```

mm-inline-large-images When displaying inline images that are larger than the window, XEmacs does not enable scrolling, which means that you cannot see the whole image. To prevent this, the library tries to determine the image size before displaying it inline, and if it doesn't fit the window, the library will display it externally (e.g. with "ImageMagick" or "xv"). Setting this variable to t disables this check and makes the library display all inline images as inline, regardless of their size.

mm-inline-override-types mm-inlined-types may include regular expressions, for example to specify that all "text/.*" parts be displayed inline. If a user prefers to have a type that matches such a regular expression be treated as an attachment, that can be accomplished by setting this variable to a list containing that type. For example assuming mm-inlined-types includes "text/.*", then including "text/html" in this variable will cause "text/html" parts to be treated as attachments.

mm-text-html-renderer This selects the function used to render HTML. The predefined renderers are selected by the symbols w3, w3m[1], links, lynx, w3m-standalone or html2text. If nil use an external viewer. You can also specify a function, which will be called with a MIME handle as the argument.

mm-inline-text-html-with-images Some HTML mails might have the trick of spammers using "<img>" tags. It is likely to be intended to verify whether you have read the mail. You can prevent your personal informations from leaking by setting this option to nil (which is the default). It is currently ignored by Emacs/w3. For emacs-w3m, you may use the command 't' on the image anchor to show an image even if it is nil.[2]

mm-w3m-safe-url-regexp A regular expression that matches safe URL names, i.e. URLs that are unlikely to leak personal information when rendering HTML email (the default value is "/'cid:"). If nil consider all URLs safe.

mm-inline-text-html-with-w3m-keymap You can use emacs-w3m command keys in the inlined text/html part by setting this option to non-nil. The default value is t.

mm-external-terminal-program The program used to start an external terminal.

### 9.1.6 Files and Directories

mm-default-directory The default directory for saving attachments. If nil use default-directory.

[1]See http://emacs-w3m.namazu.org/ for more information about emacs-w3m

[2]The command 'T' will load all images. If you have set the option w3m-key-binding to info, use 'i' or 'I' instead.

mm-tmp-directory Directory for storing temporary files.

mm-file-name-rewrite-functions A list of functions used for rewriting file names of MIME parts. Ready-made functions include

mm-file-name-delete-control Delete all control characters.

mm-file-name-delete-gotchas Delete characters that could have unintended consequences when used with flawed shell scripts, i.e. "—", ">" and "<"; and "-", "." as the first character.

mm-file-name-delete-whitespace Remove all whitespace.

mm-file-name-trim-whitespace Remove leading and trailing whitespace.

mm-file-name-collapse-whitespace Collapse multiple whitespace characters.

mm-file-name-replace-whitespace Replace whitespace with underscores. Set the variable mm-file-name-replace-whitespace to any other string if you do not like underscores.

The standard Emacs functions capitalize, downcase, upcase and upcase-initials might also prove useful.

mm-path-name-rewrite-functions List of functions used for rewriting the full file names of MIME parts. This is used when viewing parts externally, and is meant for transforming the absolute name so that non-compliant programs can find the file where it's saved.

### 9.1.7 New Viewers

Here's an example viewer for displaying text/enriched inline:

```
(defun mm-display-enriched-inline (handle)
  (let (text)
    (with-temp-buffer
      (mm-insert-part handle)
      (save-window-excursion
        (enriched-decode (point-min) (point-max))
        (setq text (buffer-string))))
    (mm-insert-inline handle text)))
```

We see that the function takes a MIME handle as its parameter. It then goes to a temporary buffer, inserts the text of the part, does some work on the text, stores the result, goes back to the buffer it was called from and inserts the result.

The two important helper functions here are mm-insert-part and mm-insert-inline. The first function inserts the text of the handle in the current buffer. It handles charset and/or content transfer decoding. The second function just inserts whatever text you tell it to insert, but it also sets things up so that the text can be "undisplayed" in a convenient manner.

## 9.2 Composing

Creating a MIME message is boring and non-trivial. Therefore, a library called mml has been defined that parses a language called MML (MIME Meta Language) and generates MIME messages.

The main interface function is mml-generate-mime. It will examine the contents of the current (narrowed-to) buffer and return a string containing the MIME message.

### 9.2.1 Simple MML Example

Here's a simple "multipart/alternative":

```
<#multipart type=alternative>
This is a plain text part.
<#part type=text/enriched>
<center>This is a centered enriched part</center>
<#/multipart>
```

After running this through mml-generate-mime, we get this:

```
Content-Type: multipart/alternative; boundary="=-=-="


--=-=-=


This is a plain text part.

--=-=-=
Content-Type: text/enriched


<center>This is a centered enriched part</center>

--=-=-=--
```

### 9.2.2 MML Definition

The MML language is very simple. It looks a bit like an SGML application, but it's not.

The main concept of MML is the *part*. Each part can be of a different type or use a different charset. The way to delineate a part is with a "<#part ...>" tag. Multipart parts can be introduced with the "<#multipart ...>" tag. Parts are ended

by the "<#/part>" or "<#/multipart>" tags. Parts started with the "<#part ...>" tags are also closed by the next open tag.

There's also the "<#external ...>" tag. These introduce "external/message-body" parts.

Each tag can contain zero or more parameters on the form "parameter=value". The values may be enclosed in quotation marks, but that's not necessary unless the value contains white space. So "filename=/home/user/#hello$^yes" is perfectly valid.

The following parameters have meaning in MML; parameters that have no meaning are ignored. The MML parameter names are the same as the MIME parameter names; the things in the parentheses say which header it will be used in.

"type" The MIME type of the part (Content-Type).

"filename" Use the contents of the file in the body of the part (Content-Disposition).

"charset" The contents of the body of the part are to be encoded in the character set specified (Content-Type). See "Charset Translation" on page 298.

"name" Might be used to suggest a file name if the part is to be saved to a file (Content-Type).

"disposition" Valid values are "inline" and "attachment" (Content-Disposition).

"encoding" Valid values are "7bit", "8bit", "quoted-printable" and "base64" (Content-Transfer-Encoding). See "Charset Translation" on page 298.

"description" A description of the part (Content-Description).

"creation-date" RFC822 date when the part was created (Content-Disposition).

"modification-date" RFC822 date when the part was modified (Content-Disposition).

"read-date" RFC822 date when the part was read (Content-Disposition).

"recipients" Who to encrypt/sign the part to. This field is used to override any auto-detection based on the To/CC headers.

"sender" Identity used to sign the part. This field is used to override the default key used.

"size" The size (in octets) of the part (Content-Disposition).

"sign" What technology to sign this MML part with (smime, pgp or pgpmime)

"encrypt" What technology to encrypt this MML part with (smime, pgp or pgpmime)

Parameters for "application/octet-stream":

"type" Type of the part; informal—meant for human readers (Content-Type).

Parameters for "message/external-body":

"access-type" A word indicating the supported access mechanism by which the file may be obtained. Values include "ftp", "anon-ftp", "tftp", "localfile", and "mailserver". (Content-Type.)

"expiration" The RFC822 date after which the file may no longer be fetched. (Content-Type.)

"size" The size (in octets) of the file. (Content-Type.)

"permission" Valid values are "read" and "read-write" (Content-Type).

Parameters for "sign=smime":

"keyfile" File containing key and certificate for signer.

Parameters for "encrypt=smime":

"certfile" File containing certificate for recipient.

### 9.2.3 Advanced MML Example

Here's a complex multipart message. It's a "multipart/mixed" that contains many parts, one of which is a "multipart/alternative".

```
<#multipart type=mixed>
<#part type=image/jpeg filename=~/rms.jpg disposition=inline>
<#multipart type=alternative>
This is a plain text part.
<#part type=text/enriched name=enriched.txt>
<center>This is a centered enriched part</center>
<#/multipart>
This is a new plain text part.
<#part disposition=attachment>
This plain text part is an attachment.
<#/multipart>
```

And this is the resulting MIME message:

```
Content-Type: multipart/mixed; boundary="=-=-="


--=-=-=
```

```
--=-=-=
Content-Type: image/jpeg;
 filename="~/rms.jpg"
Content-Disposition: inline;
 filename="~/rms.jpg"
Content-Transfer-Encoding: base64

/9j/4AAQSkZJRgABAQAAAQABAAD/2wBDAAgGBgcGBQgHBwcJCQgKDBQNDAsLDBkSEw8UH
Hh0aHBwgJC4nICIsIxwcKDcpLDAxNDQ0Hyc5PTgyPC4zNDL/wAALCAAwADABAREA/8QAH
AQUBAQEBAQEAAAAAAAAAAAECAwQFBgcICQoL/8QAtRAAAgEDAwIEAwUFBAQAAAF9AQIDA
BRIhMUEGE1FhByJxFDKBkaEII0KxwRVS0fAkM2JyggkKFhcYGRolJicoKSo0NTY3ODk6Q
RkdISUpTVFVWV1hZWmNkZWZnaGlqc3R1dnd4eXqDhIWGh4iJipKTlJWWl5iZmqKjpKWmp
qrKztLW2t7i5usLDxMXGx8jJytLT1NXW19jZ2uHi4+Tl5ufo6erx8vP09fb3+Pn6/9oAC
AAA/AO/rifFHjldNuGsrDa0qcSSHkA+gHrXKw+LtWLrMb+RgTyhbr+HSug07xNqV9fQtZ
AyiaE/NuBPOOOP0rvRNE880KOC8TbXXGCv1FPqjrF4LDR7u5L7SkTFT/ALWOP1xXgTuXf
sx6nua6rwp4IvvEM8chCxWxOdzn7wz6V9AaB4S07w9p5itow0rDLSY5Pt9K43xO66P4xs
2QXiGCbA4yOVJ9+1aYORkdK434lyNH4ahCnG66VT9Nj15JFbPdX0MS43M4VQf5/yr2vSp
5ZW8dlCZ8KFXjOPX0/mK6rSPEGt3Angu44fNEReHYNvIH3TzXDeKNO8RX+kSX2ouZkicT
L+g7E810ulFjpVtv3bwgB3HJyK5L4quY/C9sVxk3ij/xx6850u7t1mtp/wDlpEw3An3Jr
34gsbWza4nBlhC5LDsaW6+IFgupQyCF3iHH7gA7c9R9ay7zx6t7aX9jHC4smhfBkGCvHG
tLQ7hbnRrV1GPkAP1x1/Hr+Ncr8Vzjwrbf8AX6v/AKA9eQRyYlQk8Yx9K6XTNbkgia2ci
7p5Ga9Atte0LTLKO6it4i7dVRFJDcZ4PvXN+JvEMF9bILVGXJLSZ4zkjivRPDaeX4b08H
pOffmua+KkbS+GLVUGT9tT/0B68eeIpIFYjB70+OOVXyoOM9+M1eaWeCLzHPyHGO/NVWv
jQ8KGH1NfQWhXSXmh2c8eArRLwO3HSv/2Q==

--=-=-=
Content-Type: multipart/alternative; boundary="==-=-="


--==-=-=


This is a plain text part.

--==-=-=
Content-Type: text/enriched;
 name="enriched.txt"


<center>This is a centered enriched part</center>
```

```
--=-=-=-=--

--=-=-=

This is a new plain text part.

--=-=-=
Content-Disposition: attachment


This plain text part is an attachment.

--=-=-=-=--
```

### 9.2.4 Encoding Customization

mm-body-charset-encoding-alist Mapping from MIME charset to encoding to use. This variable is usually used except, e.g., when other requirements force a specific encoding (digitally signed messages require 7bit encodings). The default is

```
((iso-2022-jp . 7bit)
 (iso-2022-jp-2 . 7bit)
 (utf-16 . base64)
 (utf-16be . base64)
 (utf-16le . base64))
```

As an example, if you do not want to have ISO-8859-1 characters quoted-printable encoded, you may add (iso-8859-1 . 8bit) to this variable. You can override this setting on a per-message basis by using the encoding MML tag (see "MML Definition" on page 293).

mm-coding-system-priorities Prioritize coding systems to use for outgoing messages. The default is nil, which means to use the defaults in Emacs. It is a list of coding system symbols (aliases of coding systems does not work, use 'M-x describe-coding-system' to make sure you are not specifying an alias in this variable). For example, if you have configured Emacs to prefer UTF-8, but wish that outgoing messages should be sent in ISO-8859-1 if possible, you can set this variable to (iso-latin-1). You can override this setting on a per-message basis by using the charset MML tag (see "MML Definition" on page 293).

mm-content-transfer-encoding-defaults Mapping from MIME types to encoding to use. This variable is usually used except, e.g., when other requirements force

a safer encoding (digitally signed messages require 7bit encoding). Besides the normal MIME encodings, qp-or-base64 may be used to indicate that for each case the most efficient of quoted-printable and base64 should be used. You can override this setting on a per-message basis by using the encoding MML tag (see "MML Definition" on page 293).

mm-use-ultra-safe-encoding When this is non-nil, it means that textual parts are encoded as quoted-printable if they contain lines longer than 76 characters or starting with "From " in the body. Non-7bit encodings (8bit, binary) are generally disallowed. This reduce the probability that a non-8bit clean MTA or MDA changes the message. This should never be set directly, but bound by other functions when necessary (e.g., when encoding messages that are to be digitally signed).

### 9.2.5 Charset Translation

During translation from MML to MIME, for each MIME part which has been composed inside Emacs, an appropriate charset has to be chosen.

If you are running a non-MULE Emacs, this process is simple: If the part contains any non-ASCII (8-bit) characters, the MIME charset given by mail-parse-charset (a symbol) is used. (Never set this variable directly, though. If you want to change the default charset, please consult the documentation of the package which you use to process MIME messages. See "Various Message Variables, , Various Message Variables, message, Message Manual" on page ??, for example.) If there are only ASCII characters, the MIME charset US-ASCII is used, of course.

Things are slightly more complicated when running Emacs with MULE support. In this case, a list of the MULE charsets used in the part is obtained, and the MULE charsets are translated to MIME charsets by consulting the variable mm-mime-mule-charset-alist. If this results in a single MIME charset, this is used to encode the part. But if the resulting list of MIME charsets contains more than one element, two things can happen: If it is possible to encode the part via UTF-8, this charset is used. (For this, Emacs must support the utf-8 coding system, and the part must consist entirely of characters which have Unicode counterparts.) If UTF-8 is not available for some reason, the part is split into several ones, so that each one can be encoded with a single MIME charset. The part can only be split at line boundaries, though—if more than one MIME charset is required to encode a single line, it is not possible to encode the part.

When running Emacs with MULE support, the preferences for which coding system to use is inherited from Emacs itself. This means that if Emacs is set up to prefer UTF-8, it will be used when encoding messages. You can modify this by altering the mm-coding-system-priorities variable though (see "Encoding Customization" on page 297).

The charset to be used can be overridden by setting the charset MML tag (see "MML Definition" on page 293) when composing the message.

The encoding of characters (quoted-printable, 8bit etc) is orthogonal to the discussion here, and is controlled by the variables mm-body-charset-encoding-alist and mm-content-transfer-encoding-defaults (see "Encoding Customization" on page 297).

### 9.2.6 Conversion

A (multipart) MIME message can be converted to MML with the mime-to-mml function. It works on the message in the current buffer, and substitutes MML markup for MIME boundaries. Non-textual parts do not have their contents in the buffer, but instead have the contents in separate buffers that are referred to from the MML tags.

An MML message can be converted back to MIME by the mml-to-mime function.

These functions are in certain senses "lossy"—you will not get back an identical message if you run mime-to-mml and then mml-to-mime. Not only will trivial things like the order of the headers differ, but the contents of the headers may also be different. For instance, the original message may use base64 encoding on text, while mml-to-mime may decide to use quoted-printable encoding, and so on.

In essence, however, these two functions should be the inverse of each other. The resulting contents of the message should remain equivalent, if not identical.

### 9.2.7 Flowed text

The Emacs MIME library will respect the use-hard-newlines variable (see "Hard and Soft Newlines, ,Hard and Soft Newlines, emacs, Emacs Manual" on page ??) when encoding a message, and the "format=flowed" Content-Type parameter when decoding a message.

On encoding text, lines terminated by soft newline characters are filled together and wrapped after the column decided by fill-flowed-encode-column. This variable controls how the text will look in a client that does not support flowed text, the default is to wrap after 66 characters. If hard newline characters are not present in the buffer, no flow encoding occurs.

On decoding flowed text, lines with soft newline characters are filled together and wrapped after the column decided by fill-flowed-display-column. The default is to wrap after fill-column.

## 9.3 Interface Functions

The mail-parse library is an abstraction over the actual low-level libraries that are described in the next chapter.

Standards change, and so programs have to change to fit in the new mold. For instance, RFC2045 describes a syntax for the Content-Type header that only allows ASCII characters in the parameter list. RFC2231 expands on RFC2045 syntax to provide a scheme for continuation headers and non-ASCII characters.

The traditional way to deal with this is just to update the library functions to parse the new syntax. However, this is sometimes the wrong thing to do. In some instances it may be vital to be able to understand both the old syntax as well as the new syntax, and if there is only one library, one must choose between the old version of the library and the new version of the library.

The Emacs MIME library takes a different tack. It defines a series of low-level libraries ('rfc2047.el', 'rfc2231.el' and so on) that parses strictly according to the corresponding standard. However, normal programs would not use the functions provided by these libraries directly, but instead use the functions provided by the mail-parse library. The functions in this library are just aliases to the corresponding functions in the latest low-level libraries. Using this scheme, programs get a consistent interface they can use, and library developers are free to create write code that handles new standards.

The following functions are defined by this library:

mail-header-parse-content-type Parse a Content-Type header and return a list on the following format:

```
("type/subtype"
 (attribute1 . value1)
 (attribute2 . value2)
 ...)
```

Here's an example:

```
(mail-header-parse-content-type
 "image/gif; name=\"b980912.gif\"")
\gnusresult{} ("image/gif" (name . "b980912.gif"))
```

mail-header-parse-content-disposition Parse a Content-Disposition header and return a list on the same format as the function above.

mail-content-type-get Takes two parameters—a list on the format above, and an attribute. Returns the value of the attribute.

```
(mail-content-type-get
 '("image/gif" (name . "b980912.gif")) 'name)
\gnusresult{} "b980912.gif"
```

mail-header-encode-parameter Takes a parameter string and returns an encoded version of the string. This is used for parameters in headers like Content-Type and Content-Disposition.

mail-header-remove-comments Return a comment-free version of a header.

```
(mail-header-remove-comments
 "Gnus/5.070027 (Pterodactyl Gnus v0.27) (Finnish Landrace)")
\gnusresult{} "Gnus/5.070027  "
```

**mail-header-remove-whitespace** Remove linear white space from a header. Space inside quoted strings and comments is preserved.

```
(mail-header-remove-whitespace
 "image/gif; name=\"Name with spaces\"")
\gnusresult{} "image/gif;name=\"Name with spaces\""
```

**mail-header-get-comment** Return the last comment in a header.

```
(mail-header-get-comment
 "Gnus/5.070027 (Pterodactyl Gnus v0.27) (Finnish Landrace)")
\gnusresult{} "Finnish Landrace"
```

**mail-header-parse-address** Parse an address and return a list containing the mailbox and the plaintext name.

```
(mail-header-parse-address
 "Hrvoje Niksic <hniksic@srce.hr>")
\gnusresult{} ("hniksic@srce.hr" . "Hrvoje Niksic")
```

**mail-header-parse-addresses** Parse a string with list of addresses and return a list of elements like the one described above.

```
(mail-header-parse-addresses
 "Hrvoje Niksic <hniksic@srce.hr>, Steinar Bang <sb@metis.no>")
\gnusresult{} (("hniksic@srce.hr" . "Hrvoje Niksic")
     ("sb@metis.no" . "Steinar Bang"))
```

**mail-header-parse-date** Parse a date string and return an Emacs time structure.

**mail-narrow-to-head** Narrow the buffer to the header section of the buffer. Point is placed at the beginning of the narrowed buffer.

**mail-header-narrow-to-field** Narrow the buffer to the header under point. Understands continuation headers.

**mail-header-fold-field** Fold the header under point.

**mail-header-unfold-field** Unfold the header under point.

mail-header-field-value Return the value of the field under point.

mail-encode-encoded-word-region Encode the non-ASCII words in the region. For instance, "Naïve" is encoded as "=?iso-8859-1?q?Na=EFve?=".

mail-encode-encoded-word-buffer Encode the non-ASCII words in the current buffer. This function is meant to be called narrowed to the headers of a message.

mail-encode-encoded-word-string Encode the words that need encoding in a string, and return the result.

```
(mail-encode-encoded-word-string
 "This is naïve, baby")
\gnusresult{} "This is =?iso-8859-1?q?na=EFve,?= baby"
```

mail-decode-encoded-word-region Decode the encoded words in the region.

mail-decode-encoded-word-string Decode the encoded words in the string and return the result.

```
(mail-decode-encoded-word-string
 "This is =?iso-8859-1?q?na=EFve,?= baby")
\gnusresult{} "This is naïve, baby"
```

Currently, mail-parse is an abstraction over ietf-drums, rfc2047, rfc2045 and rfc2231. These are documented in the subsequent sections.

## 9.4 Basic Functions

This chapter describes the basic, ground-level functions for parsing and handling. Covered here is parsing From lines, removing comments from header lines, decoding encoded words, parsing date headers and so on. High-level functionality is dealt with in the next chapter (see "Decoding and Viewing" on page 288).

### 9.4.1 rfc2045

RFC2045 is the "main" MIME document, and as such, one would imagine that there would be a lot to implement. But there isn't, since most of the implementation details are delegated to the subsequent RFCs.

So 'rfc2045.el' has only a single function:

rfc2045-encode-string Takes a parameter and a value and returns a "PARAM=VALUE" string. value will be quoted if there are non-safe characters in it.

### 9.4.2 rfc2231

RFC2231 defines a syntax for the Content-Type and Content-Disposition headers. Its snappy name is *MIME Parameter Value and Encoded Word Extensions: Character Sets, Languages, and Continuations.*

In short, these headers look something like this:

```
Content-Type: application/x-stuff;
 title*0*=us-ascii'en'This%20is%20even%20more%20;
 title*1*=%2A%2A%2Afun%2A%2A%2A%20;
 title*2="isn't it!"
```

They usually aren't this bad, though.

The following functions are defined by this library:

rfc2231-parse-string Parse a Content-Type header and return a list describing its elements.

```
(rfc2231-parse-string
 "application/x-stuff;
 title*0*=us-ascii'en'This%20is%20even%20more%20;
 title*1*=%2A%2A%2Afun%2A%2A%2A%20;
 title*2=\"isn't it!\"")
\gnusresult{} ("application/x-stuff"
    (title . "This is even more ***fun*** isn't it!"))
```

rfc2231-get-value Takes one of the lists on the format above and returns the value of the specified attribute.

rfc2231-encode-string Encode a parameter in headers likes Content-Type and Content-Disposition.

### 9.4.3 ietf-drums

*drums* is an IETF working group that is working on the replacement for RFC822.

The functions provided by this library include:

ietf-drums-remove-comments Remove the comments from the argument and return the results.

ietf-drums-remove-whitespace Remove linear white space from the string and return the results. Spaces inside quoted strings and comments are left untouched.

ietf-drums-get-comment Return the last most comment from the string.

ietf-drums-parse-address Parse an address string and return a list that contains the mailbox and the plain text name.

ietf-drums-parse-addresses Parse a string that contains any number of comma-separated addresses and return a list that contains mailbox/plain text pairs.

ietf-drums-parse-date Parse a date string and return an Emacs time structure.

ietf-drums-narrow-to-header Narrow the buffer to the header section of the current buffer.

### 9.4.4 rfc2047

RFC2047 (Message Header Extensions for Non-ASCII Text) specifies how non-ASCII text in headers are to be encoded. This is actually rather complicated, so a number of variables are necessary to tweak what this library does.

The following variables are tweakable:

rfc2047-default-charset Characters in this charset should not be decoded by this library. This defaults to iso-8859-1.

rfc2047-header-encoding-alist This is an alist of header / encoding-type pairs. Its main purpose is to prevent encoding of certain headers.

The keys can either be header regexps, or t.

The values can be either nil, in which case the header(s) in question won't be encoded, or mime, which means that they will be encoded.

rfc2047-charset-encoding-alist RFC2047 specifies two forms of encoding—Q (a Quoted-Printable-like encoding) and B (base64). This alist specifies which charset should use which encoding.

rfc2047-encoding-function-alist This is an alist of encoding / function pairs. The encodings are Q, B and nil.

rfc2047-q-encoding-alist The Q encoding isn't quite the same for all headers. Some headers allow a narrower range of characters, and that is what this variable is for. It's an alist of header regexps / allowable character ranges.

rfc2047-encoded-word-regexp When decoding words, this library looks for matches to this regexp.

Those were the variables, and these are this functions:

rfc2047-narrow-to-field Narrow the buffer to the header on the current line.

rfc2047-encode-message-header Should be called narrowed to the header of a message. Encodes according to rfc2047-header-encoding-alist.

rfc2047-encode-region Encodes all encodable words in the region specified.

rfc2047-encode-string Encode a string and return the results.

rfc2047-decode-region Decode the encoded words in the region.

rfc2047-decode-string Decode a string and return the results.

### 9.4.5 time-date

While not really a part of the MIME library, it is convenient to document this library here. It deals with parsing Date headers and manipulating time. (Not by using tesseracts, though, I'm sorry to say.)

These functions convert between five formats: A date string, an Emacs time structure, a decoded time list, a second number, and a day number.

Here's a bunch of time/date/second/day examples:

```
(parse-time-string "Sat Sep 12 12:21:54 1998 +0200")
\gnusresult{} (54 21 12 12 9 1998 6 nil 7200)

(date-to-time "Sat Sep 12 12:21:54 1998 +0200")
\gnusresult{} (13818 19266)

(time-to-seconds '(13818 19266))
\gnusresult{} 905595714.0

(seconds-to-time 905595714.0)
\gnusresult{} (13818 19266 0)

(time-to-days '(13818 19266))
\gnusresult{} 729644

(days-to-time 729644)
\gnusresult{} (961933 65536)

(time-since '(13818 19266))
\gnusresult{} (0 430)

(time-less-p '(13818 19266) '(13818 19145))
\gnusresult{} nil

(subtract-time '(13818 19266) '(13818 19145))
\gnusresult{} (0 121)

(days-between "Sat Sep 12 12:21:54 1998 +0200"
```

```
              "Sat Sep 07 12:21:54 1998 +0200")
\gnusresult{} 5

(date-leap-year-p 2000)
\gnusresult{} t

(time-to-day-in-year '(13818 19266))
\gnusresult{} 255

(time-to-number-of-days
 (time-since
  (date-to-time "Mon, 01 Jan 2001 02:22:26 GMT")))
\gnusresult{} 4.146122685185185
```

And finally, we have safe-date-to-time, which does the same as date-to-time, but returns a zero time if the date is syntactically malformed.

The five data representations used are the following:

date An RFC822 (or similar) date string. For instance: "Sat Sep 12 12:21:54 1998 +0200".

time An internal Emacs time. For instance: (13818 26466).

seconds A floating point representation of the internal Emacs time. For instance: 905595714.0.

days An integer number representing the number of days since 00000101. For instance: 729644.

decoded time A list of decoded time. For instance: (54 21 12 12 9 1998 6 t 7200).

All the examples above represent the same moment.

These are the functions available:

date-to-time Take a date and return a time.

time-to-seconds Take a time and return seconds.

seconds-to-time Take seconds and return a time.

time-to-days Take a time and return days.

days-to-time Take days and return a time.

date-to-day Take a date and return days.

time-to-number-of-days Take a time and return the number of days that represents.

safe-date-to-time Take a date and return a time. If the date is not syntactically valid, return a "zero" date.

time-less-p Take two times and say whether the first time is less (i. e., earlier) than the second time.

time-since Take a time and return a time saying how long it was since that time.

subtract-time Take two times and subtract the second from the first. I. e., return the time between the two times.

days-between Take two days and return the number of days between those two days.

date-leap-year-p Take a year number and say whether it's a leap year.

time-to-day-in-year Take a time and return the day number within the year that the time is in.

### 9.4.6 qp

This library deals with decoding and encoding Quoted-Printable text.

Very briefly explained, qp encoding means translating all 8-bit characters (and lots of control characters) into things that look like "=EF"; that is, an equal sign followed by the byte encoded as a hex string.

The following functions are defined by the library:

quoted-printable-decode-region QP-decode all the encoded text in the specified region.

quoted-printable-decode-string Decode the QP-encoded text in a string and return the results.

quoted-printable-encode-region QP-encode all the encodable characters in the specified region. The third optional parameter fold specifies whether to fold long lines. (Long here means 72.)

quoted-printable-encode-string QP-encode all the encodable characters in a string and return the results.

### 9.4.7 base64

Base64 is an encoding that encodes three bytes into four characters, thereby increasing the size by about 33%. The alphabet used for encoding is very resistant to mangling during transit.

The following functions are defined by this library:

base64-encode-region base64 encode the selected region. Return the length of the encoded text. Optional third argument no-line-break means do not break long lines into shorter lines.

base64-encode-string base64 encode a string and return the result.

base64-decode-region base64 decode the selected region. Return the length of the decoded text. If the region can't be decoded, return nil and don't modify the buffer.

base64-decode-string base64 decode a string and return the result. If the string can't be decoded, nil is returned.

### 9.4.8 binhex

binhex is an encoding that originated in Macintosh environments. The following function is supplied to deal with these:

binhex-decode-region Decode the encoded text in the region. If given a third parameter, only decode the binhex header and return the filename.

### 9.4.9 uudecode

uuencode is probably still the most popular encoding of binaries used on Usenet, although base64 rules the mail world.

The following function is supplied by this package:

uudecode-decode-region Decode the text in the region.

### 9.4.10 yenc

yenc is used for encoding binaries on Usenet. The following function is supplied by this package:

yenc-decode-region Decode the encoded text in the region.

### 9.4.11 rfc1843

RFC1843 deals with mixing Chinese and ASCII characters in messages. In essence, RFC1843 switches between ASCII and Chinese by doing this:

```
This sentence is in \gnusacronym{ascii}.
The next sentence is in GB.~{<:Ky2;S\gnusbraceleft{}#,NpJ)l6HK!#~}Bye
```

Simple enough, and widely used in China.

The following functions are available to handle this encoding:

rfc1843-decode-region Decode HZ-encoded text in the region.

rfc1843-decode-string Decode a HZ-encoded string and return the result.

### 9.4.12 mailcap

The '~/.mailcap' file is parsed by most MIME-aware message handlers and describes how elements are supposed to be displayed. Here's an example file:

```
image/*; gimp -8 %s
audio/wav; wavplayer %s
application/msword; catdoc %s ; copiousoutput ; nametemplate=%s.doc
```

This says that all image files should be displayed with gimp, that WAVE audio files should be played by wavplayer, and that MS-WORD files should be inlined by catdoc.

The mailcap library parses this file, and provides functions for matching types.

mailcap-mime-data This variable is an alist of alists containing backup viewing rules.

Interface functions:

mailcap-parse-mailcaps Parse the '~/.mailcap' file.

mailcap-mime-info Takes a MIME type as its argument and returns the matching viewer.

## 9.5 Standards

The Emacs MIME library implements handling of various elements according to a (somewhat) large number of RFCs, drafts and standards documents. This chapter lists the relevant ones. They can all be fetched from http://quimby.gnus.org/notes/.

*RFC822*
*STD11* Standard for the Format of ARPA Internet Text Messages.

*RFC1036* Standard for Interchange of USENET Messages

*RFC2045* Format of Internet Message Bodies

*RFC2046* Media Types

*RFC2047* Message Header Extensions for Non-ASCII Text

*RFC2048* Registration Procedures

*RFC2049* Conformance Criteria and Examples

*RFC2231* MIME Parameter Value and Encoded Word Extensions: Character Sets, Languages, and Continuations

*RFC1843* HZ - A Data Format for Exchanging Files of Arbitrarily Mixed Chinese and ASCII characters

*draft-ietf-drums-msg-fmt-05.txt* Draft for the successor of RFC822

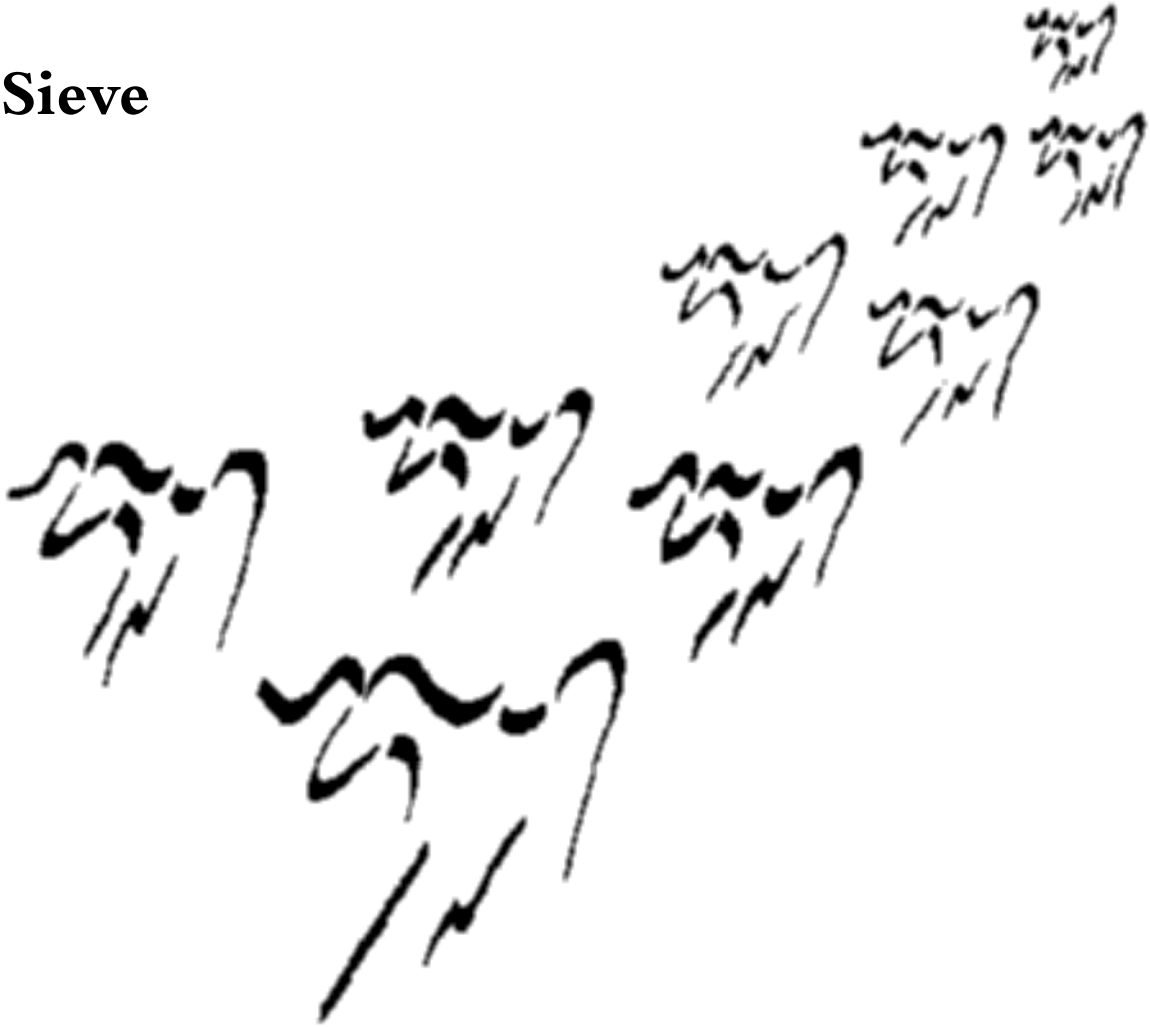
*RFC2112* The MIME Multipart/Related Content-type

*RFC1892* The Multipart/Report Content Type for the Reporting of Mail System Administrative Messages

*RFC2183* Communicating Presentation Information in Internet Messages: The Content-Disposition Header Field

*RFC2646* Documentation of the text/plain format parameter for flowed text.

# Sieve



This manual documents the Emacs Sieve package.

It is intended as a users manual for Sieve Mode and Manage Sieve, and as a reference manual for the "sieve-manage" protocol Emacs Lisp API.

Sieve is a language for server-side filtering of mail. The language is documented in RFC 3028. This manual does not attempt to document the language, so keep RFC 3028 around.

A good online Sieve resources is http://www.cyrusoft.com/sieve/.

## 10.1 Installation

The Sieve package should come with your Emacs version, and should be ready for use directly.

However, to manually set up the package you can put the following commands in your ~/.emacs:

```
(autoload 'sieve-mode "sieve-mode")

(setq auto-mode-alist (cons '("\\.s\\(v\\|iv\\|ieve\\)\\'" . sieve-mo
                            auto-mode-alist))
```

## 10.2 Sieve Mode

Sieve mode provides syntax-based indentation, font-locking support and other handy functions to make editing Sieve scripts easier.

Use "M-x sieve-mode" to switch to this major mode. This command runs the hook sieve-mode-hook.

Sieve mode is derived from c-mode, and is very similar except for the syntax of comments. The keymap (sieve-mode-map) is inherited from c-mode, as are the variables for customizing indentation. Sieve mode has its own abbrev table (sieve-mode-abbrev-table) and syntax table (sieve-mode-syntax-table).

In addition to the editing utility functions, Sieve mode also contains bindings to manage Sieve scripts remotely. See "Managing Sieve" on page 312.

'C-c RET' Open a connection to a remote server using the Managesieve protocol.

'C-c C-l' Upload the Sieve script to the currently open server.

## 10.3 Managing Sieve

Manage Sieve is a special mode used to display Sieve scripts available on a remote server. It can be invoked with 'M-x sieve-manage RET', which queries the user for a server and if necessary, user credentials to use.

When a server has been successfully contacted, the Manage Sieve buffer looks something like:

```
Server  : mailserver:2000

2 scripts on server, press RET on a script name edits it, or
press RET on <new script> to create a new script.
        <new script>
 ACTIVE .sieve
        template.siv
```

One of the scripts are highlighted, and standard point navigation commands ('<up>', '<down>' etc) can be used to navigate the list.

The following commands are available in the Manage Sieve buffer:

'm' Activates the currently highlighted script.

'u' Deactivates the currently highlighted script.

'C-M-?' Deactivates all scripts.

'r' Remove currently highlighted script.

'RET'

'mouse-2'

'f' Bury the server buffer and download the currently highlighted script into a new buffer for editing in Sieve mode (see "Sieve Mode" on page 312).

'o' Create a new buffer in another window containing the currently highlighted script for editing in Sieve mode (see "Sieve Mode" on page 312).

'q' Bury the Manage Sieve buffer without closing the connection.

'?'

'h' Displays help in the minibuffer.

## 10.4 Examples

If you are not familiar with Sieve, this chapter contains a few simple code snippets that you can cut'n'paste and modify at will, until you feel more comfortable with the Sieve language to write the rules from scratch.

The following complete Sieve script places all messages with a matching "Sender:" header into the given mailbox. Many mailing lists uses this format. The first line makes sure your Sieve server understands the fileinto command.

```
require "fileinto";

if address "sender" "owner-w3-beta@xemacs.org" {
fileinto "INBOX.w3-beta";
}
```

A few mailing lists do not use the "Sender:" header, but does contain some unique identifier in some other header. The following is not a complete script, it assumes that fileinto has already been required.

```
if header :contains "Delivered-To" "auc-tex@sunsite.dk" {
fileinto "INBOX.auc-tex";
}
```

At last, we have the hopeless mailing lists that does not have any unique identifier and you are forced to match on the "To:" and "Cc" headers. As before, this snippet assumes that fileinto has been required.

```
if address ["to", "cc"] "kerberos@mit.edu" {
fileinto "INBOX.kerberos";
}
```

## 10.5 Manage Sieve API

The 'sieve-manage.el' library contains low-level functionality for talking to a server with the MANAGESIEVE protocol.

A number of user-visible variables exist, which all can be customized in the sieve group ('M-x customize-group RET sieve RET'):

sieve-manage-default-user Sets the default username.

sieve-manage-default-port Sets the default port to use, the suggested port number is 2000.

sieve-manage-log If non-nil, should be a string naming a buffer where a protocol trace is dumped (for debugging purposes).

The API functions include:

sieve-manage-open Open connection to managesieve server, returning a buffer to be used by all other API functions.

sieve-manage-opened Check if a server is open or not.

sieve-manage-close Close a server connection.

sieve-manage-authenticate Authenticate to the server.

sieve-manage-capability Return a list of capabilities the server support.

sieve-manage-listscripts List scripts on the server.

sieve-manage-havespace Returns non-nil iff server have roam for a script of given size.

sieve-manage-getscript Download script from server.

sieve-manage-putscript Upload script to server.

sieve-manage-setactive Indicate which script on the server should be active.

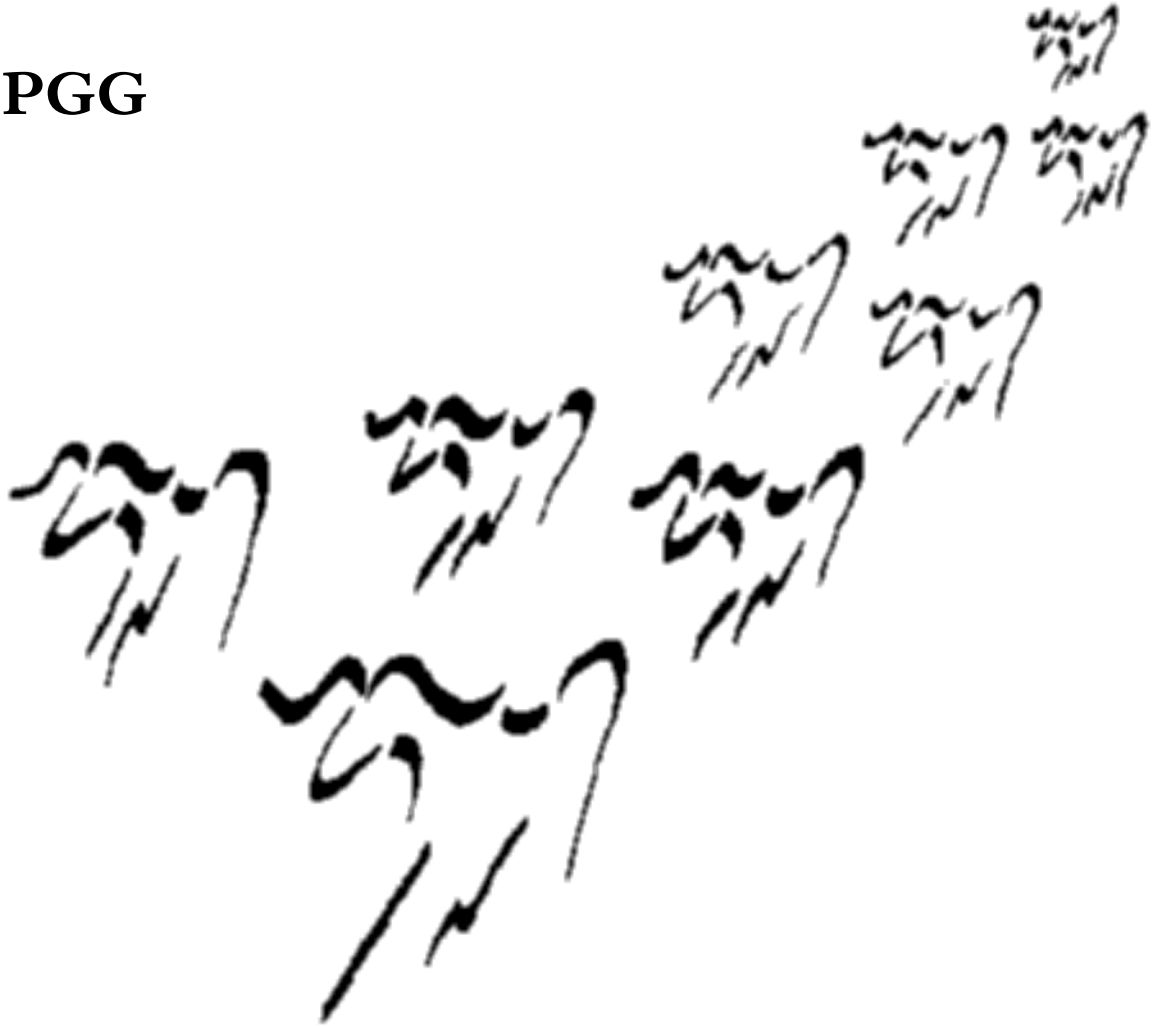
## 10.6 Standards

The Emacs Sieve package implements all or parts of a small but hopefully growing number of RFCs and drafts documents. This chapter lists the relevant ones. They can all be fetched from http://quimby.gnus.org/notes/.

*RFC3028* Sieve: A Mail Filtering Language.

*draft-martin-managesieve-03* A Protocol for Remotely Managing Sieve Scripts

**PGG**



This manual describes PGG. PGG is an interface library between Emacs and various tools for secure communication. PGG also provides a simple user interface to encrypt, decrypt, sign, and verify MIME messages.

## 11.1 Overview

PGG is an interface library between Emacs and various tools for secure communication. Even though Mailcrypt has similar feature, it does not deal with detached PGP messages, normally used in PGP/MIME infrastructure. This was the main reason why I wrote the new library.

PGP/MIME is an application of MIME Object Security Services (RFC1848). The standard is documented in RFC2015.

## 11.2 Prerequisites

PGG requires at least one implementation of privacy guard system. This document assumes that you have already obtained and installed them and that you are familiar with its basic functions.

By default, PGG uses GnuPG, but Pretty Good Privacy version 2 or version 5 are also supported. If you are new to such a system, I recommend that you should look over the GNU Privacy Handbook (GPH) which is available at http://www.gnupg.org/gph/.

## 11.3 How to use

The toplevel interface of this library is quite simple, and only intended to use with public-key cryptographic operation.

To use PGG, evaluate following expression at the beginning of your application program.

```
(require 'pgg)
```

If you want to check existence of pgg.el at runtime, instead you can list autoload setting for desired functions as follows.

```
(autoload 'pgg-encrypt-region "pgg"
  "Encrypt the current region." t)
(autoload 'pgg-decrypt-region "pgg"
  "Decrypt the current region." t)
(autoload 'pgg-sign-region "pgg"
  "Sign the current region." t)
(autoload 'pgg-verify-region "pgg"
  "Verify the current region." t)
(autoload 'pgg-insert-key "pgg"
```

```
  "Insert the ASCII armored public key." t)
(autoload 'pgg-snarf-keys-region "pgg"
  "Import public keys in the current region." t)
```

### 11.3.1 User Commands

At this time you can use some cryptographic commands. The behavior of these commands relies on a fashion of invocation because they are also intended to be used as library functions. In case you don't have the signer's public key, for example, the function pgg-verify-region fails immediately, but if the function had been called interactively, it would ask you to retrieve the signer's public key from the server.

Encrypt the current region between start and end for recipients. When the function were called interactively, you would be asked about the recipients.

If encryption is successful, it replaces the current region contents (in the accessible portion) with the resulting data.

If optional argument sign is non-nil, the function is request to do a combined sign and encrypt. This currently only work with GnuPG.

Decrypt the current region between start and end. If decryption is successful, it replaces the current region contents (in the accessible portion) with the resulting data.

Make the signature from text between start and end. If the optional third argument cleartext is non-nil, or the function is called interactively, it does not create a detached signature. In such a case, it replaces the current region contents (in the accessible portion) with the resulting data.

Verify the current region between start and end. If the optional third argument signature is non-nil, or the function is called interactively, it is treated as the detached signature of the current region.

If the optional 4th argument fetch is non-nil, or the function is called interactively, we attempt to fetch the signer's public key from the key server.

Retrieve the user's public key and insert it as ASCII-armored format.

Collect public keys in the current region between start and end, and add them into the user's keyring.

### 11.3.2 Selecting an implementation

Since PGP has a long history and there are a number of PGP implementations available today, the function which each one has differs considerably. For example, if you are using GnuPG, you know you can select cipher algorithm from 3DES, CAST5, BLOWFISH, and so on, but on the other hand the version 2 of PGP only supports IDEA.

By default, if the variable pgg-scheme is not set, PGG searches the registered scheme for an implementation of the requested service associated with the named algorithm. If there are no match, PGG uses pgg-default-scheme. In other words, there are two options to control which command is used to process the incoming

PGP armors. One is for encrypting and signing, the other is for decrypting and verifying.

Force specify the scheme of PGP implementation for decrypting and verifying. The value can be gpg, pgp, and pgp5.

Force specify the scheme of PGP implementation for encrypting and signing. The value can be gpg, pgp, and pgp5.

### 11.3.3 Caching passphrase

PGG provides a simple passphrase caching mechanism. If you want to arrange the interaction, set the variable pgg-read-passphrase.

If non-nil, store passphrases. The default value of this variable is t. If you were worry about security issue, however, you could stop caching with setting it nil.

Elapsed time for expiration in seconds.

### 11.3.4 Default user identity

The PGP implementation is usually able to select the proper key to use for signing and decryption, but if you have more than one key, you may need to specify the key id to use.

User ID of your default identity. It defaults to the value returned by "(user-login-name)". You can customize this variable.

User ID of the GnuPG default identity. It defaults to "nil". This overrides "pgg-default-user-id". You can customize this variable.

User ID of the PGP 2.x/6.x default identity. It defaults to "nil". This overrides "pgg-default-user-id". You can customize this variable.

User ID of the PGP 5.x default identity. It defaults to "nil". This overrides "pgg-default-user-id". You can customize this variable.

## 11.4 Architecture

PGG introduces the notion of a "scheme of PGP implementation" (used interchangeably with "scheme" in this document). This term refers to a singleton object wrapped with the luna object system.

Since PGG was designed for accessing and developing PGP functionality, the architecture had to be designed not just for interoperability but also for extensiblity. In this chapter we explore the architecture while finding out how to write the PGG backend.

### 11.4.1 Initializing

A scheme must be initialized before it is used. It had better guarantee to keep only one instance of a scheme.

The following code is snipped out of 'pgg-gpg.el'. Once an instance of pgg-gpg scheme is initialized, it's stored to the variable pgg-scheme-gpg-instance and will be reused from now on.

```
(defvar pgg-scheme-gpg-instance nil)

(defun pgg-make-scheme-gpg ()
  (or pgg-scheme-gpg-instance
      (setq pgg-scheme-gpg-instance
    (luna-make-entity 'pgg-scheme-gpg))))
```

The name of the function must follow the regulation—pgg-make-scheme- follows the backend name.

### 11.4.2 Backend methods

In each backend, these methods must be present. The output of these methods is stored in special buffers ("Getting output" on page 321), so that these methods must tell the status of the execution.

Return keys associated with string. If the optional third argument type is non-nil, it searches from the secret keyrings.

Encrypt the current region between start and end for recipients. If sign is non-nil, do a combined sign and encrypt. If encryption is successful, it returns t, otherwise nil.

Decrypt the current region between start and end. If decryption is successful, it returns t, otherwise nil.

Make the signature from text between start and end. If the optional third argument cleartext is non-nil, it does not create a detached signature. If signing is successful, it returns t, otherwise nil.

Verify the current region between start and end. If the optional third argument signature is non-nil, it is treated as the detached signature of the current region. If the signature is successfully verified, it returns t, otherwise nil.

Retrieve the user's public key and insert it as ASCII-armored format. On success, it returns t, otherwise nil.

Collect public keys in the current region between start and end, and add them into the user's keyring. On success, it returns t, otherwise nil.

### 11.4.3 Getting output

The output of the backend methods ("Backend methods" on page 321) is stored in special buffers, so that these methods must tell the status of the execution.

The standard error output of the execution of the PGP command is stored here.

The standard output of the execution of the PGP command is stored here.

The rest of status information of the execution of the PGP command is stored here.

## 11.5 Parsing OpenPGP packets

The format of OpenPGP messages is maintained in order to publish all necessary information needed to develop interoperable applications. The standard is documented in RFC 2440.

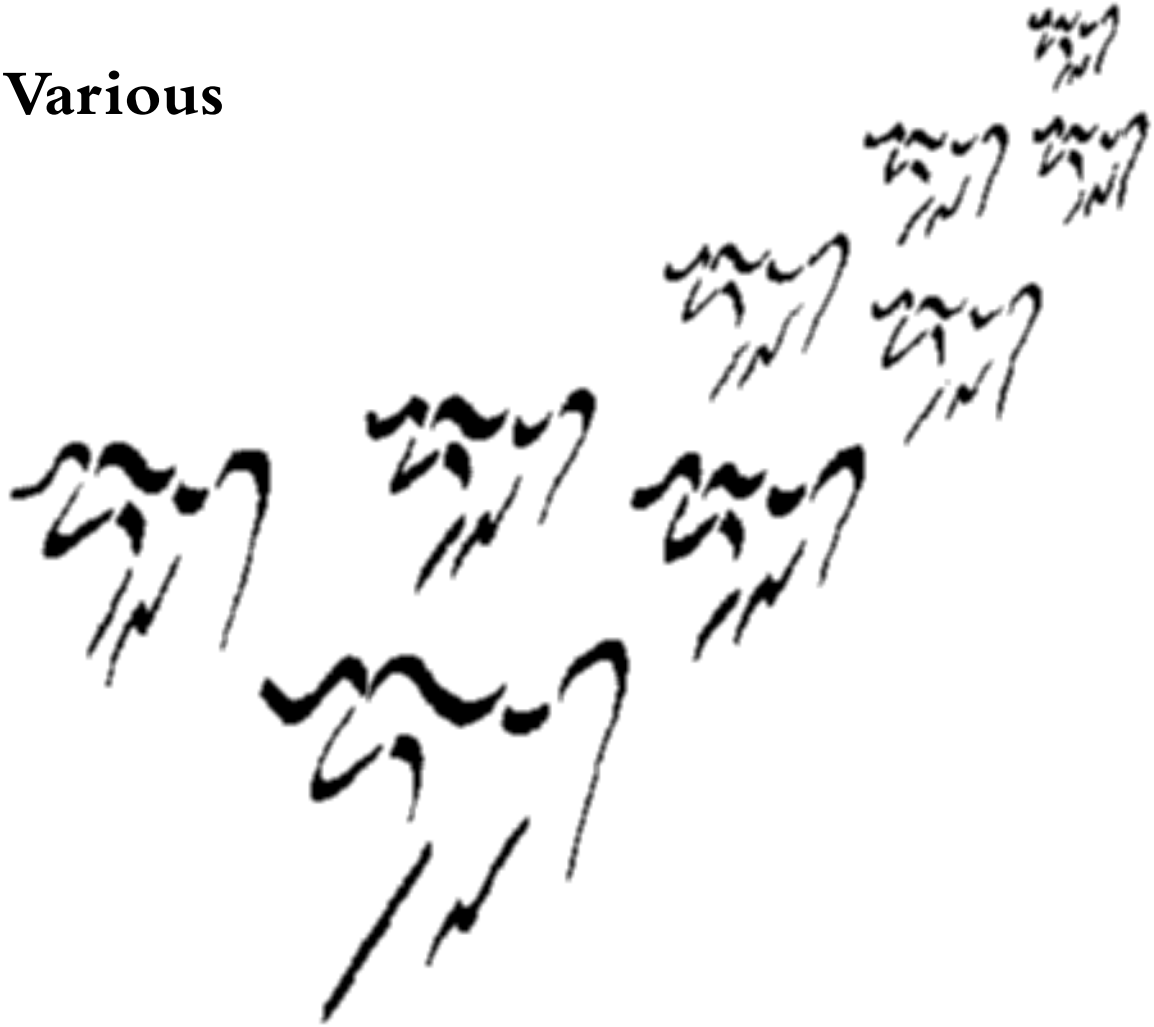
PGG has its own parser for the OpenPGP packets.

List the sequence of packets in string.

List the sequence of packets in the current region between start and end.

If non-nil, don't check the checksum of the packets.

# Various



## 12.1 Process/Prefix

Many functions, among them functions for moving, decoding and saving articles, use what is known as the *Process/Prefix convention*.

This is a method for figuring out what articles the user wants the command to be performed on.

It goes like this:

If the numeric prefix is N, perform the operation on the next N articles, starting with the current one. If the numeric prefix is negative, perform the operation on the previous N articles, starting with the current one.

If transient-mark-mode in non-nil and the region is active, all articles in the region will be worked upon.

If there is no numeric prefix, but some articles are marked with the process mark, perform the operation on the articles marked with the process mark.

If there is neither a numeric prefix nor any articles marked with the process mark, just perform the operation on the current article.

Quite simple, really, but it needs to be made clear so that surprises are avoided.

Commands that react to the process mark will push the current list of process marked articles onto a stack and will then clear all process marked articles. You can restore the previous configuration with the 'M P y' command (see "Setting Process Marks" on page 68).

One thing that seems to shock & horrify lots of people is that, for instance, '3 d' does exactly the same as 'd' 'd' 'd'. Since each 'd' (which marks the current article as read) by default goes to the next unread article after marking, this means that '3 d' will mark the next three unread articles as read, no matter what the summary buffer looks like. Set gnus-summary-goto-unread to nil for a more straightforward action.

Many commands do not use the process/prefix convention. All commands that do explicitly say so in this manual. To apply the process/prefix convention to commands that do not use it, you can use the 'M-&' command. For instance, to mark all the articles in the group as expirable, you could say 'M P b M-& E'.

## 12.2 Interactive

gnus-novice-user If this variable is non-nil, you are either a newcomer to the World of Usenet, or you are very cautious, which is a nice thing to be, really. You will be given questions of the type "Are you sure you want to do this?" before doing anything dangerous. This is t by default.

gnus-expert-user If this variable is non-nil, you will seldom be asked any questions by Gnus. It will simply assume you know what you're doing, no matter how strange.

gnus-interactive-catchup Require confirmation before catching up a group if non-nil. It is t by default.

gnus-interactive-exit Require confirmation before exiting Gnus. This variable is t by default.

## 12.3 Symbolic Prefixes

Quite a lot of Emacs commands react to the (numeric) prefix. For instance, 'C-u 4 C-f' moves point four characters forward, and 'C-u 9 0 0 l s s p' adds a permanent Subject substring score rule of 900 to the current article.

This is all nice and well, but what if you want to give a command some additional information? Well, what most commands do is interpret the "raw" prefix in some special way. 'C-u 0 C-x C-s' means that one doesn't want a backup file to be created when saving the current buffer, for instance. But what if you want to save without making a backup file, and you want Emacs to flash lights and play a nice tune at the same time? You can't, and you're probably perfectly happy that way.

I'm not, so I've added a second prefix—the *symbolic prefix*. The prefix key is 'M-i' (gnus-symbolic-argument), and the next character typed in is the value. You can stack as many 'M-i' prefixes as you want. 'M-i a C-M-u' means "feed the 'C-M-u' command the symbolic prefix a". 'M-i a M-i b C-M-u' means "feed the 'C-M-u' command the symbolic prefixes a and b". You get the drift.

Typing in symbolic prefixes to commands that don't accept them doesn't hurt, but it doesn't do any good either. Currently not many Gnus functions make use of the symbolic prefix.

If you're interested in how Gnus implements this, see "Extended Interactive" on page 424.

## 12.4 Formatting Variables

Throughout this manual you've probably noticed lots of variables called things like gnus-group-line-format and gnus-summary-mode-line-format. These control how Gnus is to output lines in the various buffers. There's quite a lot of them. Fortunately, they all use the same syntax, so there's not that much to be annoyed by.

Here's an example format spec (from the group buffer): "%M%S%5y: %(%g%)/n". We see that it is indeed extremely ugly, and that there are lots of percentages everywhere.

Currently Gnus uses the following formatting variables: gnus-group-line-format, gnus-summary-line-format, gnus-server-line-format, gnus-topic-line-format, gnus-group-mode-line-format, gnus-summary-mode-line-format, gnus-article-mode-line-format, gnus-server-mode-line-format, and gnus-summary-pick-line-format.

All these format variables can also be arbitrary elisp forms. In that case, they will be evaled to insert the required lines.

Gnus includes a command to help you while creating your own format specs. 'M-x gnus-update-format' will eval the current form, update the spec in question

and pop you to a buffer where you can examine the resulting Lisp code to be run to generate the line.

### 12.4.1 Formatting Basics

Each "%" element will be replaced by some string or other when the buffer in question is generated. "%5y" means "insert the "y" spec, and pad with spaces to get a 5-character field".

As with normal C and Emacs Lisp formatting strings, the numerical modifier between the "%" and the formatting type character will *pad* the output so that it is always at least that long. "%5y" will make the field always (at least) five characters wide by padding with spaces to the left. If you say "%-5y", it will pad to the right instead.

You may also wish to limit the length of the field to protect against particularly wide values. For that you can say "%4,6y", which means that the field will never be more than 6 characters wide and never less than 4 characters wide.

Also Gnus supports some extended format specifications, such as "%&user-date;".

### 12.4.2 Mode Line Formatting

Mode line formatting variables (e.g., gnus-summary-mode-line-format) follow the same rules as other, buffer line oriented formatting variables (see "Formatting Basics" on page 326) with the following two differences:

1. There must be no newline ("/n") at the end.
2. The special "%%b" spec can be used to display the buffer name. Well, it's no spec at all, really—"%%" is just a way to quote "%" to allow it to pass through the formatting machinery unmangled, so that Emacs receives "%b", which is something the Emacs mode line display interprets to mean "show the buffer name". For a full list of mode line specs Emacs understands, see the documentation of the mode-line-format variable.

### 12.4.3 Advanced Formatting

It is frequently useful to post-process the fields in some way. Padding, limiting, cutting off parts and suppressing certain values can be achieved by using *tilde modifiers*. A typical tilde spec might look like "%~(cut 3)~(ignore "0")y".

These are the valid modifiers:

pad
pad-left Pad the field to the left with spaces until it reaches the required length.

pad-right Pad the field to the right with spaces until it reaches the required length.

max
max-left Cut off characters from the left until it reaches the specified length.

max-right Cut off characters from the right until it reaches the specified length.

cut
cut-left Cut off the specified number of characters from the left.

cut-right Cut off the specified number of characters from the right.

ignore Return an empty string if the field is equal to the specified value.

form Use the specified form as the field value when the "@" spec is used.

Here's an example:

```
"~(form (current-time-string))@"
```

Let's take an example. The "%o" spec in the summary mode lines will return a date in compact ISO8601 format—"19960809T230410". This is quite a mouthful, so we want to shave off the century number and the time, leaving us with a six-character date. That would be "%~(cut-left 2)~(max-right 6)~(pad 6)o". (Cutting is done before maxing, and we need the padding to ensure that the date is never less than 6 characters to make it look nice in columns.)

Ignoring is done first; then cutting; then maxing; and then as the very last operation, padding.

If you use lots of these advanced thingies, you'll find that Gnus gets quite slow. This can be helped enormously by running 'M-x gnus-compile' when you are satisfied with the look of your lines. See "Compilation" on page 334.

### 12.4.4 User-Defined Specs

All the specs allow for inserting user defined specifiers—"u". The next character in the format string should be a letter. Gnus will call the function gnus-user-format-function-"X", where "X" is the letter following "%u". The function will be passed a single parameter—what the parameter means depends on what buffer it's being called from. The function should return a string, which will be inserted into the buffer just like information from any other specifier. This function may also be called with dummy values, so it should protect against that.

Also Gnus supports extended user-defined specs, such as "%u&foo;". Gnus will call the function gnus-user-format-function-"foo".

You can also use tilde modifiers (see "Advanced Formatting" on page 326 to achieve much the same without defining new functions. Here's an example: "%~(form (count-lines (point-min) (point)))@". The form given here will be evaluated to yield the current line number, and then inserted.

### 12.4.5 Formatting Fonts

There are specs for highlighting, and these are shared by all the format variables. Text inside the "%(" and "%)" specifiers will get the special mouse-face property set, which means that it will be highlighted (with gnus-mouse-face) when you put the mouse pointer over it.

Text inside the "%>" and "%>" specifiers will have their normal faces set using gnus-face-0, which is bold by default. If you say "%1>", you'll get gnus-face-1 instead, and so on. Create as many faces as you wish. The same goes for the mouse-face specs—you can say "%3(hello%)" to have "hello" mouse-highlighted with gnus-mouse-face-3.

Text inside the "%<<" and "%>>" specifiers will get the special balloon-help property set to gnus-balloon-face-0. If you say "%1<<", you'll get gnus-balloon-face-1 and so on. The gnus-balloon-face-* variables should be either strings or symbols naming functions that return a string. When the mouse passes over text with this property set, a balloon window will appear and display the string. Please refer to "Tooltips, ,Tooltips, emacs, The Emacs Manual" on page ??, (in GNU Emacs) or the doc string of balloon-help-mode (in XEmacs) for more information on this. (For technical reasons, the guillemets have been approximated as "<<" and ">>" in this paragraph.)

Here's an alternative recipe for the group buffer:

```
;; \gnusr{Create three face types.}
(setq gnus-face-1 'bold)
(setq gnus-face-3 'italic)

;; \gnusr{We want the article count to be in}
;; \gnusr{a bold and green face.  So we create}
;; \gnusr{a new face called \gnuscode{my-green-bold}.}
(copy-face 'bold 'my-green-bold)
;; \gnusr{Set the color.}
(set-face-foreground 'my-green-bold "ForestGreen")
(setq gnus-face-2 'my-green-bold)

;; \gnusr{Set the new & fancy format.}
(setq gnus-group-line-format
      "%M%S%3{%5y\gnuspercent{}\gnusbraceright{}%2[:%] %(\gnuspercent
```

I'm sure you'll be able to use this scheme to create totally unreadable and extremely vulgar displays. Have fun!

Note that the "%(" specs (and friends) do not make any sense on the mode-line variables.

### 12.4.6 Positioning Point

Gnus usually moves point to a pre-defined place on each line in most buffers. By default, point move to the first colon character on the line. You can customize this behaviour in three different ways.

You can move the colon character to somewhere else on the line.

You can redefine the function that moves the point to the colon. The function is called gnus-goto-colon.

But perhaps the most convenient way to deal with this, if you don't want to have a colon in your line, is to use the "%*" specifier. If you put a "%*" somewhere in your format line definition, Gnus will place point there.

### 12.4.7 Tabulation

You can usually line up your displays by padding and cutting your strings. However, when combining various strings of different size, it can often be more convenient to just output the strings, and then worry about lining up the following text afterwards.

To do that, Gnus supplies tabulator specs—"%=". There are two different types—*hard tabulators* and *soft tabulators*.

"%50=" will insert space characters to pad the line up to column 50. If the text is already past column 50, nothing will be inserted. This is the soft tabulator.

"%-50=" will insert space characters to pad the line up to column 50. If the text is already past column 50, the excess text past column 50 will be removed. This is the hard tabulator.

### 12.4.8 Wide Characters

Fixed width fonts in most countries have characters of the same width. Some countries, however, use Latin characters mixed with wider characters—most notable East Asian countries.

The problem is that when formatting, Gnus assumes that if a string is 10 characters wide, it'll be 10 Latin characters wide on the screen. In these countries, that's not true.

To help fix this, you can set gnus-use-correct-string-widths to t. This makes buffer generation slower, but the results will be prettier. The default value under XEmacs is t but nil for Emacs.

## 12.5 Window Layout

No, there's nothing here about X, so be quiet.

If gnus-use-full-window non-nil, Gnus will delete all other windows and occupy the entire Emacs screen by itself. It is t by default.

Setting this variable to nil kinda works, but there are glitches. Use at your own peril.

gnus-buffer-configuration describes how much space each Gnus buffer should be given. Here's an excerpt of this variable:

```
((group (vertical 1.0 (group 1.0 point)
                      (if gnus-carpal (group-carpal 4))))
 (article (vertical 1.0 (summary 0.25 point)
                        (article 1.0))))
```

This is an alist. The *key* is a symbol that names some action or other. For instance, when displaying the group buffer, the window configuration function will use group as the key. A full list of possible names is listed below.

The *value* (i.e., the *split*) says how much space each buffer should occupy. To take the article split as an example -

```
(article (vertical 1.0 (summary 0.25 point)
                       (article 1.0)))
```

This *split* says that the summary buffer should occupy 25% of upper half of the screen, and that it is placed over the article buffer. As you may have noticed, 100% + 25% is actually 125% (yup, I saw y'all reaching for that calculator there). However, the special number 1.0 is used to signal that this buffer should soak up all the rest of the space available after the rest of the buffers have taken whatever they need. There should be only one buffer with the 1.0 size spec per split.

Point will be put in the buffer that has the optional third element point. In a frame split, the last subsplit having a leaf split where the tag frame-focus is a member (i.e. is the third or fourth element in the list, depending on whether the point tag is present) gets focus.

Here's a more complicated example:

```
(article (vertical 1.0 (group 4)
                       (summary 0.25 point)
                       (if gnus-carpal (summary-carpal 4))
                       (article 1.0)))
```

If the size spec is an integer instead of a floating point number, then that number will be used to say how many lines a buffer should occupy, not a percentage.

If the *split* looks like something that can be eval ed (to be precise—if the car of the split is a function or a subr), this split will be eval ed. If the result is non-nil, it will be used as a split. This means that there will be three buffers if gnus-carpal is nil, and four buffers if gnus-carpal is non-nil.

Not complicated enough for you? Well, try this on for size:

```
(article (horizontal 1.0
             (vertical 0.5
                 (group 1.0)
```

```
                (gnus-carpal 4))
            (vertical 1.0
                (summary 0.25 point)
                (summary-carpal 4)
                (article 1.0))))
```

Whoops. Two buffers with the mystery 100% tag. And what's that horizontal thingie?

If the first element in one of the split is horizontal, Gnus will split the window horizontally, giving you two windows side-by-side. Inside each of these strips you may carry on all you like in the normal fashion. The number following horizontal says what percentage of the screen is to be given to this strip.

For each split, there *must* be one element that has the 100% tag. The splitting is never accurate, and this buffer will eat any leftover lines from the splits.

To be slightly more formal, here's a definition of what a valid split may look like:

```
split      = frame | horizontal | vertical | buffer | form
frame      = "(frame " size *split ")"
horizontal = "(horizontal " size *split ")"
vertical   = "(vertical " size *split ")"
buffer     = "(" buf-name " " size *[ "point" ] *[ "frame-focus"] ")"
size       = number | frame-params
buf-name   = group | article | summary ...
```

The limitations are that the frame split can only appear as the top-level split. form should be an Emacs Lisp form that should return a valid split. We see that each split is fully recursive, and may contain any number of vertical and horizontal splits.

Finding the right sizes can be a bit complicated. No window may be less than gnus-window-min-height (default 1) characters high, and all windows must be at least gnus-window-min-width (default 1) characters wide. Gnus will try to enforce this before applying the splits. If you want to use the normal Emacs window width/height limit, you can just set these two variables to nil.

If you're not familiar with Emacs terminology, horizontal and vertical splits may work the opposite way of what you'd expect. Windows inside a horizontal split are shown side-by-side, and windows within a vertical split are shown above each other.

If you want to experiment with window placement, a good tip is to call gnus-configure-frame directly with a split. This is the function that does all the real work when splitting buffers. Below is a pretty nonsensical configuration with 5 windows; two for the group buffer and three for the article buffer. (I said it was nonsensical.) If you eval the statement below, you can get an idea of how that would look straight away, without going through the normal Gnus channels. Play with it until you're satisfied, and then use gnus-add-configuration to add your new creation to the buffer configuration list.

```
(gnus-configure-frame
 '(horizontal 1.0
    (vertical 10
      (group 1.0)
      (article 0.3 point))
    (vertical 1.0
      (article 1.0)
      (horizontal 4
        (group 1.0)
        (article 10)))))
```

You might want to have several frames as well. No prob—just use the frame split:

```
(gnus-configure-frame
 '(frame 1.0
         (vertical 1.0
                   (summary 0.25 point frame-focus)
                   (article 1.0))
         (vertical ((height . 5) (width . 15)
                    (user-position . t)
                    (left . -1) (top . 1))
                   (picon 1.0))))
```

This split will result in the familiar summary/article window configuration in the first (or "main") frame, while a small additional frame will be created where picons will be shown. As you can see, instead of the normal 1.0 top-level spec, each additional split should have a frame parameter alist as the size spec. See "Frame Parameters, , Frame Parameters, elisp, The GNU Emacs Lisp Reference Manual" on page ??. Under XEmacs, a frame property list will be accepted, too—for instance, (height 5 width 15 left -1 top 1) is such a plist. The list of all possible keys for gnus-buffer-configuration can be found in its default value.

Note that the message key is used for both gnus-group-mail and gnus-summary-mail-other-window. If it is desirable to distinguish between the two, something like this might be used:

```
(message (horizontal 1.0
                     (vertical 1.0 (message 1.0 point))
                     (vertical 0.24
                               (if (buffer-live-p gnus-summary-buffer
                                   '(summary 0.5))
                               (group 1.0))))
```

One common desire for a multiple frame split is to have a separate frame for composing mail and news while leaving the original frame intact. To accomplish that, something like the following can be done:

```
(message
  (frame 1.0
         (if (not (buffer-live-p gnus-summary-buffer))
             (car (cdr (assoc 'group gnus-buffer-configuration)))
           (car (cdr (assoc 'summary gnus-buffer-configuration))))
         (vertical ((user-position . t) (top . 1) (left . 1)
                    (name . "Message"))
                   (message 1.0 point))))
```

Since the gnus-buffer-configuration variable is so long and complicated, there's a function you can use to ease changing the config of a single setting: gnus-add-configuration. If, for instance, you want to change the article setting, you could say:

```
(gnus-add-configuration
 '(article (vertical 1.0
                (group 4)
                (summary .25 point)
                (article 1.0))))
```

You'd typically stick these gnus-add-configuration calls in your '~/.gnus.el' file or in some startup hook—they should be run after Gnus has been loaded.

If all windows mentioned in the configuration are already visible, Gnus won't change the window configuration. If you always want to force the "right" window configuration, you can set gnus-always-force-window-configuration to non-nil.

If you're using tree displays (see "Tree Display" on page 112), and the tree window is displayed vertically next to another window, you may also want to fiddle with gnus-tree-minimize-window to avoid having the windows resized.

### 12.5.1 Example Window Configurations

- Narrow left hand side occupied by group buffer. Right hand side split between summary buffer (top one-sixth) and article buffer (bottom).

```
(gnus-add-configuration
 '(article
   (horizontal 1.0
               (vertical 25 (group 1.0))
               (vertical 1.0
                         (summary 0.16 point)
                         (article 1.0)))))
```

```
(gnus-add-configuration
 '(summary
   (horizontal 1.0
               (vertical 25 (group 1.0))
               (vertical 1.0 (summary 1.0 point)))))
```

## 12.6 Faces and Fonts

Fiddling with fonts and faces used to be very difficult, but these days it is very simple. You simply say 'M-x customize-face', pick out the face you want to alter, and alter it via the standard Customize interface.

## 12.7 Compilation

Remember all those line format specification variables? gnus-summary-line-format, gnus-group-line-format, and so on. Now, Gnus will of course heed whatever these variables are, but, unfortunately, changing them will mean a quite significant slow-down. (The default values of these variables have byte-compiled functions associated with them, while the user-generated versions do not, of course.)

To help with this, you can run 'M-x gnus-compile' after you've fiddled around with the variables and feel that you're (kind of) satisfied. This will result in the new specs being byte-compiled, and you'll get top speed again. Gnus will save these compiled specs in the '.newsrc.eld' file. (User-defined functions aren't compiled by this function, though—you should compile them yourself by sticking them into the '~/.gnus.el' file and byte-compiling that file.)

## 12.8 Mode Lines

gnus-updated-mode-lines says what buffers should keep their mode lines updated. It is a list of symbols. Supported symbols include group, article, summary, server, browse, and tree. If the corresponding symbol is present, Gnus will keep that mode line updated with information that may be pertinent. If this variable is nil, screen refresh may be quicker.

By default, Gnus displays information on the current article in the mode lines of the summary and article buffers. The information Gnus wishes to display (e.g. the subject of the article) is often longer than the mode lines, and therefore have to be cut off at some point. The gnus-mode-non-string-length variable says how long the other elements on the line is (i.e., the non-info part). If you put additional elements on the mode line (e.g. a clock), you should modify this variable:

```
(add-hook 'display-time-hook
```

```
(lambda () (setq gnus-mode-non-string-length
                 (+ 21
                    (if line-number-mode 5 0)
                    (if column-number-mode 4 0)
                    (length display-time-string)))))
```

If this variable is nil (which is the default), the mode line strings won't be chopped off, and they won't be padded either. Note that the default is unlikely to be desirable, as even the percentage complete in the buffer may be crowded off the mode line; the user should configure this variable appropriately for her configuration.

## 12.9 Highlighting and Menus

The gnus-visual variable controls most of the Gnus-prettifying aspects. If nil, Gnus won't attempt to create menus or use fancy colors or fonts. This will also inhibit loading the 'gnus-vis.el' file.

This variable can be a list of visual properties that are enabled. The following elements are valid, and are all included by default:

group-highlight Do highlights in the group buffer.

summary-highlight Do highlights in the summary buffer.

article-highlight Do highlights in the article buffer.

highlight Turn on highlighting in all buffers.

group-menu Create menus in the group buffer.

summary-menu Create menus in the summary buffers.

article-menu Create menus in the article buffer.

browse-menu Create menus in the browse buffer.

server-menu Create menus in the server buffer.

score-menu Create menus in the score buffers.

menu Create menus in all buffers.

So if you only want highlighting in the article buffer and menus in all buffers, you could say something like:

```
(setq gnus-visual '(article-highlight menu))
```

If you want highlighting only and no menus whatsoever, you'd say:

```
(setq gnus-visual '(highlight))
```

If gnus-visual is t, highlighting and menus will be used in all Gnus buffers.

Other general variables that influence the look of all buffers include:

gnus-mouse-face This is the face (i.e., font) used for mouse highlighting in Gnus. No mouse highlights will be done if gnus-visual is nil.

There are hooks associated with the creation of all the different menus:

gnus-article-menu-hook Hook called after creating the article mode menu.

gnus-group-menu-hook Hook called after creating the group mode menu.

gnus-summary-menu-hook Hook called after creating the summary mode menu.

gnus-server-menu-hook Hook called after creating the server mode menu.

gnus-browse-menu-hook Hook called after creating the browse mode menu.

gnus-score-menu-hook Hook called after creating the score mode menu.

## 12.10 Buttons

Those new-fangled *mouse* contraptions is very popular with the young, hep kids who don't want to learn the proper way to do things these days. Why, I remember way back in the summer of '89, when I was using Emacs on a Tops 20 system. Three hundred users on one single machine, and every user was running Simula compilers. Bah!

Right.

Well, you can make Gnus display bufferfuls of buttons you can click to do anything by setting gnus-carpal to t. Pretty simple, really. Tell the chiropractor I sent you.

gnus-carpal-mode-hook Hook run in all carpal mode buffers.

gnus-carpal-button-face Face used on buttons.

gnus-carpal-header-face Face used on carpal buffer headers.

gnus-carpal-group-buffer-buttons Buttons in the group buffer.

gnus-carpal-summary-buffer-buttons Buttons in the summary buffer.

gnus-carpal-server-buffer-buttons Buttons in the server buffer.

gnus-carpal-browse-buffer-buttons Buttons in the browse buffer.

All the buttons variables are lists. The elements in these list are either cons cells where the car contains a text to be displayed and the cdr contains a function symbol, or a simple string.

## 12.11 Daemons

Gnus, being larger than any program ever written (allegedly), does lots of strange stuff that you may wish to have done while you're not present. For instance, you may want it to check for new mail once in a while. Or you may want it to close down all connections to all servers when you leave Emacs idle. And stuff like that.

Gnus will let you do stuff like that by defining various *handlers*. Each handler consists of three elements: A function, a time, and an idle parameter.

Here's an example of a handler that closes connections when Emacs has been idle for thirty minutes:

```
(gnus-demon-close-connections nil 30)
```

Here's a handler that scans for PGP headers every hour when Emacs is idle:

```
(gnus-demon-scan-pgp 60 t)
```

This time parameter and that idle parameter work together in a strange, but wonderful fashion. Basically, if idle is nil, then the function will be called every time minutes.

If idle is t, then the function will be called after time minutes only if Emacs is idle. So if Emacs is never idle, the function will never be called. But once Emacs goes idle, the function will be called every time minutes.

If idle is a number and time is a number, the function will be called every time minutes only when Emacs has been idle for idle minutes.

If idle is a number and time is nil, the function will be called once every time Emacs has been idle for idle minutes.

And if time is a string, it should look like "07:31", and the function will then be called once every day somewhere near that time. Modified by the idle parameter, of course.

(When I say "minute" here, I really mean gnus-demon-timestep seconds. This is 60 by default. If you change that variable, all the timings in the handlers will be affected.)

So, if you want to add a handler, you could put something like this in your '~/.gnus.el' file:

```
(gnus-demon-add-handler 'gnus-demon-close-connections 30 t)
```

Some ready-made functions to do this have been created: gnus-demon-add-nocem, gnus-demon-add-disconnection, gnus-demon-add-nntp-close-connection, gnus-demon-add-scan-timestamps, gnus-demon-add-rescan, and gnus-demon-add-scanmail. Just put those functions in your '~/.gnus.el' if you want those abilities.

If you add handlers to gnus-demon-handlers directly, you should run gnus-demon-init to make the changes take hold. To cancel all daemons, you can use the gnus-demon-cancel function.

Note that adding daemons can be pretty naughty if you over do it. Adding functions that scan all news and mail from all servers every two seconds is a sure-fire way of getting booted off any respectable system. So behave.

## 12.12 NoCeM

*Spamming* is posting the same article lots and lots of times. Spamming is bad. Spamming is evil.

Spamming is usually canceled within a day or so by various anti-spamming agencies. These agencies usually also send out *NoCeM* messages. NoCeM is pronounced "no see-'em", and means what the name implies—these are messages that make the offending articles, like, go away.

What use are these NoCeM messages if the articles are canceled anyway? Some sites do not honor cancel messages and some sites just honor cancels from a select few people. Then you may wish to make use of the NoCeM messages, which are distributed in the "alt.nocem.misc" newsgroup.

Gnus can read and parse the messages in this group automatically, and this will make spam disappear.

There are some variables to customize, of course:

gnus-use-nocem Set this variable to t to set the ball rolling. It is nil by default.

gnus-nocem-groups Gnus will look for NoCeM messages in the groups in this list. The default is

```
("news.lists.filters" "news.admin.net-abuse.bulletins"
 "alt.nocem.misc" "news.admin.net-abuse.announce")
```

gnus-nocem-issuers There are many people issuing NoCeM messages. This list says what people you want to listen to. The default is

```
("Automoose-1" "clewis@ferret.ocunix.on.ca"
 "cosmo.roadkill" "SpamHippo" "hweede@snafu.de")
```

fine, upstanding citizens all of them.

Known despammers that you can put in this list are listed at http://www.xs4all.nl/~rosalind/nocemreg/nocemreg.html.

You do not have to heed NoCeM messages from all these people—just the ones you want to listen to. You also don't have to accept all NoCeM messages from the people you like. Each NoCeM message has a *type* header that gives the message a (more or less, usually less) rigorous definition. Common types are "spam", "spew", "mmf", "binary", and "troll". To specify this, you have to use (issuer conditions ...) elements in the list. Each condition is either a string (which is a regexp that matches types you want to use) or a list on the

form (not string), where string is a regexp that matches types you don't want to use.

For instance, if you want all NoCeM messages from Chris Lewis except his "troll" messages, you'd say:

```
("clewis@ferret.ocunix.on.ca" ".*" (not "troll"))
```

On the other hand, if you just want nothing but his "spam" and "spew" messages, you'd say:

```
("clewis@ferret.ocunix.on.ca" (not ".*") "spew" "spam")
```

The specs are applied left-to-right.

gnus-nocem-verifyer This should be a function for verifying that the NoCeM issuer is who she says she is. The default is mc-verify, which is a Mailcrypt function. If this is too slow and you don't care for verification (which may be dangerous), you can set this variable to nil.

If you want signed NoCeM messages to be verified and unsigned messages not to be verified (but used anyway), you could do something like:

```
(setq gnus-nocem-verifyer 'my-gnus-mc-verify)

(defun my-gnus-mc-verify ()
  (not (eq 'forged
           (ignore-errors
             (if (mc-verify)
                 t
               'forged)))))
```

This might be dangerous, though.

gnus-nocem-directory This is where Gnus will store its NoCeM cache files. The default is
'~/News/NoCeM/'.

gnus-nocem-expiry-wait The number of days before removing old NoCeM entries from the cache. The default is 15. If you make it shorter Gnus will be faster, but you might then see old spam.

gnus-nocem-check-from Non-nil means check for valid issuers in message bodies. Otherwise don't bother fetching articles unless their author matches a valid issuer; that is much faster if you are selective about the issuers.

gnus-nocem-check-article-limit If non-nil, the maximum number of articles to check in any NoCeM group. NoCeM groups can be huge and very slow to process.

Using NoCeM could potentially be a memory hog. If you have many living (i. e., subscribed or unsubscribed groups), your Emacs process will grow big. If this is a problem, you should kill off all (or most) of your unsubscribed groups (see "Subscription Commands" on page 20).

## 12.13 Undo

It is very useful to be able to undo actions one has done. In normal Emacs buffers, it's easy enough—you just push the undo button. In Gnus buffers, however, it isn't that simple.

The things Gnus displays in its buffer is of no value whatsoever to Gnus—it's all just data designed to look nice to the user. Killing a group in the group buffer with 'C-k' makes the line disappear, but that's just a side-effect of the real action—the removal of the group in question from the internal Gnus structures. Undoing something like that can't be done by the normal Emacs undo function.

Gnus tries to remedy this somewhat by keeping track of what the user does and coming up with actions that would reverse the actions the user takes. When the user then presses the undo key, Gnus will run the code to reverse the previous action, or the previous actions. However, not all actions are easily reversible, so Gnus currently offers a few key functions to be undoable. These include killing groups, yanking groups, and changing the list of read articles of groups. That's it, really. More functions may be added in the future, but each added function means an increase in data to be stored, so Gnus will never be totally undoable.

The undoability is provided by the gnus-undo-mode minor mode. It is used if gnus-use-undo is non-nil, which is the default. The 'C-M-' key performs the gnus-undo command, which should feel kinda like the normal Emacs undo command.

## 12.14 Predicate Specifiers

Some Gnus variables are *predicate specifiers*. This is a special form that allows flexible specification of predicates without having to type all that much.

These specifiers are lists consisting of functions, symbols and lists.

Here's an example:

```
(or gnus-article-unseen-p
    gnus-article-unread-p)
```

The available symbols are or, and and not. The functions all take one parameter.

Internally, Gnus calls gnus-make-predicate on these specifiers to create a function that can be called. This input parameter to this function will be passed along to all the functions in the predicate specifier.

## 12.15 Moderation

If you are a moderator, you can use the 'gnus-mdrtn.el' package. It is not included in the standard Gnus package. Write a mail to "larsi@gnus.org" and state what group you moderate, and you'll get a copy.

The moderation package is implemented as a minor mode for summary buffers. Put

```
(add-hook 'gnus-summary-mode-hook 'gnus-moderate)
```

in your '~/.gnus.el' file.

If you are the moderator of "rec.zoofle", this is how it's supposed to work:

1. You split your incoming mail by matching on "Newsgroups:.*rec.zoofle", which will put all the to-be-posted articles in some mail group—for instance, "nnml:rec.zoofle".
2. You enter that group once in a while and post articles using the 'e' (edit-and-post) or 's' (just send unedited) commands.
3. If, while reading the "rec.zoofle" newsgroup, you happen upon some articles that weren't approved by you, you can cancel them with the 'c' command.

To use moderation mode in these two groups, say:

```
(setq gnus-moderated-list
      "^nnml:rec.zoofle$\\|^rec.zoofle$")
```

## 12.16 Image Enhancements

XEmacs, as well as Emacs 21[1], is able to display pictures and stuff, so Gnus has taken advantage of that.

### 12.16.1 X-Face

X-Face headers describe a 48x48 pixel black-and-white (1 bit depth) image that's supposed to represent the author of the message. It seems to be supported by an ever-growing number of mail and news readers.

[1] Emacs 21 on MS Windows doesn't support images yet.

Decoding an X-Face header either requires an Emacs that has "compface" support (which most XEmacs versions has), or that you have "compface" installed on your system. If either is true, Gnus will default to displaying X-Face headers.

The variable that controls this is the gnus-article-x-face-command variable. If this variable is a string, this string will be executed in a sub-shell. If it is a function, this function will be called with the face as the argument. If the gnus-article-x-face-too-ugly (which is a regexp) matches the From header, the face will not be shown.

The default action under Emacs 20 is to fork off the display program[2] to view the face.

Under XEmacs or Emacs 21+ with suitable image support, the default action is to display the face before the From header. (It's nicer if XEmacs has been compiled with X-Face support—that will make display somewhat faster. If there's no native X-Face support, Gnus will try to convert the X-Face header using external programs from the pbmplus package and friends.[3])

(Note: x-face is used in the variable/function names, not xface).

Gnus provides a few convenience functions and variables to allow easier insertion of X-Face headers in outgoing messages.

gnus-random-x-face goes through all the "pbm" files in gnus-x-face-directory and picks one at random, and then converts it to the X-Face format by using the gnus-convert-pbm-to-x-face-command shell command. The "pbm" files should be 48x48 pixels big. It returns the X-Face header data as a string.

gnus-insert-random-x-face-header calls gnus-random-x-face and inserts a "X-Face" header with the randomly generated data.

gnus-x-face-from-file takes a GIF file as the parameter, and then converts the file to X-Face format by using the gnus-convert-image-to-x-face-command shell command.

Here's how you would typically use the first function. Put something like the following in your '~/.gnus.el' file:

```
(setq message-required-news-headers
      (nconc message-required-news-headers
             (list '(X-Face . gnus-random-x-face))))
```

Using the last function would be something like this:

```
(setq message-required-news-headers
      (nconc message-required-news-headers
             (list '(X-Face . (lambda ()
                                (gnus-x-face-from-file
                                 "~/My-face.gif"))))))
```

[2]display is from the ImageMagick package. For the uncompface and icontopbm programs look for a package like compface or faces-xface on a GNU/Linux system.

[3]On a GNU/Linux system look for packages with names like netpbm, libgr-progs and compface.

### 12.16.2 Face

Face headers are essentially a funkier version of X-Face ones. They describe a 48x48 pixel colored image that's supposed to represent the author of the message.

The contents of a Face header must be a base64 encoded PNG image. See http://quimby.gnus.org/circus/face/ for the precise specifications.

Gnus provides a few convenience functions and variables to allow easier insertion of Face headers in outgoing messages.

gnus-convert-png-to-face takes a 48x48 PNG image, no longer than 726 bytes long, and converts it to a face.

gnus-face-from-file takes a JPEG file as the parameter, and then converts the file to Face format by using the gnus-convert-image-to-face-command shell command.

Here's how you would typically use this function. Put something like the following in your '~/.gnus.el' file:

```
(setq message-required-news-headers
      (nconc message-required-news-headers
             (list '(Face . (lambda ()
                              (gnus-face-from-file "~/face.jpg"))))))
```

### 12.16.3 Smileys

*Smiley* is a package separate from Gnus, but since Gnus is currently the only package that uses Smiley, it is documented here.

In short—to use Smiley in Gnus, put the following in your '~/.gnus.el' file:

```
(setq gnus-treat-display-smileys t)
```

Smiley maps text smiley faces—":-)", "8-)", ":-(" and the like—to pictures and displays those instead of the text smiley faces. The conversion is controlled by a list of regexps that matches text and maps that to file names.

The alist used is specified by the smiley-regexp-alist variable. The first item in each element is the regexp to be matched; the second element is the regexp match group that is to be replaced by the picture; and the third element is the name of the file to be displayed.

The following variables customize where Smiley will look for these files:

smiley-data-directory Where Smiley will look for smiley faces files.

gnus-smiley-file-types List of suffixes on smiley file names to try.

### 12.16.4 Picons

So... You want to slow down your news reader even more! This is a good way to do so. It's also a great way to impress people staring over your shoulder as you read news.

What are Picons? To quote directly from the Picons Web site:

> *Picons* is short for "personal icons". They're small, constrained images used to represent users and domains on the net, organized into databases so that the appropriate image for a given e-mail address can be found. Besides users and domains, there are picon databases for Usenet newsgroups and weather forecasts. The picons are in either monochrome XBM format or color XPM and GIF formats.

For instructions on obtaining and installing the picons databases, point your Web browser at http://www.cs.indiana.edu/picons/ftp/index.html.

If you are using Debian GNU/Linux, saying "apt-get install picons.*" will install the picons where Gnus can find them.

To enable displaying picons, simply make sure that gnus-picon-databases points to the directory containing the Picons databases.

The following variables offer control over where things are located.

gnus-picon-databases The location of the picons database. This is a list of directories containing the 'news', 'domains', 'users' (and so on) subdirectories. Defaults to ("/usr/lib/picon" "/usr/local/faces").

gnus-picon-news-directories List of subdirectories to search in gnus-picon-databases for newsgroups faces. ("news") is the default.

gnus-picon-user-directories List of subdirectories to search in gnus-picon-databases for user faces. ("users" "usenix" "local" "misc") is the default.

gnus-picon-domain-directories List of subdirectories to search in gnus-picon-databases for domain name faces. Defaults to ("domains"). Some people may want to add ""unknown"" to this list.

gnus-picon-file-types Ordered list of suffixes on picon file names to try. Defaults to ("xpm" "gif" "xbm") minus those not built-in your Emacs.

### 12.16.5 Various XEmacs Variables

gnus-xmas-glyph-directory This is where Gnus will look for pictures. Gnus will normally auto-detect this directory, but you may set it manually if you have an unusual directory structure.

gnus-xmas-logo-color-alist This is an alist where the key is a type symbol and the values are the foreground and background color of the splash page glyph.

gnus-xmas-logo-color-style This is the key used to look up the color in the alist described above. Valid values include flame, pine, moss, irish, sky, tin, velvet, grape, labia, berry, neutral, and september.

gnus-xmas-modeline-glyph A glyph displayed in all Gnus mode lines. It is a tiny gnu head by default.

#### 12.16.5.1 Toolbar

gnus-use-toolbar If nil, don't display toolbars. If non-nil, it should be one of default-toolbar, top-toolbar, bottom-toolbar, right-toolbar, or left-toolbar.

gnus-group-toolbar The toolbar in the group buffer.

gnus-summary-toolbar The toolbar in the summary buffer.

gnus-summary-mail-toolbar The toolbar in the summary buffer of mail groups.

## 12.17 Fuzzy Matching

Gnus provides *fuzzy matching* of Subject lines when doing things like scoring, thread gathering and thread comparison.

As opposed to regular expression matching, fuzzy matching is very fuzzy. It's so fuzzy that there's not even a definition of what *fuzziness* means, and the implementation has changed over time.

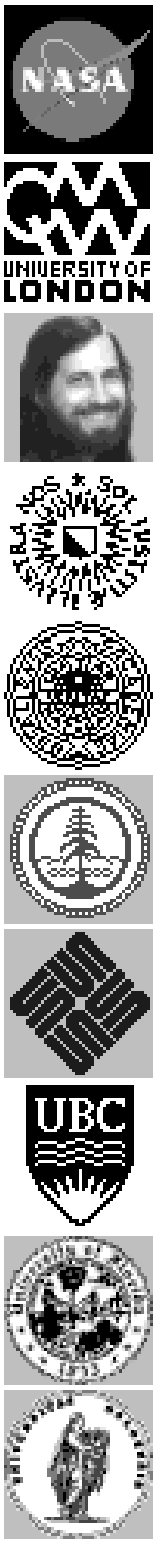
Basically, it tries to remove all noise from lines before comparing. "Re: ", parenthetical remarks, white space, and so on, are filtered out of the strings before comparing the results. This often leads to adequate results—even when faced with strings generated by text manglers masquerading as newsreaders.

## 12.18 Thwarting Email Spam

In these last days of the Usenet, commercial vultures are hanging about and grepping through news like crazy to find email addresses they can foist off their scams and products to. As a reaction to this, many people have started putting nonsense addresses into their From lines. I think this is counterproductive—it makes it difficult for people to send you legitimate mail in response to things you write, as well as making it difficult to see who wrote what. This rewriting may perhaps be a bigger menace than the unsolicited commercial email itself in the end.

The biggest problem I have with email spam is that it comes in under false pretenses. I press 'g' and Gnus merrily informs me that I have 10 new emails. I say "Golly gee! Happy is me!" and select the mail group, only to find two pyramid schemes, seven advertisements ("New! Miracle tonic for growing full, lustrous hair on your toes!") and one mail asking me to repent and find some god.

This is annoying. Here's what you can do about it.



### 12.18.1 The problem of spam

First, some background on spam.

If you have access to e-mail, you are familiar with spam (technically termed UCE, Unsolicited Commercial E-mail). Simply put, it exists because e-mail delivery is very cheap compared to paper mail, so only a very small percentage of people need to respond to an UCE to make it worthwhile to the advertiser. Ironically, one of the most common spams is the one offering a database of e-mail addresses for further spamming. Senders of spam are usually called *spammers*, but terms like *vermin*, *scum*, and *morons* are in common use as well.

Spam comes from a wide variety of sources. It is simply impossible to dispose of all spam without discarding useful messages. A good example is the TMDA system, which requires senders unknown to you to confirm themselves as legitimate senders before their e-mail can reach you. Without getting into the technical side of TMDA, a downside is clearly that e-mail from legitimate sources may be discarded if those sources can't or won't confirm themselves through the TMDA system. Another problem with TMDA is that it requires its users to have a basic understanding of e-mail delivery and processing.

The simplest approach to filtering spam is filtering. If you get 200 spam messages per day from "random-address@vmadmin.com", you block "vmadmin.com". If you get 200 messages about "VIAGRA", you discard all messages with "VIAGRA" in the message. This, unfortunately, is a great way to discard legitimate e-mail. For instance, the very informative and useful RISKS digest has been blocked by overzealous mail filters because it **contained** words that were common in spam messages. Nevertheless, in isolated cases, with great care, direct filtering of mail can be useful.

Another approach to filtering e-mail is the distributed spam processing, for instance DCC implements such a system. In essence, N systems around the world agree that a machine X in China, Ghana, or California is sending out spam e-mail, and these N systems enter X or the spam e-mail from X into a database. The criteria for spam detection vary—it may be the number of messages sent, the content of the messages, and so on. When a user of the distributed processing system wants to find out if a message is spam, he consults one of those N systems.

Distributed spam processing works very well against spammers that send a large number of messages at once, but it requires the user to set up fairly complicated checks. There are commercial and free distributed spam processing systems. Distributed spam processing has its risks as well. For instance legitimate e-mail senders have been accused of sending spam, and their web sites have been shut down for some time because of the incident.

The statistical approach to spam filtering is also popular. It is based on a statistical analysis of previous spam messages. Usually the analysis is a simple word frequency count, with perhaps pairs of words or 3-word combinations thrown into the mix. Statistical analysis of spam works very well in most of the cases, but it can classify legitimate e-mail as spam in some cases. It takes time to run the analysis, the full

message must be analyzed, and the user has to store the database of spam analyses.

### 12.18.2 Anti-Spam Basics

One way of dealing with spam is having Gnus split out all spam into a "spam" mail group (see "Splitting Mail" on page 159).

First, pick one (1) valid mail address that you can be reached at, and put it in your From header of all your news articles. (I've chosen "larsi@trym.ifi.uio.no", but for many addresses on the form "larsi+usenet@ifi.uio.no" will be a better choice. Ask your sysadmin whether your sendmail installation accepts keywords in the local part of the mail address.)

```
(setq message-default-news-headers
      "From: Lars Magne Ingebrigtsen <larsi@trym.ifi.uio.no>\n")
```

Then put the following split rule in nnmail-split-fancy (see "Fancy Mail Splitting" on page 169):

```
(
 ...
 (to "larsi@trym.ifi.uio.no"
      (| ("subject" "re:.*" "misc")
         ("references" ".*@.*" "misc")
         "spam"))
 ...
)
```

This says that all mail to this address is suspect, but if it has a Subject that starts with a "Re:" or has a References header, it's probably ok. All the rest goes to the "spam" group. (This idea probably comes from Tim Pierce.)

In addition, many mail spammers talk directly to your SMTP server and do not include your email address explicitly in the To header. Why they do this is unknown—perhaps it's to thwart this thwarting scheme? In any case, this is trivial to deal with—you just put anything not addressed to you in the "spam" group by ending your fancy split rule in this way:

```
(
 ...
 (to "larsi" "misc")
 "spam")
```

In my experience, this will sort virtually everything into the right group. You still have to check the "spam" group from time to time to check for legitimate mail, though. If you feel like being a good net citizen, you can even send off complaints to the proper authorities on each unsolicited commercial email—at your leisure.

This works for me. It allows people an easy way to contact me (they can just press 'r' in the usual way), and I'm not bothered at all with spam. It's a win-win situation. Forging From headers to point to non-existent domains is yucky, in my opinion.

### 12.18.3 SpamAssassin, Vipul's Razor, DCC, etc

The days where the hints in the previous section was sufficient in avoiding spam are coming to an end. There are many tools out there that claim to reduce the amount of spam you get. This section could easily become outdated fast, as new products replace old, but fortunately most of these tools seem to have similar interfaces. Even though this section will use SpamAssassin as an example, it should be easy to adapt it to most other tools.

If the tool you are using is not installed on the mail server, you need to invoke it yourself. Ideas on how to use the :postscript mail source parameter (see "Mail Source Specifiers" on page 161) follow.

```
(setq mail-sources
      '((file :prescript "formail -bs spamassassin < /var/mail/%u")
        (pop :user "jrl"
             :server "pophost"
             :postscript "mv %t /tmp/foo; formail -bs spamc < /tmp/fo
```

Once you manage to process your incoming spool somehow, thus making the mail contain e.g. filter it out. Using normal split methods (see "Splitting Mail" on page 159):

```
(setq nnmail-split-methods '(("spam"  "^X-Spam-Flag: YES")
                             ...))
```

Or using fancy split methods (see "Fancy Mail Splitting" on page 169):

```
(setq nnmail-split-methods 'nnmail-split-fancy
      nnmail-split-fancy '(| ("X-Spam-Flag" "YES" "spam")
                             ...))
```

Some people might not like the idea of piping the mail through various programs using a :prescript (if some program is buggy, you might lose all mail). If you are one of them, another solution is to call the external tools during splitting. Example fancy split method:

```
(setq nnmail-split-fancy '(| (: kevin-spamassassin)
                             ...))
(defun kevin-spamassassin ()
  (save-excursion
```

```
    (widen)
    (if (eq 1 (call-process-region (point-min) (point-max)
   "spamc" nil nil nil "-c"))
"spam")))
```

Note that with the nnimap backend, message bodies will not be downloaded by default. You need to set nnimap-split-download-body to t to do that (see "Splitting in IMAP" on page 201).

That is about it. As some spam is likely to get through anyway, you might want to have a nifty function to call when you happen to read spam. And here is the nifty function:

```
(defun my-gnus-raze-spam ()
 "Submit SPAM to Vipul's Razor, then mark it as expirable."
 (interactive)
 (gnus-summary-show-raw-article)
 (gnus-summary-save-in-pipe "razor-report -f -d")
 (gnus-summary-mark-as-expirable 1))
```

### 12.18.4 Hashcash

A novel technique to fight spam is to require senders to do something costly for each message they send. This has the obvious drawback that you cannot rely on everyone in the world using this technique, since it is not part of the Internet standards, but it may be useful in smaller communities.

While the tools in the previous section work well in practice, they work only because the tools are constantly maintained and updated as new form of spam appears. This means that a small percentage of spam will always get through. It also means that somewhere, someone needs to read lots of spam to update these tools. Hashcash avoids that, but instead requires that everyone you communicate with supports the scheme. You can view the two approaches as pragmatic vs dogmatic. The approaches have their own advantages and disadvantages, but as often in the real world, a combination of them is stronger than either one of them separately.

The "something costly" is to burn CPU time, more specifically to compute a hash collision up to a certain number of bits. The resulting hashcash cookie is inserted in a "X-Hashcash:" header. For more details, and for the external application hashcash you need to install to use this feature, see http://www.cypherspace.org/~adam/hashcash/. Even more information can be found at http://www.camram.org/.

If you wish to call hashcash for each message you send, say something like:

```
(require 'hashcash)
(add-hook 'message-send-hook 'mail-add-payment)
```

The 'hashcash.el' library can be found in the Gnus development contrib directory or at http://users.actrix.gen.nz/mycroft/hashcash.el.

You will need to set up some additional variables as well:

hashcash-default-payment This variable indicates the default number of bits the hash collision should consist of. By default this is 0, meaning nothing will be done. Suggested useful values include 17 to 29.

hashcash-payment-alist Some receivers may require you to spend burn more CPU time than the default. This variable contains a list of "(addr amount)" cells, where addr is the receiver (email address or newsgroup) and amount is the number of bits in the collision that is needed. It can also contain "(addr string amount)" cells, where the string is the string to use (normally the email address or newsgroup name is used).

hashcash Where the hashcash binary is installed.

Currently there is no built in functionality in Gnus to verify hashcash cookies, it is expected that this is performed by your hand customized mail filtering scripts. Improvements in this area would be a useful contribution, however.

### 12.18.5 Filtering Spam Using The Spam ELisp Package

The idea behind 'spam.el' is to have a control center for spam detection and filtering in Gnus. To that end, 'spam.el' does two things: it filters incoming mail, and it analyzes mail known to be spam or ham. *Ham* is the name used throughout 'spam.el' to indicate non-spam messages.

So, what happens when you load 'spam.el'?

First of all, you **must** set the variable spam-install-hooks to t and install the spam.el hooks:

```
(setq spam-install-hooks t)
(spam-install-hooks-function)
```

This is automatically done for you if you load spam.el *after* one of the spam-use-* variables explained later are set. So you should load spam.el after you set one of the spam-use-* variables:

```
(setq spam-use-bogofilter t)
(require 'spam)
```

You get the following keyboard commands:

'M-d'
'M s x'

'S x' gnus-summary-mark-as-spam.

Mark current article as spam, showing it with the "$" mark. Whenever you see a spam article, make sure to mark its summary line with 'M-d' before leaving the group. This is done automatically for unread articles in *spam* groups.

'M s t'
'S t' spam-bogofilter-score.

You must have Bogofilter installed for that command to work properly.

See "Bogofilter" on page 356.

Also, when you load 'spam.el', you will be able to customize its variables. Try customize-group on the "spam" variable group.

The concepts of ham processors and spam processors are very important. Ham processors and spam processors for a group can be set with the spam-process group parameter, or the gnus-spam-process-newsgroups variable. Ham processors take mail known to be non-spam (*ham*) and process it in some way so that later similar mail will also be considered non-spam. Spam processors take mail known to be spam and process it so similar spam will be detected later.

Gnus learns from the spam you get. You have to collect your spam in one or more spam groups, and set or customize the variable spam-junk-mailgroups as appropriate. You can also declare groups to contain spam by setting their group parameter spam-contents to gnus-group-spam-classification-spam, or by customizing the corresponding variable gnus-spam-newsgroup-contents. The spam-contents group parameter and the gnus-spam-newsgroup-contents variable can also be used to declare groups as *ham* groups if you set their classification to gnus-group-spam-classification-ham. If groups are not classified by means of spam-junk-mailgroups, spam-contents, or gnus-spam-newsgroup-contents, they are considered *unclassified*. All groups are unclassified by default.

In spam groups, all messages are considered to be spam by default: they get the "$" mark (gnus-spam-mark) when you enter the group. If you have seen a message, had it marked as spam, then unmarked it, it won't be marked as spam when you enter the group thereafter. You can disable that behavior, so all unread messages will get the "$" mark, if you set the spam-mark-only-unseen-as-spam parameter to nil. You should remove the "$" mark when you are in the group summary buffer for every message that is not spam after all. To remove the "$" mark, you can use 'M-u' to "unread" the article, or 'd' for declaring it read the non-spam way. When you leave a group, all spam-marked ("$") articles are sent to a spam processor which will study them as spam samples.

Messages may also be deleted in various other ways, and unless ham-marks group parameter gets overridden below, marks "R" and "r" for default read or explicit delete, marks "X" and "K" for automatic or explicit kills, as well as mark "Y" for low scores, are all considered to be associated with articles which are not spam. This

assumption might be false, in particular if you use kill files or score files as means for detecting genuine spam, you should then adjust the ham-marks group parameter.

You can customize this group or topic parameter to be the list of marks you want to consider ham. By default, the list contains the deleted, read, killed, kill-filed, and low-score marks.

You can customize this group or topic parameter to be the list of marks you want to consider spam. By default, the list contains only the spam mark.

When you leave *any* group, regardless of its spam-contents classification, all spam-marked articles are sent to a spam processor, which will study these as spam samples. If you explicit kill a lot, you might sometimes end up with articles marked "K" which you never saw, and which might accidentally contain spam. Best is to make sure that real spam is marked with "$", and nothing else.

When you leave a *spam* group, all spam-marked articles are marked as expired after processing with the spam processor. This is not done for *unclassified* or *ham* groups. Also, any **ham** articles in a spam group will be moved to a location determined by either the ham-process-destination group parameter or a match in the gnus-ham-process-destinations variable, which is a list of regular expressions matched with group names (it's easiest to customize this variable with customize-variable gnus-ham-process-destinations). The ultimate location is a group name. If the ham-process-destination parameter is not set, ham articles are left in place. If the spam-mark-ham-unread-before-move-from-spam-group parameter is set, the ham articles are marked as unread before being moved.

When you leave a *ham* group, all ham-marked articles are sent to a ham processor, which will study these as non-spam samples.

By default the variable spam-process-ham-in-spam-groups is nil. Set it to t if you want ham found in spam groups to be processed. Normally this is not done, you are expected instead to send your ham to a ham group and process it there.

By default the variable spam-process-ham-in-nonham-groups is nil. Set it to t if you want ham found in non-ham (spam or unclassified) groups to be processed. Normally this is not done, you are expected instead to send your ham to a ham group and process it there.

When you leave a *ham* or *unclassified* group, all **spam** articles are moved to a location determined by either the spam-process-destination group parameter or a match in the gnus-spam-process-destinations variable, which is a list of regular expressions matched with group names (it's easiest to customize this variable with customize-variable gnus-spam-process-destinations). The ultimate location is a group name. If the spam-process-destination parameter is not set, the spam articles are only expired.

To use the 'spam.el' facilities for incoming mail filtering, you must add the following to your fancy split list nnmail-split-fancy or nnimap-split-fancy:

```
(: spam-split)
```

Note that the fancy split may be called nnmail-split-fancy or nnimap-split-fancy,

depending on whether you use the nnmail or nnimap back ends to retrieve your mail.

The spam-split function will process incoming mail and send the mail considered to be spam into the group name given by the variable spam-split-group. By default that group name is "spam", but you can customize spam-split-group.

You can also give spam-split a parameter, e.g. "'spam-use-regex-headers". Why is this useful?

Take these split rules (with spam-use-regex-headers and spam-use-blackholes set):

```
nnimap-split-fancy '(|
      (any "ding" "ding")
      (: spam-split)
      ;; default mailbox
      "mail")
```

Now, the problem is that you want all ding messages to make it to the ding folder. But that will let obvious spam (for example, spam detected by SpamAssassin, and spam-use-regex-headers) through, when it's sent to the ding list. On the other hand, some messages to the ding list are from a mail server in the blackhole list, so the invocation of spam-split can't be before the ding rule.

You can let SpamAssassin headers supersede ding rules, but all other spam-split rules (including a second invocation of the regex-headers check) will be after the ding rule:

```
nnimap-split-fancy '(|
      (: spam-split 'spam-use-regex-headers)
      (any "ding" "ding")
      (: spam-split)
      ;; default mailbox
      "mail")
```

Basically, this lets you invoke specific spam-split checks depending on your particular needs. You don't have to throw all mail into all the spam tests. Another reason why this is nice is that messages to mailing lists you have rules for don't have to have resource-intensive blackhole checks performed on them. You could also specify different spam checks for your nnmail split vs. your nnimap split. Go crazy.

You still have to have specific checks such as spam-use-regex-headers set to t, even if you specifically invoke spam-split with the check. The reason is that when loading 'spam.el', some conditional loading is done depending on what spam-use-xyz variables you have set.

*Note for IMAP users*

The boolean variable nnimap-split-download-body needs to be set, if you want to split based on the whole message instead of just the headers. By default, the

nnimap back end will only retrieve the message headers. If you use spam-check-bogofilter, spam-check-ifile, or spam-check-stat (the splitters that can benefit from the full message body), you should set this variable. It is not set by default because it will slow IMAP down, and that is not an appropriate decision to make on behalf of the user.

See "Splitting in IMAP" on page 201.

*TODO: Currently, spam.el only supports insertion of articles into a back end. There is no way to tell spam.el that an article is no longer spam or ham.*

*TODO: spam.el needs to provide a uniform way of training all the statistical databases. Some have that functionality built-in, others don't.*

The following are the methods you can use to control the behavior of spam-split and their corresponding spam and ham processors:

#### 12.18.5.1 Blacklists and Whitelists

Set this variable to t if you want to use blacklists when splitting incoming mail. Messages whose senders are in the blacklist will be sent to the spam-split-group. This is an explicit filter, meaning that it acts only on mail senders *declared* to be spammers.

Set this variable to t if you want to use whitelists when splitting incoming mail. Messages whose senders are not in the whitelist will be sent to the next spam-split rule. This is an explicit filter, meaning that unless someone is in the whitelist, their messages are not assumed to be spam or ham.

Set this variable to t if you want to use whitelists as an implicit filter, meaning that every message will be considered spam unless the sender is in the whitelist. Use with care.

Add this symbol to a group's spam-process parameter by customizing the group parameters or the gnus-spam-process-newsgroups variable. When this symbol is added to a group's spam-process parameter, the senders of spam-marked articles will be added to the blacklist.

Add this symbol to a group's spam-process parameter by customizing the group parameters or the gnus-spam-process-newsgroups variable. When this symbol is added to a group's spam-process parameter, the senders of ham-marked articles in *ham* groups will be added to the whitelist. Note that this ham processor has no effect in *spam* or *unclassified* groups.

Blacklists are lists of regular expressions matching addresses you consider to be spam senders. For instance, to block mail from any sender at "vmadmin.com", you can put "vmadmin.com" in your blacklist. You start out with an empty blacklist. Blacklist entries use the Emacs regular expression syntax.

Conversely, whitelists tell Gnus what addresses are considered legitimate. All messages from whitelisted addresses are considered non-spam. Also see "BBDB Whitelists" on page 355. Whitelist entries use the Emacs regular expression syntax.

The blacklist and whitelist file locations can be customized with the spam-directory variable ('~/News/spam' by default), or the spam-whitelist and spam-

blacklist variables directly. The whitelist and blacklist files will by default be in the spam-directory directory, named 'whitelist' and 'blacklist' respectively.

#### 12.18.5.2 BBDB Whitelists

Analogous to spam-use-whitelist (see "Blacklists and Whitelists" on page 354), but uses the BBDB as the source of whitelisted addresses, without regular expressions. You must have the BBDB loaded for spam-use-BBDB to work properly. Messages whose senders are not in the BBDB will be sent to the next spam-split rule. This is an explicit filter, meaning that unless someone is in the BBDB, their messages are not assumed to be spam or ham.

Set this variable to t if you want to use the BBDB as an implicit filter, meaning that every message will be considered spam unless the sender is in the BBDB. Use with care. Only sender addresses in the BBDB will be allowed through; all others will be classified as spammers.

Add this symbol to a group's spam-process parameter by customizing the group parameters or the gnus-spam-process-newsgroups variable. When this symbol is added to a group's spam-process parameter, the senders of ham-marked articles in *ham* groups will be added to the BBDB. Note that this ham processor has no effect in *spam* or *unclassified* groups.

#### 12.18.5.3 Gmane Spam Reporting

Add this symbol to a group's spam-process parameter by customizing the group parameters or the gnus-spam-process-newsgroups variable. When this symbol is added to a group's spam-process parameter, the spam-marked articles groups will be reported to the Gmane administrators via a HTTP request.

Gmane can be found at http://gmane.org.

This variable is t by default. Set it to nil if you are running your own news server, for instance, and the local article numbers don't correspond to the Gmane article numbers. When spam-report-gmane-use-article-number is nil, spam-report.el will use the X-Report-Spam header that Gmane provides.

#### 12.18.5.4 Anti-spam Hashcash Payments

Similar to spam-use-whitelist (see "Blacklists and Whitelists" on page 354), but uses hashcash tokens for whitelisting messages instead of the sender address. You must have the hashcash.el package loaded for spam-use-hashcash to work properly. Messages without a hashcash payment token will be sent to the next spam-split rule. This is an explicit filter, meaning that unless a hashcash token is found, the messages are not assumed to be spam or ham.

#### 12.18.5.5 Blackholes

This option is disabled by default. You can let Gnus consult the blackhole-type distributed spam processing systems (DCC, for instance) when you set this option.

The variable spam-blackhole-servers holds the list of blackhole servers Gnus will consult. The current list is fairly comprehensive, but make sure to let us know if it contains outdated servers.

The blackhole check uses the dig.el package, but you can tell 'spam.el' to use dns.el instead for better performance if you set spam-use-dig to nil. It is not recommended at this time to set spam-use-dig to nil despite the possible performance improvements, because some users may be unable to use it, but you can try it and see if it works for you.

The list of servers to consult for blackhole checks.

A regular expression for IPs that should not be checked against the blackhole server list. When set to nil, it has no effect.

Use the dig.el package instead of the dns.el package. The default setting of t is recommended.

Blackhole checks are done only on incoming mail. There is no spam or ham processor for blackholes.

#### 12.18.5.6 Regular Expressions Header Matching

This option is disabled by default. You can let Gnus check the message headers against lists of regular expressions when you set this option. The variables spam-regex-headers-spam and spam-regex-headers-ham hold the list of regular expressions. Gnus will check against the message headers to determine if the message is spam or ham, respectively.

The list of regular expressions that, when matched in the headers of the message, positively identify it as spam.

The list of regular expressions that, when matched in the headers of the message, positively identify it as ham.

Regular expression header checks are done only on incoming mail. There is no specific spam or ham processor for regular expressions.

#### 12.18.5.7 Bogofilter

Set this variable if you want spam-split to use Eric Raymond's speedy Bogofilter.

With a minimum of care for associating the "$" mark for spam articles only, Bogofilter training all gets fairly automatic. You should do this until you get a few hundreds of articles in each category, spam or not. The command 'S t' in summary mode, either for debugging or for curiosity, shows the *spamicity* score of the current article (between 0.0 and 1.0).

Bogofilter determines if a message is spam based on a specific threshold. That threshold can be customized, consult the Bogofilter documentation.

If the bogofilter executable is not in your path, Bogofilter processing will be turned off.

You should not enable this if you use spam-use-bogofilter-headers.

Set this variable if you want spam-split to use Eric Raymond's speedy Bogofilter, looking only at the message headers. It works similarly to spam-use-bogofilter, but

the X-Bogosity header must be in the message already. Normally you would do this with a procmail recipe or something similar; consult the Bogofilter installation documents for details.

You should not enable this if you use spam-use-bogofilter.

Add this symbol to a group's spam-process parameter by customizing the group parameters or the gnus-spam-process-newsgroups variable. When this symbol is added to a group's spam-process parameter, spam-marked articles will be added to the Bogofilter spam database.

Add this symbol to a group's spam-process parameter by customizing the group parameters or the gnus-spam-process-newsgroups variable. When this symbol is added to a group's spam-process parameter, the ham-marked articles in *ham* groups will be added to the Bogofilter database of non-spam messages. Note that this ham processor has no effect in *spam* or *unclassified* groups.

This is the directory where Bogofilter will store its databases. It is not specified by default, so Bogofilter will use its own default database directory.

The Bogofilter mail classifier is similar to ifile in intent and purpose. A ham and a spam processor are provided, plus the spam-use-bogofilter and spam-use-bogofilter-headers variables to indicate to spam-split that Bogofilter should either be used, or has already been used on the article. The 0.9.2.1 version of Bogofilter was used to test this functionality.

#### 12.18.5.8 ifile spam filtering

Enable this variable if you want spam-split to use ifile, a statistical analyzer similar to Bogofilter.

Enable this variable if you want spam-use-ifile to give you all the ifile categories, not just spam/non-spam. If you use this, make sure you train ifile as described in its documentation.

This is the category of spam messages as far as ifile is concerned. The actual string used is irrelevant, but you probably want to leave the default value of "spam".

This is the filename for the ifile database. It is not specified by default, so ifile will use its own default database name.

The ifile mail classifier is similar to Bogofilter in intent and purpose. A ham and a spam processor are provided, plus the spam-use-ifile variable to indicate to spam-split that ifile should be used. The 1.2.1 version of ifile was used to test this functionality.

#### 12.18.5.9 spam-stat spam filtering

See "Filtering Spam Using Statistics with spam-stat" on page 361.

Enable this variable if you want spam-split to use spam-stat.el, an Emacs Lisp statistical analyzer.

Add this symbol to a group's spam-process parameter by customizing the group parameters or the gnus-spam-process-newsgroups variable. When this symbol is

added to a group's spam-process parameter, the spam-marked articles will be added to the spam-stat database of spam messages.

Add this symbol to a group's spam-process parameter by customizing the group parameters or the gnus-spam-process-newsgroups variable. When this symbol is added to a group's spam-process parameter, the ham-marked articles in *ham* groups will be added to the spam-stat database of non-spam messages. Note that this ham processor has no effect in *spam* or *unclassified* groups.

This enables 'spam.el' to cooperate with 'spam-stat.el'. 'spam-stat.el' provides an internal (Lisp-only) spam database, which unlike ifile or Bogofilter does not require external programs. A spam and a ham processor, and the spam-use-stat variable for spam-split are provided.

#### 12.18.5.10 Using SpamOracle with Gnus

An easy way to filter out spam is to use SpamOracle. SpamOracle is an statistical mail filtering tool written by Xavier Leroy and needs to be installed separately.

There are several ways to use SpamOracle with Gnus. In all cases, your mail is piped through SpamOracle in its *mark* mode. SpamOracle will then enter an "X-Spam" header indicating whether it regards the mail as a spam mail or not.

One possibility is to run SpamOracle as a :prescript from the See "Mail Source Specifiers" on page 161, (see "SpamAssassin" on page 348). This method has the advantage that the user can see the *X-Spam* headers.

The easiest method is to make 'spam.el' (see "Filtering Spam Using The Spam ELisp Package" on page 350) call SpamOracle.

To enable SpamOracle usage by 'spam.el', set the variable spam-use-spamoracle to t and configure the nnmail-split-fancy or nnimap-split-fancy as described in the section See "Filtering Spam Using The Spam ELisp Package" on page 350. In this example the "INBOX" of an nnimap server is filtered using SpamOracle. Mails recognized as spam mails will be moved to spam-split-group, "Junk" in this case. Ham messages stay in "INBOX":

```
(setq spam-use-spamoracle t
      spam-split-group "Junk"
      nnimap-split-inbox '("INBOX")
      nnimap-split-rule 'nnimap-split-fancy
      nnimap-split-fancy '(| (: spam-split) "INBOX"))
```

Set to t if you want Gnus to enable spam filtering using SpamOracle.

Gnus uses the SpamOracle binary called 'spamoracle' found in the user's PATH. Using the variable spam-spamoracle-binary, this can be customized.

By default, SpamOracle uses the file '~/.spamoracle.db' as a database to store its analyses. This is controlled by the variable spam-spamoracle-database which defaults to nil. That means the default SpamOracle database will be used. In case you want your database to live somewhere special, set spam-spamoracle-database to this path.

SpamOracle employs a statistical algorithm to determine whether a message is spam or ham. In order to get good results, meaning few false hits or misses, SpamOracle needs training. SpamOracle learns the characteristics of your spam mails. Using the *add* mode (training mode) one has to feed good (ham) and spam mails to SpamOracle. This can be done by pressing '—' in the Summary buffer and pipe the mail to a SpamOracle process or using 'spam.el''s spam- and ham-processors, which is much more convenient. For a detailed description of spam- and ham-processors, See "Filtering Spam Using The Spam ELisp Package" on page 350.

Add this symbol to a group's spam-process parameter by customizing the group parameter or the gnus-spam-process-newsgroups variable. When this symbol is added to a group's spam-process parameter, spam-marked articles will be sent to SpamOracle as spam samples.

Add this symbol to a group's spam-process parameter by customizing the group parameter or the gnus-spam-process-newsgroups variable. When this symbol is added to a grup's spam-process parameter, the ham-marked articles in *ham* groups will be sent to the SpamOracle as samples of ham messages. Note that this ham processor has no effect in *spam* or *unclassified* groups.

*Example:* These are the Group Parameters of an group that has been classified as a ham group, meaning that it should only contain ham messages.

```
((spam-contents gnus-group-spam-classification-ham)
 (spam-process
  (gnus-group-spam-exit-processor-spamoracle)))
```

For this group the gnus-group-spam-exit-processor-spamoracle is installed. If the group contains spam message (e.g. because SpamOracle has not had enough sample messages yet) and the user marks some messages as spam messages, these messages will be processed by gnus-group-spam-exit-processor-spamoracle. This processor sends the messages to SpamOracle as new samples for spam.

#### 12.18.5.11 Extending the spam elisp package

Say you want to add a new back end called blackbox. For filtering incoming mail, provide the following:

1. code

   ```
   (defvar spam-use-blackbox nil
     "True if blackbox should be used.")
   ```

   Add

   ```
   (spam-use-blackbox  . spam-check-blackbox)
   ```

to spam-list-of-checks.

2. functionality

   Write the spam-check-blackbox function. It should return "nil" or spam-split-group. See the existing spam-check-* functions for examples of what you can do.

   Make sure to add spam-use-blackbox to spam-list-of-statistical-checks if Blackbox is a statistical mail analyzer that needs the full message body to operate.

For processing spam and ham messages, provide the following:

1. code

   Note you don't have to provide a spam or a ham processor. Only provide them if Blackbox supports spam or ham processing.

```
(defvar gnus-group-spam-exit-processor-blackbox "blackbox"
  "The Blackbox summary exit spam processor.
Only applicable to spam groups.")

(defvar gnus-group-ham-exit-processor-blackbox "blackbox"
  "The whitelist summary exit ham processor.
Only applicable to non-spam (unclassified and ham) groups.")
```

2. functionality

```
(defun spam-blackbox-register-spam-routine ()
  (spam-generic-register-routine
   ;; \gnusr{the spam function}
   (lambda (article)
     (let ((from (spam-fetch-field-from-fast article)))
       (when (stringp from)
   (blackbox-do-something-with-this-spammer from))))
   ;; \gnusr{the ham function}
   nil))

(defun spam-blackbox-register-ham-routine ()
  (spam-generic-register-routine
   ;; \gnusr{the spam function}
   nil
   ;; \gnusr{the ham function}
   (lambda (article)
     (let ((from (spam-fetch-field-from-fast article)))
       (when (stringp from)
   (blackbox-do-something-with-this-ham-sender from))))))
```

Write the blackbox-do-something-with-this-ham-sender and blackbox-do-something-with-this-spammer functions. You can add more complex code than fetching the message sender, but keep in mind that retrieving the whole message takes significantly longer than the sender through spam-fetch-field-from-fast, because the message senders are kept in memory by Gnus.

### 12.18.6 Filtering Spam Using Statistics with spam-stat

Paul Graham has written an excellent essay about spam filtering using statistics: http://www.paulgraham.com/spam.html,A Plan for Spam. In it he describes the inherent deficiency of rule-based filtering as used by SpamAssassin, for example: Somebody has to write the rules, and everybody else has to install these rules. You are always late. It would be much better, he argues, to filter mail based on whether it somehow resembles spam or non-spam. One way to measure this is word distribution. He then goes on to describe a solution that checks whether a new mail resembles any of your other spam mails or not.

The basic idea is this: Create a two collections of your mail, one with spam, one with non-spam. Count how often each word appears in either collection, weight this by the total number of mails in the collections, and store this information in a dictionary. For every word in a new mail, determine its probability to belong to a spam or a non-spam mail. Use the 15 most conspicuous words, compute the total probability of the mail being spam. If this probability is higher than a certain threshold, the mail is considered to be spam.

Gnus supports this kind of filtering. But it needs some setting up. First, you need two collections of your mail, one with spam, one with non-spam. Then you need to create a dictionary using these two collections, and save it. And last but not least, you need to use this dictionary in your fancy mail splitting rules.

#### 12.18.6.1 Creating a spam-stat dictionary

Before you can begin to filter spam based on statistics, you must create these statistics based on two mail collections, one with spam, one with non-spam. These statistics are then stored in a dictionary for later use. In order for these statistics to be meaningful, you need several hundred emails in both collections.

Gnus currently supports only the nnml back end for automated dictionary creation. The nnml back end stores all mails in a directory, one file per mail. Use the following:

Create spam statistics for every file in this directory. Every file is treated as one spam mail.

Create non-spam statistics for every file in this directory. Every file is treated as one non-spam mail.

Usually you would call spam-stat-process-spam-directory on a directory such as '~/Mail/mail/spam' (this usually corresponds the the group "nnml:mail.spam"),

and you would call spam-stat-process-non-spam-directory on a directory such as '~/Mail/mail/misc' (this usually corresponds the the group "nnml:mail.misc").

When you are using IMAP, you won't have the mails available locally, so that will not work. One solution is to use the Gnus Agent to cache the articles. Then you can use directories such as '"~/News/agent/nnimap/mail.yourisp.com/personal˙spam"' for spam-stat-process-spam-directory. See "Agent as Cache" on page 227.

This variable holds the hash-table with all the statistics—the dictionary we have been talking about. For every word in either collection, this hash-table stores a vector describing how often the word appeared in spam and often it appeared in non-spam mails.

If you want to regenerate the statistics from scratch, you need to reset the dictionary.

Reset the spam-stat hash-table, deleting all the statistics.

When you are done, you must save the dictionary. The dictionary may be rather large. If you will not update the dictionary incrementally (instead, you will recreate it once a month, for example), then you can reduce the size of the dictionary by deleting all words that did not appear often enough or that do not clearly belong to only spam or only non-spam mails.

Reduce the size of the dictionary. Use this only if you do not want to update the dictionary incrementally.

Save the dictionary.

The filename used to store the dictionary. This defaults to '~/.spam-stat.el'.

#### 12.18.6.2 Splitting mail using spam-stat

In order to use spam-stat to split your mail, you need to add the following to your '~/.gnus.el' file:

```
(require 'spam-stat)
(spam-stat-load)
```

This will load the necessary Gnus code, and the dictionary you created.

Next, you need to adapt your fancy splitting rules: You need to determine how to use spam-stat. The following examples are for the nnml back end. Using the nnimap back end works just as well. Just use nnimap-split-fancy instead of nnmail-split-fancy.

In the simplest case, you only have two groups, "mail.misc" and "mail.spam". The following expression says that mail is either spam or it should go into "mail.misc". If it is spam, then spam-stat-split-fancy will return "mail.spam".

```
(setq nnmail-split-fancy
      `(| (: spam-stat-split-fancy)
  "mail.misc"))
```

The group to use for spam. Default is "mail.spam".

If you also filter mail with specific subjects into other groups, use the following expression. Only mails not matching the regular expression are considered potential spam.

```
(setq nnmail-split-fancy
      `(| ("Subject" "\\bspam-stat\\b" "mail.emacs")
  (: spam-stat-split-fancy)
  "mail.misc"))
```

If you want to filter for spam first, then you must be careful when creating the dictionary. Note that spam-stat-split-fancy must consider both mails in "mail.emacs" and in "mail.misc" as non-spam, therefore both should be in your collection of non-spam mails, when creating the dictionary!

```
(setq nnmail-split-fancy
      `(| (: spam-stat-split-fancy)
          ("Subject" "\\bspam-stat\\b" "mail.emacs")
  "mail.misc"))
```

You can combine this with traditional filtering. Here, we move all HTML-only mails into the "mail.spam.filtered" group. Note that since spam-stat-split-fancy will never see them, the mails in "mail.spam.filtered" should be neither in your collection of spam mails, nor in your collection of non-spam mails, when creating the dictionary!

```
(setq nnmail-split-fancy
      `(| ("Content-Type" "text/html" "mail.spam.filtered")
  (: spam-stat-split-fancy)
          ("Subject" "\\bspam-stat\\b" "mail.emacs")
  "mail.misc"))
```

#### 12.18.6.3 Low-level interface to the spam-stat dictionary

The main interface to using spam-stat, are the following functions:

Called in a buffer, that buffer is considered to be a new spam mail. Use this for new mail that has not been processed before.

Called in a buffer, that buffer is considered to be a new non-spam mail. Use this for new mail that has not been processed before.

Called in a buffer, that buffer is no longer considered to be normal mail but spam. Use this to change the status of a mail that has already been processed as non-spam.

Called in a buffer, that buffer is no longer considered to be spam but normal mail. Use this to change the status of a mail that has already been processed as spam.

Save the hash table to the file. The filename used is stored in the variable spam-stat-file.

Load the hash table from a file. The filename used is stored in the variable spam-stat-file.

Return the spam score for a word.

Return the spam score for a buffer.

Use this function for fancy mail splitting. Add the rule "(: spam-stat-split-fancy)" to nnmail-split-fancy

Make sure you load the dictionary before using it. This requires the following in your '~/.gnus.el' file:

```
(require 'spam-stat)
(spam-stat-load)
```

Typical test will involve calls to the following functions:

```
Reset: (setq spam-stat (make-hash-table :test 'equal))
Learn spam: (spam-stat-process-spam-directory "~/Mail/mail/spam")
Learn non-spam: (spam-stat-process-non-spam-directory "~/Mail/mail/mi
Save table: (spam-stat-save)
File size: (nth 7 (file-attributes spam-stat-file))
Number of words: (hash-table-count spam-stat)
Test spam: (spam-stat-test-directory "~/Mail/mail/spam")
Test non-spam: (spam-stat-test-directory "~/Mail/mail/misc")
Reduce table size: (spam-stat-reduce-size)
Save table: (spam-stat-save)
File size: (nth 7 (file-attributes spam-stat-file))
Number of words: (hash-table-count spam-stat)
Test spam: (spam-stat-test-directory "~/Mail/mail/spam")
Test non-spam: (spam-stat-test-directory "~/Mail/mail/misc")
```

Here is how you would create your dictionary:

```
Reset: (setq spam-stat (make-hash-table :test 'equal))
Learn spam: (spam-stat-process-spam-directory "~/Mail/mail/spam")
Learn non-spam: (spam-stat-process-non-spam-directory "~/Mail/mail/mi
Repeat for any other non-spam group you need...
Reduce table size: (spam-stat-reduce-size)
Save table: (spam-stat-save)
```

## 12.19 Various Various

gnus-home-directory All Gnus file and directory variables will be initialized from this variable, which defaults to '~/'.

gnus-directory Most Gnus storage file and directory variables will be initialized from this variable, which defaults to the SAVEDIR environment variable, or '~/News/' if that variable isn't set.

Note that Gnus is mostly loaded when the '~/.gnus.el' file is read. This means that other directory variables that are initialized from this variable won't be set properly if you set this variable in '~/.gnus.el'. Set this variable in '.emacs' instead.

gnus-default-directory Not related to the above variable at all—this variable says what the default directory of all Gnus buffers should be. If you issue commands like 'C-x C-f', the prompt you'll get starts in the current buffer's default directory. If this variable is nil (which is the default), the default directory will be the default directory of the buffer you were in when you started Gnus.

gnus-verbose This variable is an integer between zero and ten. The higher the value, the more messages will be displayed. If this variable is zero, Gnus will never flash any messages, if it is seven (which is the default), most important messages will be shown, and if it is ten, Gnus won't ever shut up, but will flash so many messages it will make your head swim.

gnus-verbose-backends This variable works the same way as gnus-verbose, but it applies to the Gnus back ends instead of Gnus proper.

nnheader-max-head-length When the back ends read straight heads of articles, they all try to read as little as possible. This variable (default 4096) specifies the absolute max length the back ends will try to read before giving up on finding a separator line between the head and the body. If this variable is nil, there is no upper read bound. If it is t, the back ends won't try to read the articles piece by piece, but read the entire articles. This makes sense with some versions of ange-ftp or efs.

nnheader-head-chop-length This variable (default 2048) says how big a piece of each article to read when doing the operation described above.

nnheader-file-name-translation-alist This is an alist that says how to translate characters in file names. For instance, if ":" is invalid as a file character in file names on your system (you OS/2 user you), you could say something like:

```
(setq nnheader-file-name-translation-alist
      '((?: . ?_)))
```

In fact, this is the default value for this variable on OS/2 and MS Windows (phooey) systems.

gnus-hidden-properties This is a list of properties to use to hide "invisible" text. It is (invisible t intangible t) by default on most systems, which makes invisible text invisible and intangible.

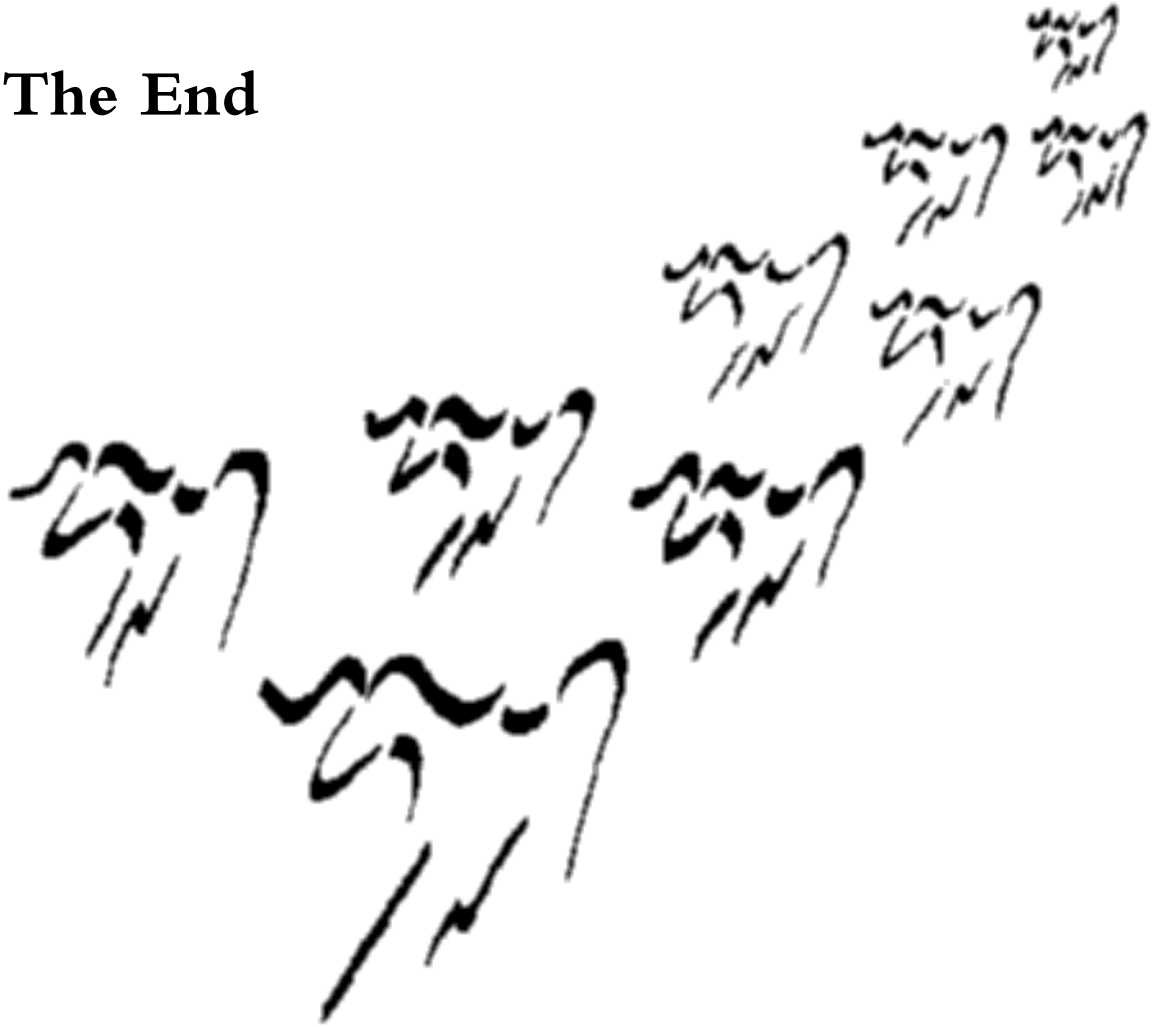
gnus-parse-headers-hook A hook called before parsing headers. It can be used, for instance, to gather statistics on the headers fetched, or perhaps you'd like to prune some headers. I don't see why you'd want that, though.

gnus-shell-command-separator String used to separate two shell commands. The default is ";".

gnus-invalid-group-regexp Regexp to match "invalid" group names when querying user for a group name. The default value catches some **really** invalid group names who could possibly mess up Gnus internally (like allowing ":" in a group name, which is normally used to delimit method and group).

IMAP users might want to allow "/" in group names though.

**The End**



Well, that's the manual—you can get on with your life now. Keep in touch. Say hello to your cats from me.

My **ghod**—I just can't stand goodbyes. Sniffle.

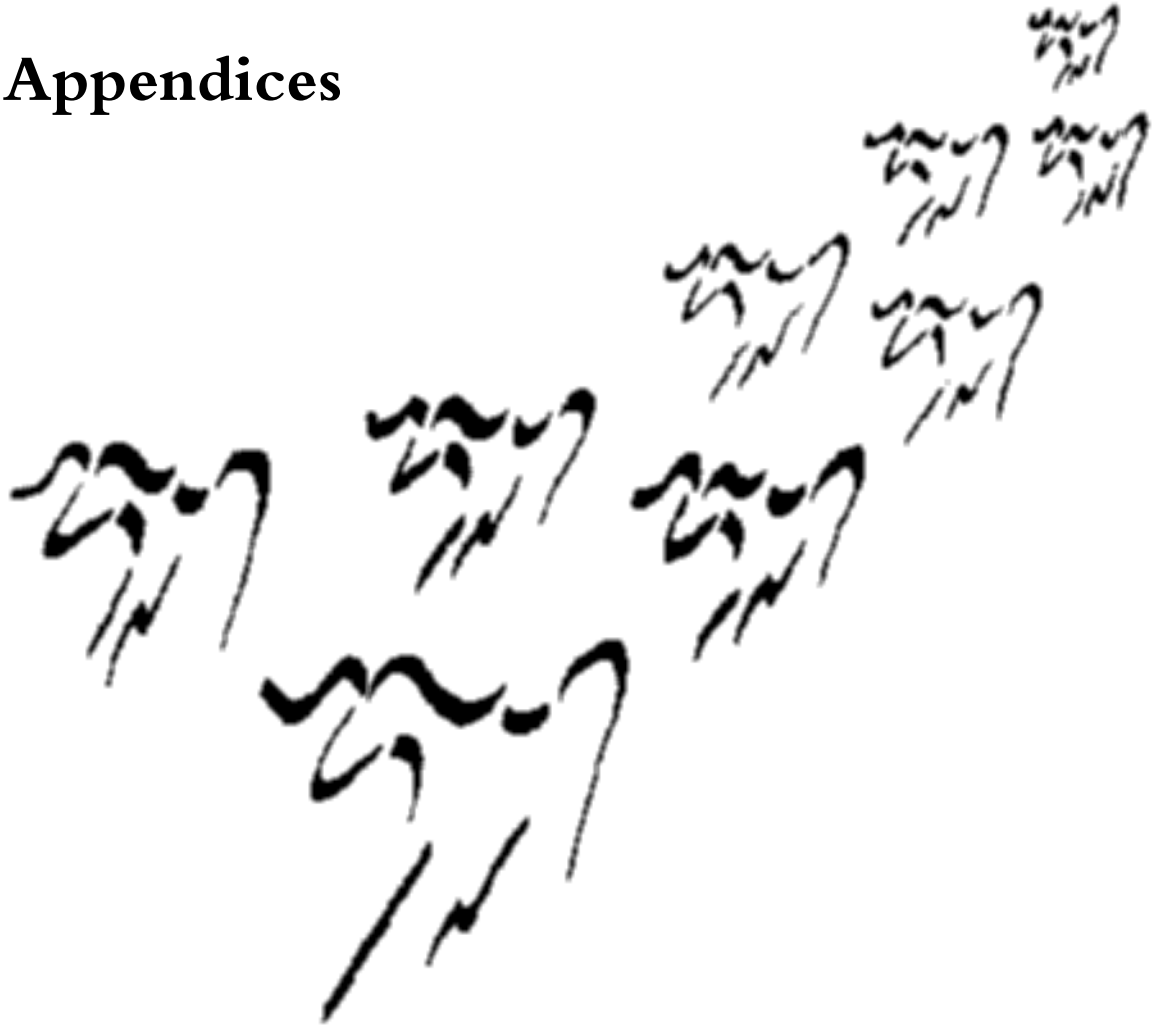
Ol' Charles Reznikoff said it pretty well, so I leave the floor to him:

**Te Deum**

Not because of victories
I sing,
having none,
but for the common sunshine,
the breeze,
the largess of the spring.

Not for victory
but for the day's work done
as well as I was able;
not for a seat upon the dais
but at the common table.

# Appendices



## 14.1 XEmacs

XEmacs is distributed as a collection of packages. You should install whatever packages the Gnus XEmacs package requires. The current requirements are "gnus", "w3", "mh-e", "mailcrypt", "rmail", "eterm", "mail-lib", "xemacs-base", "sh-script" and "fsf-compat". The "misc-games" package is required for Morse decoding.

## 14.2 History

GNUS was written by Masanobu UMEDA. When autumn crept up in '94, Lars Magne Ingebrigtsen grew bored and decided to rewrite Gnus.

If you want to investigate the person responsible for this outrage, you can point your (feh!) web browser to http://quimby.gnus.org/. This is also the primary distribution point for the new and spiffy versions of Gnus, and is known as The Site That Destroys Newsrcs And Drives People Mad.

During the first extended alpha period of development, the new Gnus was called "(ding) Gnus". *(ding)* is, of course, short for *ding is not Gnus*, which is a total and utter lie, but who cares? (Besides, the "Gnus" in this abbreviation should probably be pronounced "news" as UMEDA intended, which makes it a more appropriate name, don't you think?)

In any case, after spending all that energy on coming up with a new and spunky name, we decided that the name was *too* spunky, so we renamed it back again to "Gnus". But in mixed case. "Gnus" vs. "GNUS". New vs. old.

### 14.2.1 Gnus Versions

The first "proper" release of Gnus 5 was done in November 1995 when it was included in the Emacs 19.30 distribution (132 (ding) Gnus releases plus 15 Gnus 5.0 releases).

In May 1996 the next Gnus generation (aka. "September Gnus" (after 99 releases)) was released under the name "Gnus 5.2" (40 releases).

On July 28th 1996 work on Red Gnus was begun, and it was released on January 25th 1997 (after 84 releases) as "Gnus 5.4" (67 releases).

On September 13th 1997, Quassia Gnus was started and lasted 37 releases. If was released as "Gnus 5.6" on March 8th 1998 (46 releases).

Gnus 5.6 begat Pterodactyl Gnus on August 29th 1998 and was released as "Gnus 5.8" (after 99 releases and a CVS repository) on December 3rd 1999.

On the 26th of October 2000, Oort Gnus was begun.

If you happen upon a version of Gnus that has a prefixed name – "(ding) Gnus", "September Gnus", "Red Gnus", "Quassia Gnus", "Pterodactyl Gnus", "Oort Gnus" – don't panic. Don't let it know that you're frightened. Back away. Slowly. Whatever you do, don't run. Walk away, calmly, until you're out of its reach. Find a proper released version of Gnus and snuggle up to that instead.

### 14.2.2 Other Gnus Versions

In addition to the versions of Gnus which have had their releases coordinated by Lars, one major development has been Semi-gnus from Japan. It's based on a library called SEMI, which provides MIME capabilities.

These Gnusae are based mainly on Gnus 5.6 and Pterodactyl Gnus. Collectively, they are called "Semi-gnus", and different strains are called T-gnus, ET-gnus, Nana-gnus and Chaos. These provide powerful MIME and multilingualization things, especially important for Japanese users.

### 14.2.3 Why?

What's the point of Gnus?

I want to provide a "rad", "happening", "way cool" and "hep" newsreader, that lets you do anything you can think of. That was my original motivation, but while working on Gnus, it has become clear to me that this generation of newsreaders really belong in the stone age. Newsreaders haven't developed much since the infancy of the net. If the volume continues to rise with the current rate of increase, all current newsreaders will be pretty much useless. How do you deal with newsgroups that have thousands of new articles each day? How do you keep track of millions of people who post?

Gnus offers no real solutions to these questions, but I would very much like to see Gnus being used as a testing ground for new methods of reading and fetching news. Expanding on UMEDA-san's wise decision to separate the newsreader from the back ends, Gnus now offers a simple interface for anybody who wants to write new back ends for fetching mail and news from different sources. I have added hooks for customizations everywhere I could imagine it being useful. By doing so, I'm inviting every one of you to explore and invent.

May Gnus never be complete. '`C-u 100 M-x all-hail-emacs`' and '`C-u 100 M-x all-hail-xemacs`'.

### 14.2.4 Compatibility

Gnus was designed to be fully compatible with GNUS. Almost all key bindings have been kept. More key bindings have been added, of course, but only in one or two obscure cases have old bindings been changed.

Our motto is:

In a cloud bones of steel.

All commands have kept their names. Some internal functions have changed their names.

The `gnus-uu` package has changed drastically. See "Decoding Articles" on page 87.

One major compatibility question is the presence of several summary buffers. All variables relevant while reading a group are buffer-local to the summary buffer

they belong in. Although many important variables have their values copied into their global counterparts whenever a command is executed in the summary buffer, this change might lead to incorrect values being used unless you are careful.

All code that relies on knowledge of GNUS internals will probably fail. To take two examples: Sorting gnus-newsrc-alist (or changing it in any way, as a matter of fact) is strictly verboten. Gnus maintains a hash table that points to the entries in this alist (which speeds up many functions), and changing the alist directly will lead to peculiar results.

Old hilit19 code does not work at all. In fact, you should probably remove all hilit code from all Gnus hooks (gnus-group-prepare-hook and gnus-summary-prepare-hook). Gnus provides various integrated functions for highlighting. These are faster and more accurate. To make life easier for everybody, Gnus will by default remove all hilit calls from all hilit hooks. Uncleanliness! Away!

Packages like expire-kill will no longer work. As a matter of fact, you should probably remove all old GNUS packages (and other code) when you start using Gnus. More likely than not, Gnus already does what you have written code to make GNUS do. (Snicker.)

Even though old methods of doing things are still supported, only the new methods are documented in this manual. If you detect a new method of doing something while reading this manual, that does not mean you have to stop doing it the old way.

Gnus understands all GNUS startup files.

Overall, a casual user who hasn't written much code that depends on GNUS internals should suffer no problems. If problems occur, please let me know by issuing that magic command 'M-x gnus-bug'.

If you are in the habit of sending bug reports *very* often, you may find the helpful help buffer annoying after a while. If so, set gnus-bug-create-help-buffer to nil to avoid having it pop up at you.

### 14.2.5 Conformity

No rebels without a clue here, ma'am. We conform to all standards known to (wo)man. Except for those standards and/or conventions we disagree with, of course.

**RFC (2)822** There are no known breaches of this standard.

**RFC 1036** There are no known breaches of this standard, either.

**Son-of-RFC 1036** We do have some breaches to this one.

*X-Newsreader*
*User-Agent* These are considered to be "vanity headers", while I consider them to be consumer information. After seeing so many badly formatted articles coming from tin and Netscape I know not to use either of

those for posting articles. I would not have known that if it wasn't for the X-Newsreader header.

**USEFOR** USEFOR is an IETF working group writing a successor to RFC 1036, based on Son-of-RFC 1036. They have produced a number of drafts proposing various changes to the format of news articles. The Gnus towers will look into implementing the changes when the draft is accepted as an RFC.

**MIME - RFC 2045-2049 etc** All the various MIME RFCs are supported.

**Disposition Notifications - RFC 2298** Message Mode is able to request notifications from the receiver.

**PGP - RFC 1991 and RFC 2440** RFC 1991 is the original PGP message specification, published as an informational RFC. RFC 2440 was the follow-up, now called Open PGP, and put on the Standards Track. Both document a non-MIME aware PGP format. Gnus supports both encoding (signing and encryption) and decoding (verification and decryption).

**PGP/MIME - RFC 2015/3156** RFC 2015 (superseded by 3156 which references RFC 2440 instead of RFC 1991) describes the MIME-wrapping around the RF 1991/2440 format. Gnus supports both encoding and decoding.

**S/MIME - RFC 2633** RFC 2633 describes the S/MIME format.

**IMAP - RFC 1730/2060, RFC 2195, RFC 2086, RFC 2359, RFC 2595, RFC 1731** RFC 1730 is IMAP version 4, updated somewhat by RFC 2060 (IMAP 4 revision 1). RFC 2195 describes CRAM-MD5 authentication for IMAP. RFC 2086 describes access control lists (ACLs) for IMAP. RFC 2359 describes a IMAP protocol enhancement. RFC 2595 describes the proper TLS integration (STARTTLS) with IMAP. RFC 1731 describes the GSSAPI/Kerberos4 mechanisms for IMAP.

If you ever notice Gnus acting non-compliant with regards to the texts mentioned above, don't hesitate to drop a note to Gnus Towers and let us know.

### 14.2.6 Emacsen

Gnus should work on :

- Emacs 20.7 and up.
- XEmacs 21.1 and up.

This Gnus version will absolutely not work on any Emacsen older than that. Not reliably, at least. Older versions of Gnus may work on older Emacs versions.

There are some vague differences between Gnus on the various platforms—XEmacs features more graphics (a logo and a toolbar)—but other than that, things should look pretty much the same under all Emacsen.

### 14.2.7 Gnus Development

Gnus is developed in a two-phased cycle. The first phase involves much discussion on the "ding@gnus.org" mailing list, where people propose changes and new features, post patches and new back ends. This phase is called the *alpha* phase, since the Gnusae released in this phase are *alpha releases*, or (perhaps more commonly in other circles) *snapshots*. During this phase, Gnus is assumed to be unstable and should not be used by casual users. Gnus alpha releases have names like "Red Gnus" and "Quassia Gnus".

After futzing around for 50-100 alpha releases, Gnus is declared *frozen*, and only bug fixes are applied. Gnus loses the prefix, and is called things like "Gnus 5.6.32" instead. Normal people are supposed to be able to use these, and these are mostly discussed on the "gnu.emacs.gnus" newsgroup.

Some variable defaults differ between alpha Gnusae and released Gnusae. In particular, mail-source-delete-incoming defaults to nil in alpha Gnusae and t in released Gnusae. This is to prevent lossage of mail if an alpha release hiccups while handling the mail.

The division of discussion between the ding mailing list and the Gnus newsgroup is not purely based on publicity concerns. It's true that having people write about the horrible things that an alpha Gnus release can do (sometimes) in a public forum may scare people off, but more importantly, talking about new experimental features that have been introduced may confuse casual users. New features are frequently introduced, fiddled with, and judged to be found wanting, and then either discarded or totally rewritten. People reading the mailing list usually keep up with these rapid changes, while people on the newsgroup can't be assumed to do so.

### 14.2.8 Contributors

The new Gnus version couldn't have been done without the help of all the people on the (ding) mailing list. Every day for over a year I have gotten billions of nice bug reports from them, filling me with joy, every single one of them. Smooches. The people on the list have been tried beyond endurance, what with my "oh, that's a neat idea <type type>, yup, I'll release it right away <ship off> no wait, that doesn't work at all <type type>, yup, I'll ship that one off right away <ship off> no, wait, that absolutely does not work" policy for releases. Micro$oft—bah. Amateurs. I'm *much* worse. (Or is that "worser"? "much worser"? "worsest"?)

I would like to take this opportunity to thank the Academy for... oops, wrong show.

- Masanobu UMEDA—the writer of the original GNUS.
- Shenghuo Zhu—uudecode.el, mm-uu.el, rfc1843.el, webmail.el, nnwarchive and many, many other things connected with MIME and other types of en/decoding, as well as general bug fixing, new functionality and stuff.

- Per Abrahamsen—custom, scoring, highlighting and SOUP code (as well as numerous other things).
- Luis Fernandes—design and graphics.
- Joe Reiss—creator of the smiley faces.
- Justin Sheehy—the FAQ maintainer.
- Erik Naggum—help, ideas, support, code and stuff.
- Wes Hardaker—'gnus-picon.el' and the manual section on *picons* (see "Picons" on page 343).
- Kim-Minh Kaplan—further work on the picon code.
- Brad Miller—'gnus-gl.el' and the GroupLens manual section (see "GroupLens" on page 252).
- Sudish Joseph—innumerable bug fixes.
- Ilja Weis—'gnus-topic.el'.
- Steven L. Baur—lots and lots and lots of bugs detections and fixes.
- Vladimir Alexiev—the refcard and reference booklets.
- Felix Lee & Jamie Zawinski—I stole some pieces from the XGnus distribution by Felix Lee and JWZ.
- Scott Byer—'nnfolder.el' enhancements & rewrite.
- Peter Mutsaers—orphan article scoring code.
- Ken Raeburn—POP mail support.
- Hallvard B Furuseth—various bits and pieces, especially dealing with .newsrc files.
- Brian Edmonds—'gnus-bbdb.el'.
- David Moore—rewrite of 'nnvirtual.el' and many other things.
- Kevin Davidson—came up with the name *ding*, so blame him.
- François Pinard—many, many interesting and thorough bug reports, as well as autoconf support.

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Paul Franklin
David S. Goldberg
D. Hall
Raja R. Harinath
Hisashige Kenji
Gunnar Horrigmo
Miguel de Icaza
Ishikawa Ichiro
Rajappa Iyer
Randell Jesup
Greg Klanderman
Peter Skov Knudsen
Koseki Yoshinori
Martin Larose
Carsten Leonhardt
Markus Linnala
Tonny Madsen
Istvan Marko
Gordon Matzigkeit
Lantz Moore
Hrvoje Niksic
C. R. Oldham
Masaharu Onishi
William Perry
Ulrich Pfeifer
John McClary Prevost
Jim Radford
Lars Balker Rasmussen
Roland B. Roberts
Markus Rost
Jay Sachs
Loren Schall
Philippe Schnoebelen
Adrian Aichner
Peter Arius
Miles Bader
Robert Bihlmeyer
Mark Boyns
Kees de Bruin
Kevin Buhr
Zlatko Calusic
David Charlap
Jae-you Chung
Michael R. Cook
Neil Crellin
Andre Deparade
Rui-Tao Dong
Dave Edmondson
Karl Eichwalder
Luc Van Eycken
Sigbjorn Finne
Decklin Foster
Guy Geens
Michelangelo Grigni
Magnus Hammerin
Yoshiki Hayashi
Scott Hofmann
Richard Hoskins
François Felix Ingrand
Lee Iverson
Andreas Jaeger
Fred Johansen
Karl Kleinpaste
Shuhei Kobayashi
Thor Kristoffersen
Seokchan Lee
James LewisMoss
Dave Love
Shlomo Mahlab
David Martin
Timo Metzemakers
Morioka Tomohiko
Andy Norman
Alexandre Oliva
Hideki Ono
Stephen Peters
Matt Pharr
Bill Pringlemeir
Colin Rafferty
Joe Reiss
Bart Robinson
Jason Rumney
Dewey M. Sasser
Dan Schmidt
Andreas Schwab
Vladimir Alexiev
Matt Armstrong
Alexei V. Barantsev
Chris Bone
Lance A. Brown
Martin Buchholz
Alastair Burt
Massimo Campostrini
Dan Christensen
James H. Cloos, Jr.
Glenn Coombs
Frank D. Cringle
Ulrik Dickow
Joev Dubach
Paul Eggert
Enami Tsugutomo
Sam Falkner
Sven Fischer
Gary D. Foster
Arne Georg Gleditsch
Dale Hagglund
Kenichi Handa
P. E. Jareth Hein
Marc Horowitz
Brad Howes
Tatsuya Ichikawa
Iwamuro Motonori
Adam P. Jenkins
Gareth Jones
Michael Klingbeil
Petr Konecny
Jens Lautenbacher
Joerg Lenneis
Christian Limpach
Mike McEwan
Nat Makarevitch
Jason R. Mastaler
Richard Mlynarik
Erik Toubro Nielsen
Fred Oberhauser
Ken Olstad
Ettore Perazzoli
Jens-Ulrik Holger Petersen
Andy Piper
Mike Pullen
Lasse Rasinen
Renaud Rioboo
Christian von Roques
Wolfgang Rupprecht
Conrad Sauerwald
Ralph Schleicher
Randal L. Schwartz

For a full overview of what each person has done, the ChangeLogs included in the Gnus alpha distributions should give ample reading (550kB and counting).

Apologies to everybody that I've forgotten, of which there are many, I'm sure.

Gee, that's quite a list of people. I guess that must mean that there actually are people who are using Gnus. Who'd'a thunk it!

### 14.2.9 New Features

These lists are, of course, just *short* overviews of the *most* important new features. No, really. There are tons more. Yes, we have feeping creaturism in full effect.

#### 14.2.9.1 (ding) Gnus

New features in Gnus 5.0/5.1:

- The look of all buffers can be changed by setting format-like variables (see "Group Buffer Format" on page 14 and see "Summary Buffer Format" on page 48).
- Local spool and several NNTP servers can be used at once (see "Select Methods" on page 144).
- You can combine groups into virtual groups (see "Virtual Groups" on page 214).
- You can read a number of different mail formats (see "Getting Mail" on page 157). All the mail back ends implement a convenient mail expiry scheme (see "Expiring Mail" on page 175).
- Gnus can use various strategies for gathering threads that have lost their roots (thereby gathering loose sub-threads into one thread) or it can go back and retrieve enough headers to build a complete thread (see "Customizing Threading" on page 72).
- Killed groups can be displayed in the group buffer, and you can read them as well (see "Listing Groups" on page 31).
- Gnus can do partial group updates—you do not have to retrieve the entire active file just to check for new articles in a few groups (see "The Active File" on page 9).
- Gnus implements a sliding scale of subscribedness to groups (see "Group Levels" on page 21).
- You can score articles according to any number of criteria (see "Scoring" on page 232). You can even get Gnus to find out how to score articles for you (see "Adaptive Scoring" on page 244).

- Gnus maintains a dribble buffer that is auto-saved the normal Emacs manner, so it should be difficult to lose much data on what you have read if your machine should go down (see "Auto Save" on page 9).
- Gnus now has its own startup file ('~/.gnus.el') to avoid cluttering up the '.emacs' file.
- You can set the process mark on both groups and articles and perform operations on all the marked items (see "Process/Prefix" on page 324).
- You can grep through a subset of groups and create a group from the results (see "Kibozed Groups" on page 215).
- You can list subsets of groups according to, well, anything (see "Listing Groups" on page 31).
- You can browse foreign servers and subscribe to groups from those servers (see "Browse Foreign Server" on page 34).
- Gnus can fetch articles, asynchronously, on a second connection to the server (see "Asynchronous Fetching" on page 80).
- You can cache articles locally (see "Article Caching" on page 81).
- The uudecode functions have been expanded and generalized (see "Decoding Articles" on page 87).
- You can still post uuencoded articles, which was a little-known feature of GNUS' past (see "Uuencoding and Posting" on page 90).
- Fetching parents (and other articles) now actually works without glitches (see "Finding the Parent" on page 109).
- Gnus can fetch FAQs and group descriptions (see "Group Information" on page 44).
- Digests (and other files) can be used as the basis for groups (see "Document Groups" on page 207).
- Articles can be highlighted and customized (see "Customizing Articles" on page 129).
- URLs and other external references can be buttonized (see "Article Buttons" on page 99).
- You can do lots of strange stuff with the Gnus window & frame configuration (see "Window Layout" on page 329).
- You can click on buttons instead of using the keyboard (see "Buttons" on page 336).

#### 14.2.9.2 September Gnus

New features in Gnus 5.2/5.3:

- A new message composition mode is used. All old customization variables for mail-mode, rnews-reply-mode and gnus-msg are now obsolete.
- Gnus is now able to generate *sparse* threads—threads where missing articles are represented by empty nodes (see "Customizing Threading" on page 72).

```
(setq gnus-build-sparse-threads 'some)
```

- Outgoing articles are stored on a special archive server (see "Archived Messages" on page 138).
- Partial thread regeneration now happens when articles are referred.
- Gnus can make use of GroupLens predictions (see "GroupLens" on page 252).
- Picons (personal icons) can be displayed under XEmacs (see "Picons" on page 343).
- A trn-like tree buffer can be displayed (see "Tree Display" on page 112).

```
(setq gnus-use-trees t)
```

- An nn-like pick-and-read minor mode is available for the summary buffers (see "Pick and Read" on page 110).

```
(add-hook 'gnus-summary-mode-hook 'gnus-pick-mode)
```

- In binary groups you can use a special binary minor mode (see "Binary Groups" on page 111).
- Groups can be grouped in a folding topic hierarchy (see "Group Topics" on page 35).

```
(add-hook 'gnus-group-mode-hook 'gnus-topic-mode)
```

- Gnus can re-send and bounce mail (see "Summary Mail Commands" on page 58).
- Groups can now have a score, and bubbling based on entry frequency is possible (see "Group Score" on page 22).

```
(add-hook 'gnus-summary-exit-hook 'gnus-summary-bubble-group)
```

- Groups can be process-marked, and commands can be performed on groups of groups (see "Marking Groups" on page 23).
- Caching is possible in virtual groups.
- nndoc now understands all kinds of digests, mail boxes, rnews news batches, ClariNet briefs collections, and just about everything else (see "Document Groups" on page 207).
- Gnus has a new back end (nnsoup) to create/read SOUP packets (see "SOUP" on page 210).
- The Gnus cache is much faster.
- Groups can be sorted according to many criteria (see "Sorting Groups" on page 32).
- New group parameters have been introduced to set list-addresses and expiry times (see "Group Parameters" on page 25).
- All formatting specs allow specifying faces to be used (see "Formatting Fonts" on page 327).
- There are several more commands for setting/removing/acting on process marked articles on the 'M P' submap (see "Setting Process Marks" on page 68).
- The summary buffer can be limited to show parts of the available articles based on a wide range of criteria. These commands have been bound to keys on the '/' submap (see "Limiting" on page 70).
- Articles can be made persistent with the '*' command (see "Persistent Articles" on page 83).
- All functions for hiding article elements are now toggles.
- Article headers can be buttonized (see "Article Washing" on page 95).
- All mail back ends support fetching articles by Message-ID.
- Duplicate mail can now be treated properly (see "Duplicates" on page 179).
- All summary mode commands are available directly from the article buffer (see "Article Keymap" on page 132).
- Frames can be part of gnus-buffer-configuration (see "Window Layout" on page 329).
- Mail can be re-scanned by a daemonic process (see "Daemons" on page 336).

- Gnus can make use of NoCeM files to weed out spam (see "NoCeM" on page 338).

```
(setq gnus-use-nocem t)
```

- Groups can be made permanently visible (see "Listing Groups" on page 31).

```
(setq gnus-permanently-visible-groups "^nnml:")
```

- Many new hooks have been introduced to make customizing easier.
- Gnus respects the Mail-Copies-To header.
- Threads can be gathered by looking at the References header (see "Customizing Threading" on page 72).

```
(setq gnus-summary-thread-gathering-function
      'gnus-gather-threads-by-references)
```

- Read articles can be stored in a special backlog buffer to avoid refetching (see "Article Backlog" on page 83).

```
(setq gnus-keep-backlog 50)
```

- A clean copy of the current article is always stored in a separate buffer to allow easier treatment.
- Gnus can suggest where to save articles (see "Saving Articles" on page 83).
- Gnus doesn't have to do as much prompting when saving (see "Saving Articles" on page 83).

```
(setq gnus-prompt-before-saving t)
```

- gnus-uu can view decoded files asynchronously while fetching articles (see "Other Decode Variables" on page 89).

```
(setq gnus-uu-grabbed-file-functions 'gnus-uu-grab-view)
```

- Filling in the article buffer now works properly on cited text (see "Article Washing" on page 95).
- Hiding cited text adds buttons to toggle hiding, and how much cited text to hide is now customizable (see "Article Hiding" on page 93).

```
(setq gnus-cited-lines-visible 2)
```

- Boring headers can be hidden (see "Article Hiding" on page 93).
- Default scoring values can now be set from the menu bar.
- Further syntax checking of outgoing articles have been added.

#### 14.2.9.3 Red Gnus

New features in Gnus 5.4/5.5:

- 'nntp.el' has been totally rewritten in an asynchronous fashion.
- Article prefetching functionality has been moved up into Gnus (see "Asynchronous Fetching" on page 80).
- Scoring can now be performed with logical operators like and, or, not, and parent redirection (see "Advanced Scoring" on page 255).
- Article washing status can be displayed in the article mode line (see "Misc Article" on page 133).

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Red Gnus
People's Democratic Newsreader

- 'gnus.el' has been split into many smaller files.
- Suppression of duplicate articles based on Message-ID can be done (see "Duplicate Suppression" on page 120).

```
(setq gnus-suppress-duplicates t)
```

- New variables for specifying what score and adapt files are to be considered home score and adapt files (see "Home Score File" on page 246) have been added.
- nndoc was rewritten to be easily extendable (see "Document Server Internals" on page 208).
- Groups can inherit group parameters from parent topics (see "Topic Parameters" on page 41).
- Article editing has been revamped and is now actually usable.
- Signatures can be recognized in more intelligent fashions (see "Article Signature" on page 103).
- Summary pick mode has been made to look more nn-like. Line numbers are displayed and the '.' command can be used to pick articles (Pick and Read).

- Commands for moving the '.newsrc.eld' from one server to another have been added (see "Changing Servers" on page 7).
- There's a way now to specify that "uninteresting" fields be suppressed when generating lines in buffers (see "Advanced Formatting" on page 326).
- Several commands in the group buffer can be undone with 'C-M-^' (see "Undo" on page 340).
- Scoring can be done on words using the new score type w (see "Score File Format" on page 239).
- Adaptive scoring can be done on a Subject word-by-word basis (see "Adaptive Scoring" on page 244).

```
(setq gnus-use-adaptive-scoring '(word))
```

- Scores can be decayed (see "Score Decays" on page 257).

```
(setq gnus-decay-scores t)
```

- Scoring can be performed using a regexp on the Date header. The Date is normalized to compact ISO 8601 format first (see "Score File Format" on page 239).
- A new command has been added to remove all data on articles from the native server (see "Changing Servers" on page 7).
- A new command for reading collections of documents (nndoc with nnvirtual on top) has been added—'C-M-d' (see "Really Various Summary Commands" on page 118).
- Process mark sets can be pushed and popped (see "Setting Process Marks" on page 68).
- A new mail-to-news back end makes it possible to post even when the NNTP server doesn't allow posting (see "Mail-To-News Gateways" on page 213).
- A new back end for reading searches from Web search engines (*DejaNews*, *Alta Vista*, *InReference*) has been added (see "Web Searches" on page 192).
- Groups inside topics can now be sorted using the standard sorting functions, and each topic can be sorted independently (see "Topic Sorting" on page 40).
- Subsets of the groups can be sorted independently (Sorting Groups).
- Cached articles can be pulled into the groups (see "Summary Generation Commands" on page 117).

Development Proletcult Cadre #23
RED GNUS
People's Democratic Newsreader

- Score files are now applied in a more reliable order (see "Score Variables" on page 237).
- Reports on where mail messages end up can be generated (see "Splitting Mail" on page 159).
- More hooks and functions have been added to remove junk from incoming mail before saving the mail (see "Washing Mail" on page 178).
- Emphasized text can be properly fontisized:

#### 14.2.9.4 Quassia Gnus

New features in Gnus 5.6:

- New functionality for using Gnus as an offline newsreader has been added. A plethora of new commands and modes have been added. See "Gnus Unplugged" on page 216, for the full story.
- The nndraft back end has returned, but works differently than before. All Message buffers are now also articles in the nndraft group, which is created automatically.
- gnus-alter-header-function can now be used to alter header values.
- gnus-summary-goto-article now accept Message-ID's.
- A new Message command for deleting text in the body of a message outside the region: 'C-c C-v'.
- You can now post to component group in nnvirtual groups with 'C-u C-c C-c'.
- nntp-rlogin-program—new variable to ease customization.
- C-u C-c C-c in gnus-article-edit-mode will now inhibit re-highlighting of the article buffer.
- New element in gnus-boring-article-headers—long-to.
- 'M-i' symbolic prefix command. See "Symbolic Prefixes" on page 325, for details.
- 'L' and 'l' in the summary buffer now take the symbolic prefix 'a' to add the score rule to the 'all.SCORE' file.
- gnus-simplify-subject-functions variable to allow greater control over simplification.
- 'A T'—new command for fetching the current thread.

- '/ T'—new command for including the current thread in the limit.
- 'M-RET' is a new Message command for breaking cited text.
- "/1"-expressions are now valid in nnmail-split-methods.
- The custom-face-lookup function has been removed. If you used this function in your initialization files, you must rewrite them to use face-spec-set instead.
- Canceling now uses the current select method. Symbolic prefix 'a' forces normal posting method.
- New command to translate M******** sm*rtq**t*s into proper text—'W d'.
- For easier debugging of nntp, you can set nntp-record-commands to a non-nil value.
- nntp now uses '~/.authinfo', a '.netrc'-like file, for controlling where and how to send AUTHINFO to NNTP servers.
- A command for editing group parameters from the summary buffer has been added.
- A history of where mails have been split is available.
- A new article date command has been added—article-date-iso8601.
- Subjects can be simplified when threading by setting gnus-score-thread-simplify.
- A new function for citing in Message has been added—message-cite-original-without-signature.
- article-strip-all-blank-lines—new article command.
- A new Message command to kill to the end of the article has been added.
- A minimum adaptive score can be specified by using the gnus-adaptive-word-minimum variable.
- The "lapsed date" article header can be kept continually updated by the gnus-start-date-timer command.
- Web listserv archives can be read with the nnlistserv back end.
- Old dejanews archives can now be read by nnweb.

#### 14.2.9.5 Pterodactyl Gnus

New features in Gnus 5.8:

- The mail-fetching functions have changed. See the manual for the many details. In particular, all procmail fetching variables are gone.

  If you used procmail like in

  ```
  (setq nnmail-use-procmail t)
  (setq nnmail-spool-file 'procmail)
  (setq nnmail-procmail-directory "~/mail/incoming/")
  (setq nnmail-procmail-suffix "\\.in")
  ```

  this now has changed to

  ```
  (setq mail-sources
        '((directory :path "~/mail/incoming/"
                     :suffix ".in")))
  ```

  See "Mail Source Specifiers" on page 161.

- Gnus is now a MIME-capable reader. This affects many parts of Gnus, and adds a slew of new commands. See the manual for details.

- Gnus has also been multilingualized. This also affects too many parts of Gnus to summarize here, and adds many new variables.

- gnus-auto-select-first can now be a function to be called to position point.

- The user can now decide which extra headers should be included in summary buffers and NOV files.

- gnus-article-display-hook has been removed. Instead, a number of variables starting with gnus-treat- have been added.

- The Gnus posting styles have been redone again and now works in a subtly different manner.

- New web-based back ends have been added: nnslashdot, nnwarchive and nnultimate. nnweb has been revamped, again, to keep up with ever-changing layouts.

- Gnus can now read IMAP mail via nnimap.

#### 14.2.9.6 Oort Gnus

New features in Gnus 5.10:

- The revised Gnus FAQ is included in the manual, See "Frequently Asked Questions" on page 429.
- Upgrading from previous (stable) version if you have used Oort.

  If you have tried Oort (the unstable Gnus branch leading to this release) but went back to a stable version, be careful when upgrading to this version. In particular, you will probably want to remove all '.marks' (nnml) and '.mrk' (nnfolder) files, so that flags are read from your '.newsrc.eld' instead of from the '.marks'/'.mrk' file where this release store flags. See a later entry for more information about marks. Note that downgrading isn't save in general.
- Article Buttons

  More buttons for URLs, mail addresses, Message-IDs, Info links, man pages and Emacs or Gnus related references. See "Article Buttons" on page 99. The variables gnus-button-*-level can be used to control the appearance of all article buttons. See "Article Button Levels" on page 101.
- Dired integration

  gnus-dired-minor-mode installs key bindings in dired buffers to send a file as an attachment ('C-c C-a'), open a file using the appropriate mailcap entry ('C-c C-l'), and print a file using the mailcap entry ('C-c P'). It is enabled with

  ```
  (add-hook 'dired-mode-hook 'turn-on-gnus-dired-mode)
  ```
- Gnus can display RSS newsfeeds as a newsgroup. See "RSS" on page 195.
- Single-part yenc encoded attachments can be decoded.
- Picons

  The picons code has been reimplemented to work in GNU Emacs—some of the previous options have been removed or renamed.

  Picons are small "personal icons" representing users, domain and newsgroups, which can be displayed in the Article buffer. See "Picons" on page 343.
- If the new option gnus-treat-body-boundary is non-nil, a boundary line is drawn at the end of the headers.
- Retrieval of charters and control messages

  There are new commands for fetching newsgroup charters ('H c') and control messages ('H C').

- Delayed articles

  You can delay the sending of a message with 'C-c C-j' in the Message buffer. The messages are delivered at specified time. This is useful for sending yourself reminders. See "Delayed Articles" on page 62.

- If auto-compression-mode is enabled, attachments are automatically decompressed when activated.

- If the new option nnml-use-compressed-files is non-nil, the nnml back end allows compressed message files.

- Signed article headers (X-PGP-Sig) can be verified with 'W p'.

- The Summary Buffer uses an arrow in the fringe to indicate the current article. Use (setq gnus-summary-display-arrow nil) to disable it.

- Warn about email replies to news

  Do you often find yourself replying to news by email by mistake? Then the new option gnus-confirm-mail-reply-to-news is just the thing for you.

- If the new option gnus-summary-display-while-building is non-nil, the summary buffer is shown and updated as it's being built.

- The new recent mark "." indicates newly arrived messages (as opposed to old but unread messages).

- The new option gnus-gcc-mark-as-read automatically marks Gcc articles as read.

- The nndoc back end now supports mailman digests and exim bounces.

- Gnus supports RFC 2369 mailing list headers, and adds a number of related commands in mailing list groups. See "Mailing List" on page 122.

- The Date header can be displayed in a format that can be read aloud in English. See "Article Date" on page 101.

- The envelope sender address can be customized when using Sendmail. See "Mail Variables, Mail Variables,, message, Message Manual" on page ??.

- diffs are automatically highlighted in groups matching mm-uu-diff-groups-regexp

- TLS wrapper shipped with Gnus

  TLS/SSL is now supported in IMAP and NNTP via 'tls.el' and GNUTLS. The old TLS/SSL support via (external third party) 'ssl.el' and OpenSSL still works.

- New 'make.bat' for compiling and installing Gnus under MS Windows

  Use 'make.bat' if you want to install Gnus under MS Windows, the first argument to the batch-program should be the directory where 'xemacs.exe' respectively 'emacs.exe' is located, iff you want to install Gnus after compiling it, give 'make.bat' /copy as the second parameter.

  'make.bat' has been rewritten from scratch, it now features automatic recognition of XEmacs and GNU Emacs, generates 'gnus-load.el', checks if errors occur while compilation and generation of info files and reports them at the end of the build process. It now uses makeinfo if it is available and falls back to 'infohack.el' otherwise. 'make.bat' should now install all files which are necessary to run Gnus and be generally a complete replacement for the configure; make; make install cycle used under Unix systems.

  The new 'make.bat' makes 'make-x.bat' superfluous, so it has been removed.

- Support for non-ASCII domain names

  Message supports non-ASCII domain names in From:, To: and Cc: and will query you whether to perform encoding when you try to send a message. The variable message-use-idna controls this. Gnus will also decode non-ASCII domain names in From:, To: and Cc: when you view a message. The variable gnus-use-idna controls this.

- Better handling of Microsoft citation styles

  Gnus now tries to recognize the mangled header block that some Microsoft mailers use to indicate that the rest of the message is a citation, even though it is not quoted in any way. The variable gnus-cite-unsightly-citation-regexp matches the start of these citations.

- gnus-article-skip-boring

  If you set gnus-article-skip-boring to t, then Gnus will not scroll down to show you a page that contains only boring text, which by default means cited text and signature. You can customize what is skippable using gnus-article-boring-faces.

  This feature is especially useful if you read many articles that consist of a little new content at the top with a long, untrimmed message cited below.

- The format spec %C for positioning point has changed to %*.

- The new variable gnus-parameters can be used to set group parameters.

  Earlier this was done only via 'G p' (or 'G c'), which stored the parameters in '~/.newsrc.eld', but via this variable you can enjoy the powers of customize, and simplified backups since you set the variable in '~/.emacs' instead of '~/.newsrc.eld'. The variable maps regular expressions matching group names to group parameters, a'la:

```
(setq gnus-parameters
      '(("mail\\..*"
  (gnus-show-threads nil)
  (gnus-use-scoring nil))
("^nnimap:\\(foo.bar\\)$"
  (to-group . "\\1"))))
```

- Smileys (":-)", ";-)" etc) are now iconized for Emacs too.

  Put (setq gnus-treat-display-smileys nil) in '~/.emacs' to disable it.

- Gnus no longer generate the Sender: header automatically.

  Earlier it was generated iff the user configurable email address was different from the Gnus guessed default user address. As the guessing algorithm is rarely correct these days, and (more controversially) the only use of the Sender: header was to check if you are entitled to cancel/supersede news (which is now solved by Cancel Locks instead, see another entry), generation of the header has been disabled by default. See the variables message-required-headers, message-required-news-headers, and message-required-mail-headers.

- Features from third party 'message-utils.el' added to 'message.el'.

  Message now asks if you wish to remove "(was: <old subject>)" from subject lines (see message-subject-trailing-was-query). 'C-c M-m' and 'C-c M-f' inserts markers indicating included text. 'C-c C-f a' adds a X-No-Archive: header. 'C-c C-f x' inserts appropriate headers and a note in the body for cross-postings and followups (see the variables message-cross-post-*).

- References and X-Draft-Headers are no longer generated when you start composing messages and message-generate-headers-first is nil.

- Improved anti-spam features.

  Gnus is now able to take out spam from your mail and news streams using a wide variety of programs and filter rules. Among the supported methods are RBL blocklists, bogofilter and white/blacklists. Hooks for easy use of external packages such as SpamAssassin and Hashcash are also new. See "Thwarting Email Spam" on page 345.

- Easy inclusion of X-Faces headers.

- Face headers handling.

- In the summary buffer, the new command '/ N' inserts new messages and '/ o' inserts old messages.

- Gnus decodes morse encoded messages if you press 'W m'.

- Unread count correct in nnimap groups.

  The estimated number of unread articles in the group buffer should now be correct for nnimap groups. This is achieved by calling nnimap-fixup-unread-after-getting-new-news from the gnus-setup-news-hook (called on startup) and gnus-after-getting-new-news-hook. (called after getting new mail). If you have modified those variables from the default, you may want to add nnimap-fixup-unread-after-getting-new-news again. If you were happy with the estimate and want to save some (minimal) time when getting new mail, remove the function.

- Group Carbon Copy (GCC) quoting

  To support groups that contains SPC and other weird characters, groups are quoted before they are placed in the Gcc: header. This means variables such as gnus-message-archive-group should no longer contain quote characters to make groups containing SPC work. Also, if you are using the string "nnml:foo, nnml:bar" (indicating Gcc into two groups) you must change it to return the list ("nnml:foo" "nnml:bar"), otherwise the Gcc: line will be quoted incorrectly. Note that returning the string "nnml:foo, nnml:bar" was incorrect earlier, it just didn't generate any problems since it was inserted directly.

- '~/News/overview/' not used.

  As a result of the following change, the '~/News/overview/' directory is not used any more. You can safely delete the entire hierarchy.

- gnus-agent

  The Gnus Agent has seen a major updated and is now enabled by default, and all nntp and nnimap servers from gnus-select-method and gnus-secondary-select-method are agentized by default. Earlier only the server in gnus-select-method was agentized by the default, and the agent was disabled by default. When the agent is enabled, headers are now also retrieved from the Agent cache instead of the back ends when possible. Earlier this only happened in the unplugged state. You can enroll or remove servers with 'J a' and 'J r' in the server buffer. Gnus will not download articles into the Agent cache, unless you instruct it to do so, though, by using 'J u' or 'J s' from the Group buffer. You revert to the old behaviour of having the Agent disabled with (setq gnus-agent nil). Note that putting (gnus-agentize) in '~/.gnus.el' is not needed any more.

- gnus-summary-line-format

  The default value changed to "%U%R%z%I%(%[%4L: %-23,23f%]%) %s/n". Moreover gnus-extra-headers, nnmail-extra-headers and gnus-ignored-from-addresses changed their default so that the users name will be replaced by the recipient's name or the group name posting to for NNTP groups.

- 'deuglify.el' (gnus-article-outlook-deuglify-article)

  A new file from Raymond Scholz *rscholz@zonix.de* for deuglifying broken Outlook (Express) articles.

- (require 'gnus-load)

  If you use a stand-alone Gnus distribution, you'd better add (require 'gnus-load) into your '~/.emacs' after adding the Gnus lisp directory into load-path.

  File 'gnus-load.el' contains autoload commands, functions and variables, some of which may not be included in distributions of Emacsen.

- gnus-slave-unplugged

  A new command which starts Gnus offline in slave mode.

- message-insinuate-rmail

  Adding (message-insinuate-rmail) and (setq mail-user-agent 'gnus-user-agent) in '.emacs' convinces Rmail to compose, reply and forward messages in message-mode, where you can enjoy the power of MML.

- message-minibuffer-local-map

  The line below enables BBDB in resending a message:

```
(define-key message-minibuffer-local-map [(tab)]
  'bbdb-complete-name)
```

- Externalizing and deleting of attachments.

  If gnus-gcc-externalize-attachments or message-fcc-externalize-attachments is non-nil, attach local files as external parts.

  The command gnus-mime-save-part-and-strip (bound to 'C-o' on MIME buttons) saves a part and replaces the part with an external one. gnus-mime-delete-part (bound to 'd' on MIME buttons) removes a part. It works only on back ends that support editing.

- gnus-default-charset

  The default value is determined from the current-language-environment variable, instead of iso-8859-1. Also the ".*" item in gnus-group-charset-alist is removed.

- gnus-posting-styles

  Add a new format of match like

```
((header "to" "larsi.*org")
 (Organization "Somewhere, Inc."))
```

The old format like the lines below is obsolete, but still accepted.

```
(header "to" "larsi.*org"
(Organization "Somewhere, Inc."))
```

- message-ignored-news-headers and message-ignored-mail-headers

  "X-Draft-From" and "X-Gnus-Agent-Meta-Information" have been added into these two variables. If you customized those, perhaps you need add those two headers too.

- Gnus reads the NOV and articles in the Agent if plugged.

  If one reads an article while plugged, and the article already exists in the Agent, it won't get downloaded once more. (setq gnus-agent-cache nil) reverts to the old behavior.

- Gnus supports the "format=flowed" (RFC 2646) parameter. On composing messages, it is enabled by use-hard-newlines. Decoding format=flowed was present but not documented in earlier versions.

- Gnus supports the generation of RFC 2298 Disposition Notification requests.

  This is invoked with the 'C-c M-n' key binding from message mode.

- Gnus supports Maildir groups.

  Gnus includes a new back end 'nnmaildir.el'. See "Maildir" on page 183.

- Printing capabilities are enhanced.

  Gnus supports Muttprint natively with 'O P' from the Summary and Article buffers. Also, each individual MIME part can be printed using 'p' on the MIME button.

- Message supports the Importance: (RFC 2156) header.

  In the message buffer, 'C-c C-f C-i' or 'C-c C-u' cycles through the valid values.

- Gnus supports Cancel Locks in News.

  This means a header "Cancel-Lock" is inserted in news posting. It is used to determine if you wrote an article or not (for canceling and superseding). Gnus generates a random password string the first time you post a message, and saves it in your '~/.emacs' using the Custom system. While the variable is called canlock-password, it is not security sensitive data. Publishing your canlock string on the web will not allow anyone to be able to anything she could not already do. The behaviour can be changed by customizing message-insert-canlock.

- Gnus supports server-side mail filtering using Sieve.

  Sieve rules can be added as Group Parameters for groups, and the complete Sieve script is generated using 'D g' from the Group buffer, and then uploaded to the server using 'C-c C-l' in the generated Sieve buffer. See "Sieve Commands" on page 46, and the new Sieve manual "Top, , Top, sieve, Emacs Sieve" on page ??.

- Extended format specs.

  Format spec "%&user-date;" is added into gnus-summary-line-format-alist. Also, user defined extended format specs are supported. The extended format specs look like "%u&foo;", which invokes function gnus-user-format-function-foo. Because "&" is used as the escape character, old user defined format "%u&" is no longer supported.

- '/ *' (gnus-summary-limit-include-cached) is rewritten.

  It was aliased to 'Y c' (gnus-summary-insert-cached-articles). The new function filters out other articles.

- If 'C-u' is used on subject, author or extra headers, i.e., '/ s', '/ a', and '/ x' (gnus-summary-limit-to-@subject,author,extra@) respectively, the result will be to display all articles that do not match the expression.

- Group names are treated as UTF-8 by default.

  This is supposedly what USEFOR wanted to migrate to. See gnus-group-name-charset-group-alist and gnus-group-name-charset-method-alist for customization.

- The nnml and nnfolder back ends store marks for each groups.

  This makes it possible to take backup of nnml/nnfolder servers/groups separately of '~/.newsrc.eld', while preserving marks. It also makes it possible to share articles and marks between users (without sharing the '~/.newsrc.eld' file) within e.g. a department. It works by storing the marks stored in '~/.newsrc.eld' in a per-group file '.marks' (for nnml) and 'groupname.mrk' (for nnfolder, named groupname). If the nnml/nnfolder is moved to another machine, Gnus will automatically use the '.marks' or '.mrk' file instead of the information in '~/.newsrc.eld'. The new server variables nnml-marks-is-evil and nnfolder-marks-is-evil can be used to disable this feature.

- The menu bar item (in Group and Summary buffer) named "Misc" has been renamed to "Gnus".

- The menu bar item (in Message mode) named "MML" has been renamed to "Attachments". Note that this menu also contains security related stuff, like signing and encryption (see "Security, Security,, message, Message Manual" on page ??).

- gnus-group-charset-alist and gnus-group-ignored-charsets-alist.

  The regexps in these variables are compared with full group names instead of real group names in 5.8. Users who customize these variables should change those regexps accordingly. For example:

  ```
  ("^han\\>" euc-kr) -> ("\\(^\\|:\\)han\\>" euc-kr)
  ```

- Gnus supports PGP (RFC 1991/2440), PGP/MIME (RFC 2015/3156) and S/MIME (RFC 2630-2633).

  It needs an external S/MIME and OpenPGP implementation, but no additional Lisp libraries. This add several menu items to the Attachments menu, and 'C-c RET' key bindings, when composing messages. This also obsoletes gnus-article-hide-pgp-hook.

- Gnus inlines external parts (message/external).

- MML (Mime compose) prefix changed from 'M-m' to 'C-c C-m'.

  This change was made to avoid conflict with the standard binding of back-to-indentation, which is also useful in message mode.

## 14.3 The Manual

This manual was generated from a TeXinfo file and then run through either texi2dvi or my own home-brewed TeXinfo to LaTeX transformer, and then run through latex and dvips to get what you hold in your hands now.

The following conventions have been used:

1. This is a "string"
2. This is a 'keystroke'
3. This is a 'file'
4. This is a symbol

So if I were to say "set flargnoze to "yes"", that would mean:

```
(setq flargnoze "yes")
```

If I say "set flumphel to yes", that would mean:

```
(setq flumphel 'yes)
```

"yes" and yes are two *very* different things—don't ever get them confused.

Of course, everything in this manual is of vital interest, so you should read it all. Several times. However, if you feel like skimming the manual, look for that gnu head you should see in the margin over there—it means that what's being discussed is of more importance than the rest of the stuff. (On the other hand, if everything is infinitely important, how can anything be more important than that? Just one more of the mysteries of this world, I guess.)

## 14.4 On Writing Manuals

I guess most manuals are written after-the-fact; documenting a program that's already there. This is not how this manual is written. When implementing something, I write the manual entry for that something straight away. I then see that it's difficult to explain the functionality, so I write how it's supposed to be, and then I change the implementation. Writing the documentation and writing the code goes hand in hand.

This, of course, means that this manual has no, or little, flow. It documents absolutely everything in Gnus, but often not where you're looking for it. It is a reference manual, and not a guide to how to get started with Gnus.

That would be a totally different book, that should be written using the reference manual as source material. It would look quite differently.

## 14.5 Terminology

*news* This is what you are supposed to use this thing for—reading news. News is generally fetched from a nearby NNTP server, and is generally publicly available to everybody. If you post news, the entire world is likely to read just what you have written, and they'll all snigger mischievously. Behind your back.

*mail* Everything that's delivered to you personally is mail. Some news/mail readers (like Gnus) blur the distinction between mail and news, but there is a difference. Mail is private. News is public. Mailing is not posting, and replying is not following up.

*reply* Send a mail to the person who has written what you are reading.

*follow up* Post an article to the current newsgroup responding to the article you are reading.

*back end* Gnus considers mail and news to be mostly the same, really. The only difference is how to access the actual articles. News articles are commonly fetched via the protocol NNTP, whereas mail messages could be read from a file on the local disk. The internal architecture of Gnus thus comprises a "front end" and a number of "back ends". Internally, when you enter a group (by hitting 'RET', say), you thereby invoke a function in the front end in Gnus. The front end then "talks" to a back end and says things like "Give me the list of articles in the foo group" or "Show me article number 4711".

So a back end mainly defines either a protocol (the nntp back end accesses news via NNTP, the nnimap back end accesses mail via IMAP) or a file format and directory layout (the nnspool back end accesses news via the common "spool directory" format, the nnml back end access mail via a file format and directory layout that's quite similar).

Gnus does not handle the underlying media, so to speak—this is all done by the back ends. A back end is a collection of functions to access the articles.

However, sometimes the term "back end" is also used where "server" would have been more appropriate. And then there is the term "select method" which can mean either. The Gnus terminology can be quite confusing.

*native* Gnus will always use one method (and back end) as the *native*, or default, way of getting news.

*foreign* You can also have any number of foreign groups active at the same time. These are groups that use non-native non-secondary back ends for getting news.

*secondary* Secondary back ends are somewhere half-way between being native and being foreign, but they mostly act like they are native.

*article* A message that has been posted as news.

*mail message* A message that has been mailed.

*message* A mail message or news article

*head* The top part of a message, where administrative information (etc.) is put.

*body* The rest of an article. Everything not in the head is in the body.

*header* A line from the head of an article.

*headers* A collection of such lines, or a collection of heads. Or even a collection of NOV lines.

NOV When Gnus enters a group, it asks the back end for the headers of all unread articles in the group. Most servers support the News OverView format, which is more compact and much faster to read and parse than the normal HEAD format.

*level* Each group is subscribed at some *level* or other (1-9). The ones that have a lower level are "more" subscribed than the groups with a higher level. In fact, groups on levels 1-5 are considered *subscribed*; 6-7 are *unsubscribed*; 8 are *zombies*; and 9 are *killed*. Commands for listing groups and scanning for new articles will all use the numeric prefix as *working level*.

*killed groups* No information on killed groups is stored or updated, which makes killed groups much easier to handle than subscribed groups.

*zombie groups* Just like killed groups, only slightly less dead.

*active file* The news server has to keep track of what articles it carries, and what groups exist. All this information in stored in the active file, which is rather large, as you might surmise.

*bogus groups* A group that exists in the '.newsrc' file, but isn't known to the server (i.e., it isn't in the active file), is a *bogus group*. This means that the group probably doesn't exist (any more).

*activating* The act of asking the server for info on a group and computing the number of unread articles is called *activating the group*. Un-activated groups are listed with "*" in the group buffer.

*server* A machine one can connect to and get news (or mail) from.

*select method* A structure that specifies the back end, the server and the virtual server settings.

*virtual server* A named select method. Since a select method defines all there is to know about connecting to a (physical) server, taking the thing as a whole is a virtual server.

*washing* Taking a buffer and running it through a filter of some sort. The result will (more often than not) be cleaner and more pleasing than the original.

*ephemeral groups* Most groups store data on what articles you have read. *Ephemeral* groups are groups that will have no data stored—when you exit the group, it'll disappear into the aether.

*solid groups* This is the opposite of ephemeral groups. All groups listed in the group buffer are solid groups.

*sparse articles* These are article placeholders shown in the summary buffer when gnus-build-sparse-threads has been switched on.

*threading* To put responses to articles directly after the articles they respond to—in a hierarchical fashion.

*root* The first article in a thread is the root. It is the ancestor of all articles in the thread.

*parent* An article that has responses.

*child* An article that responds to a different article—its parent.

*digest* A collection of messages in one file. The most common digest format is specified by RFC 1153.

*splitting* The action of sorting your emails according to certain rules. Sometimes incorrectly called mail filtering.

## 14.6 Customization

All variables are properly documented elsewhere in this manual. This section is designed to give general pointers on how to customize Gnus for some quite common situations.

### 14.6.1 Slow/Expensive NNTP Connection

If you run Emacs on a machine locally, and get your news from a machine over some very thin strings, you want to cut down on the amount of data Gnus has to get from the NNTP server.

gnus-read-active-file Set this to nil, which will inhibit Gnus from requesting the entire active file from the server. This file is often v. large. You also have to set gnus-check-new-newsgroups and gnus-check-bogus-newsgroups to nil to make sure that Gnus doesn't suddenly decide to fetch the active file anyway.

gnus-nov-is-evil This one has to be nil. If not, grabbing article headers from the NNTP server will not be very fast. Not all NNTP servers support XOVER; Gnus will detect this by itself.

### 14.6.2 Slow Terminal Connection

Let's say you use your home computer for dialing up the system that runs Emacs and Gnus. If your modem is slow, you want to reduce (as much as possible) the amount of data sent over the wires.

gnus-auto-center-summary Set this to nil to inhibit Gnus from re-centering the summary buffer all the time. If it is vertical, do only vertical re-centering. If it is neither nil nor vertical, do both horizontal and vertical recentering.

gnus-visible-headers Cut down on the headers included in the articles to the minimum. You can, in fact, make do without them altogether—most of the useful data is in the summary buffer, anyway. Set this variable to "^NEVVVVER" or "From:", or whatever you feel you need.

Set this hook to all the available hiding commands:

```
(setq gnus-treat-hide-headers 'head
      gnus-treat-hide-signature t
      gnus-treat-hide-citation t)
```

gnus-use-full-window By setting this to nil, you can make all the windows smaller. While this doesn't really cut down much generally, it means that you have to see smaller portions of articles before deciding that you didn't want to read them anyway.

gnus-thread-hide-subtree If this is non-nil, all threads in the summary buffer will be hidden initially.

gnus-updated-mode-lines If this is nil, Gnus will not put information in the buffer mode lines, which might save some time.

### 14.6.3 Little Disk Space

The startup files can get rather large, so you may want to cut their sizes a bit if you are running out of space.

gnus-save-newsrc-file If this is nil, Gnus will never save '.newsrc'—it will only save '.newsrc.eld'. This means that you will not be able to use any other newsreaders than Gnus. This variable is t by default.

gnus-read-newsrc-file If this is nil, Gnus will never read '.newsrc'—it will only read '.newsrc.eld'. This means that you will not be able to use any other newsreaders than Gnus. This variable is t by default.

gnus-save-killed-list If this is nil, Gnus will not save the list of dead groups. You should also set gnus-check-new-newsgroups to ask-server and gnus-check-bogus-newsgroups to nil if you set this variable to nil. This variable is t by default.

### 14.6.4 Slow Machine

If you have a slow machine, or are just really impatient, there are a few things you can do to make Gnus run faster.

Set gnus-check-new-newsgroups and gnus-check-bogus-newsgroups to nil to make startup faster.

Set gnus-show-threads, gnus-use-cross-reference and gnus-nov-is-evil to nil to make entering and exiting the summary buffer faster.

## 14.7 Troubleshooting

Gnus works *so* well straight out of the box—I can't imagine any problems, really.

Ahem.

1. Make sure your computer is switched on.
2. Make sure that you really load the current Gnus version. If you have been running GNUS, you need to exit Emacs and start it up again before Gnus will work.
3. Try doing an 'M-x gnus-version'. If you get something that looks like "Gnus v5.46; nntp 4.0" you have the right files loaded. If, on the other hand, you get something like "NNTP 3.x" or "nntp flee", you have some old '.el' files lying around. Delete these.
4. Read the help group ('G h' in the group buffer) for a FAQ and a how-to.
5. Gnus works on many recursive structures, and in some extreme (and very rare) cases Gnus may recurse down "too deeply" and Emacs will beep at you. If this happens to you, set max-lisp-eval-depth to 500 or something like that.

If all else fails, report the problem as a bug.

If you find a bug in Gnus, you can report it with the 'M-x gnus-bug' command. 'M-x set-variable RET debug-on-error RET t RET', and send me the backtrace. I will fix bugs, but I can only fix them if you send me a precise description as to how to reproduce the bug.

You really can never be too detailed in a bug report. Always use the 'M-x gnus-bug' command when you make bug reports, even if it creates a 10Kb mail each time you use it, and even if you have sent me your environment 500 times before. I don't care. I want the full info each time.

It is also important to remember that I have no memory whatsoever. If you send a bug report, and I send you a reply, and then you just send back "No, it's not! Moron!", I will have no idea what you are insulting me about. Always over-explain everything. It's much easier for all of us—if I don't have all the information I need, I will just mail you and ask for more info, and everything takes more time.

If the problem you're seeing is very visual, and you can't quite explain it, copy the Emacs window to a file (with xwd, for instance), put it somewhere it can be reached, and include the URL of the picture in the bug report.

If you would like to contribute a patch to fix bugs or make improvements, please produce the patch using "diff -u".

If you want to debug your problem further before reporting, possibly in order to solve the problem yourself and send a patch, you can use edebug. Debugging Lisp code is documented in the Elisp manual (see "Debugging, , Debugging Lisp Programs, elisp, The GNU Emacs Lisp Reference Manual" on page ??). To get you started with edebug, consider if you discover some weird behaviour when pressing

'c', the first step is to do 'C-h k c' and click on the hyperlink (Emacs only) in the documentation buffer that leads you to the function definition, then press 'M-x edebug-defun RET' with point inside that function, return to Gnus and press 'c' to invoke the code. You will be placed in the lisp buffer and can single step using 'SPC' and evaluate expressions using 'M-:' or inspect variables using 'C-h v', abort execution with 'q', and resume execution with 'c' or 'g'.

Sometimes, a problem do not directly generate an elisp error but manifests itself by causing Gnus to be very slow. In these cases, you can use 'M-x toggle-debug-on-quit' and press 'C-g' when things are slow, and then try to analyze the backtrace (repeating the procedure helps isolating the real problem areas).

A fancier approach is to use the elisp profiler, ELP. The profiler is (or should be) fully documented elsewhere, but to get you started there are a few steps that need to be followed. First, instrument the part of Gnus you are interested in for profiling, e.g. 'M-x elp-instrument-package RET gnus' or 'M-x elp-instrument-package RET message'. Then perform the operation that is slow and press 'M-x elp-results'. You will then see which operations that takes time, and can debug them further. If the entire operation takes much longer than the time spent in the slowest function in the profiler output, you probably profiled the wrong part of Gnus. To reset profiling statistics, use 'M-x elp-reset-all'. 'M-x elp-restore-all' is supposed to remove profiling, but given the complexities and dynamic code generation in Gnus, it might not always work perfectly.

If you just need help, you are better off asking on "gnu.emacs.gnus". I'm not very helpful. You can also ask on *ding@gnus.org, the ding mailing list.* Write to *ding-request@gnus.org* to subscribe.

## 14.8 Gnus Reference Guide

It is my hope that other people will figure out smart stuff that Gnus can do, and that other people will write those smart things as well. To facilitate that I thought it would be a good idea to describe the inner workings of Gnus. And some of the not-so-inner workings, while I'm at it.

You can never expect the internals of a program not to change, but I will be defining (in some details) the interface between Gnus and its back ends (this is written in stone), the format of the score files (ditto), data structures (some are less likely to change than others) and general methods of operation.

### 14.8.1 Gnus Utility Functions

When writing small functions to be run from hooks (and stuff), it's vital to have access to the Gnus internal functions and variables. Below is a list of the most common ones.

gnus-newsgroup-name This variable holds the name of the current newsgroup.

gnus-find-method-for-group A function that returns the select method for group.

gnus-group-real-name Takes a full (prefixed) Gnus group name, and returns the unprefixed name.

gnus-group-prefixed-name Takes an unprefixed group name and a select method, and returns the full (prefixed) Gnus group name.

gnus-get-info Returns the group info list for group.

gnus-group-unread The number of unread articles in group, or t if that is unknown.

gnus-active The active entry for group.

gnus-set-active Set the active entry for group.

gnus-add-current-to-buffer-list Adds the current buffer to the list of buffers to be killed on Gnus exit.

gnus-continuum-version Takes a Gnus version string as a parameter and returns a floating point number. Earlier versions will always get a lower number than later versions.

gnus-group-read-only-p Says whether group is read-only or not.

gnus-news-group-p Says whether group came from a news back end.

gnus-ephemeral-group-p Says whether group is ephemeral or not.

gnus-server-to-method Returns the select method corresponding to server.

gnus-server-equal Says whether two virtual servers are equal.

gnus-group-native-p Says whether group is native or not.

gnus-group-secondary-p Says whether group is secondary or not.

gnus-group-foreign-p Says whether group is foreign or not.

gnus-group-find-parameter Returns the parameter list of group. If given a second parameter, returns the value of that parameter for group.

gnus-group-set-parameter Takes three parameters; group, parameter and value.

gnus-narrow-to-body Narrows the current buffer to the body of the article.

gnus-check-backend-function Takes two parameters, function and group. If the back end group comes from supports function, return non-nil.

```
(gnus-check-backend-function "request-scan" "nnml:misc")
\gnusresult{} t
```

gnus-read-method Prompts the user for a select method.

### 14.8.2 Back End Interface

Gnus doesn't know anything about NNTP, spools, mail or virtual groups. It only knows how to talk to *virtual servers*. A virtual server is a *back end* and some *back end variables*. As examples of the first, we have nntp, nnspool and nnmbox. As examples of the latter we have nntp-port-number and nnmbox-directory.

When Gnus asks for information from a back end—say nntp—on something, it will normally include a virtual server name in the function parameters. (If not, the back end should use the "current" virtual server.) For instance, nntp-request-list takes a virtual server as its only (optional) parameter. If this virtual server hasn't been opened, the function should fail.

Note that a virtual server name has no relation to some physical server name. Take this example:

```
(nntp "odd-one"
      (nntp-address "ifi.uio.no")
      (nntp-port-number 4324))
```

Here the virtual server name is "odd-one" while the name of the physical server is "ifi.uio.no".

The back ends should be able to switch between several virtual servers. The standard back ends implement this by keeping an alist of virtual server environments that they pull down/push up when needed.

There are two groups of interface functions: *required functions*, which must be present, and *optional functions*, which Gnus will always check for presence before attempting to call 'em.

All these functions are expected to return data in the buffer nntp-server-buffer (" *nntpd*"), which is somewhat unfortunately named, but we'll have to live with it. When I talk about *resulting data*, I always refer to the data in that buffer. When I talk about *return value*, I talk about the function value returned by the function call. Functions that fail should return nil as the return value.

Some back ends could be said to be *server-forming* back ends, and some might be said not to be. The latter are back ends that generally only operate on one group at a time, and have no concept of "server" —they have a group, and they deliver info on that group and nothing more.

Gnus identifies each message by way of group name and article number. A few remarks about these article numbers might be useful. First of all, the numbers are positive integers. Secondly, it is normally not possible for later articles to "re-use" older article numbers without confusing Gnus. That is, if a group has ever contained a message numbered 42, then no other message may get that number, or Gnus will get mightily confused.[1] Third, article numbers must be assigned in order of arrival in the group; this is not necessarily the same as the date of the message.

The previous paragraph already mentions all the "hard" restrictions that article numbers must fulfill. But it seems that it might be useful to assign *consecutive* article numbers, for Gnus gets quite confused if there are holes in the article numbering sequence. However, due to the "no-reuse" restriction, holes cannot be avoided altogether. It's also useful for the article numbers to start at 1 to avoid running out of numbers as long as possible.

Note that by convention, back ends are named nnsomething, but Gnus also comes with some nnnotbackends, such as 'nnheader.el', 'nnmail.el' and 'nnoo.el'.

In the examples and definitions I will refer to the imaginary back end nnchoke.

#### 14.8.2.1 Required Back End Functions

(nnchoke-retrieve-headers ARTICLES &optional GROUP SERVER FETCH-OLD) articles is either a range of article numbers or a list of Message-IDs. Current back ends do not fully support either—only sequences (lists) of article numbers, and most back ends do not support retrieval of Message-IDs. But they should try for both.

The result data should either be HEADs or NOV lines, and the result value should either be headers or nov to reflect this. This might later be expanded to various, which will be a mixture of HEADs and NOV lines, but this is currently not supported by Gnus.

If fetch-old is non-nil it says to try fetching "extra headers", in some meaning

[1] See the function nnchoke-request-update-info, "Optional Back End Functions" on page 411.

of the word. This is generally done by fetching (at most) fetch-old extra headers less than the smallest article number in articles, and filling the gaps as well. The presence of this parameter can be ignored if the back end finds it cumbersome to follow the request. If this is non-nil and not a number, do maximum fetches.

Here's an example HEAD:

```
221 1056 Article retrieved.
Path: ifi.uio.no!sturles
From: sturles@ifi.uio.no (Sturle Sunde)
Newsgroups: ifi.discussion
Subject: Re: Something very droll
Date: 27 Oct 1994 14:02:57 +0100
Organization: Dept. of Informatics, University of Oslo, Norway
Lines: 26
Message-ID: <38o8e1$a0o@holmenkollen.ifi.uio.no>
References: <38jdmq$4qu@visbur.ifi.uio.no>
NNTP-Posting-Host: holmenkollen.ifi.uio.no
.
```

So a headers return value would imply that there's a number of these in the data buffer.

Here's a BNF definition of such a buffer:

```
headers        = *head
head           = error / valid-head
error-message  = [ "4" / "5" ] 2number " " <error message> eol
valid-head     = valid-message *header "." eol
valid-message  = "221 " <number> " Article retrieved." eol
header         = <text> eol
```

(The version of BNF used here is the one used in RFC822.)

If the return value is nov, the data buffer should contain *network overview database* lines. These are basically fields separated by tabs.

```
nov-buffer = *nov-line
nov-line   = field 7*8[ <TAB> field ] eol
field      = <text except TAB>
```

For a closer look at what should be in those fields, see "Headers" on page 421.

(nnchoke-open-server SERVER &optional DEFINITIONS) server is here the virtual server name. definitions is a list of (VARIABLE VALUE) pairs that define this virtual server.

If the server can't be opened, no error should be signaled. The back end may then choose to refuse further attempts at connecting to this server. In fact, it should do so.

If the server is opened already, this function should return a non-nil value. There should be no data returned.

(nnchoke-close-server &optional SERVER) Close connection to server and free all resources connected to it. Return nil if the server couldn't be closed for some reason.

There should be no data returned.

(nnchoke-request-close) Close connection to all servers and free all resources that the back end have reserved. All buffers that have been created by that back end should be killed. (Not the nntp-server-buffer, though.) This function is generally only called when Gnus is shutting down.

There should be no data returned.

(nnchoke-server-opened &optional SERVER) If server is the current virtual server, and the connection to the physical server is alive, then this function should return a non-nil value. This function should under no circumstances attempt to reconnect to a server we have lost connection to.

There should be no data returned.

(nnchoke-status-message &optional SERVER) This function should return the last error message from server.

There should be no data returned.

(nnchoke-request-article ARTICLE &optional GROUP SERVER TO-BUFFER) The result data from this function should be the article specified by article. This might either be a Message-ID or a number. It is optional whether to implement retrieval by Message-ID, but it would be nice if that were possible.

If to-buffer is non-nil, the result data should be returned in this buffer instead of the normal data buffer. This is to make it possible to avoid copying large amounts of data from one buffer to another, while Gnus mainly requests articles to be inserted directly into its article buffer.

If it is at all possible, this function should return a cons cell where the car is the group name the article was fetched from, and the cdr is the article number. This will enable Gnus to find out what the real group and article numbers are when fetching articles by Message-ID. If this isn't possible, t should be returned on successful article retrieval.

(nnchoke-request-group GROUP &optional SERVER FAST) Get data on group. This function also has the side effect of making group the current group.

If fast, don't bother to return useful data, just make group the current group.

Here's an example of some result data and a definition of the same:

```
211 56 1000 1059 ifi.discussion
```

The first number is the status, which should be 211. Next is the total number of articles in the group, the lowest article number, the highest article number, and finally the group name. Note that the total number of articles may be less than one might think while just considering the highest and lowest article numbers, but some articles may have been canceled. Gnus just discards the total-number, so whether one should take the bother to generate it properly (if that is a problem) is left as an exercise to the reader. If the group contains no articles, the lowest article number should be reported as 1 and the highest as 0.

```
group-status = [ error / info ] eol
error        = [ "4" / "5" ] 2<number> " " <Error message>
info         = "211 " 3* [ <number> " " ] <string>
```

(nnchoke-close-group GROUP &optional SERVER) Close group and free any resources connected to it. This will be a no-op on most back ends.

There should be no data returned.

(nnchoke-request-list &optional SERVER) Return a list of all groups available on server. And that means *all*.

Here's an example from a server that only carries two groups:

```
ifi.test 0000002200 0000002000 y
ifi.discussion 3324 3300 n
```

On each line we have a group name, then the highest article number in that group, the lowest article number, and finally a flag. If the group contains no articles, the lowest article number should be reported as 1 and the highest as 0.

```
active-file = *active-line
active-line = name " " <number> " " <number> " " flags eol
name        = <string>
flags       = "n" / "y" / "m" / "x" / "j" / "=" name
```

The flag says whether the group is read-only ("n"), is moderated ("m"), is dead ("x"), is aliased to some other group ("=other-group") or none of the above ("y").

(nnchoke-request-post &optional SERVER) This function should post the current buffer. It might return whether the posting was successful or not, but that's not required. If, for instance, the posting is done asynchronously, it has generally not been completed by the time this function concludes. In that case, this function should set up some kind of sentinel to beep the user loud and clear if the posting could not be completed.

There should be no result data from this function.

#### 14.8.2.2 Optional Back End Functions

(nnchoke-retrieve-groups GROUPS &optional SERVER) groups is a list of groups, and this function should request data on all those groups. How it does it is of no concern to Gnus, but it should attempt to do this in a speedy fashion.

The return value of this function can be either active or group, which says what the format of the result data is. The former is in the same format as the data from nnchoke-request-list, while the latter is a buffer full of lines in the same format as nnchoke-request-group gives.

```
group-buffer = *active-line / *group-status
```

(nnchoke-request-update-info GROUP INFO &optional SERVER) A Gnus group info (see "Group Info" on page 422) is handed to the back end for alterations. This comes in handy if the back end really carries all the information (as is the case with virtual and imap groups). This function should destructively alter the info to suit its needs, and should return a non-nil value.

There should be no result data from this function.

(nnchoke-request-type GROUP &optional ARTICLE) When the user issues commands for "sending news" ('F' in the summary buffer, for instance), Gnus has to know whether the article the user is following up on is news or mail. This function should return news if article in group is news, mail if it is mail and unknown if the type can't be decided. (The article parameter is necessary in nnvirtual groups which might very well combine mail groups and news groups.) Both group and article may be nil.

There should be no result data from this function.

(nnchoke-request-set-mark GROUP ACTION &optional SERVER) Set/remove/add marks on articles. Normally Gnus handles the article marks (such as read, ticked, expired etc) internally, and store them in '~/.newsrc.eld'. Some back ends

(such as IMAP) however carry all information about the articles on the server, so Gnus need to propagate the mark information to the server.

action is a list of mark setting requests, having this format:

```
(RANGE ACTION MARK)
```

range is a range of articles you wish to update marks on. action is add or del, used to add marks or remove marks (preserving all marks not mentioned). mark is a list of marks; where each mark is a symbol. Currently used marks are read, tick, reply, expire, killed, dormant, save, download, unsend, forward and recent, but your back end should, if possible, not limit itself to these.

Given contradictory actions, the last action in the list should be the effective one. That is, if your action contains a request to add the tick mark on article 1 and, later in the list, a request to remove the mark on the same article, the mark should in fact be removed.

An example action list:

```
(((5 12 30) 'del '(tick))
 ((10 . 90) 'add '(read expire))
 ((92 94) 'del '(read)))
```

The function should return a range of articles it wasn't able to set the mark on (currently not used for anything).

There should be no result data from this function.

(nnchoke-request-update-mark GROUP ARTICLE MARK) If the user tries to set a mark that the back end doesn't like, this function may change the mark. Gnus will use whatever this function returns as the mark for article instead of the original mark. If the back end doesn't care, it must return the original mark, and not nil or any other type of garbage.

The only use for this I can see is what nnvirtual does with it—if a component group is auto-expirable, marking an article as read in the virtual group should result in the article being marked as expirable.

There should be no result data from this function.

(nnchoke-request-scan &optional GROUP SERVER) This function may be called at any time (by Gnus or anything else) to request that the back end check for incoming articles, in one way or another. A mail back end will typically read the spool file or query the POP server when this function is invoked. The group doesn't have to be heeded—if the back end decides that it is too much work just scanning for a single group, it may do a total scan of all groups. It would be nice, however, to keep things local if that's practical.

There should be no result data from this function.

(nnchoke-request-group-description GROUP &optional SERVER) The result data from this function should be a description of group.

```
description-line = name <TAB> description eol
name             = <string>
description      = <text>
```

(nnchoke-request-list-newsgroups &optional SERVER) The result data from this function should be the description of all groups available on the server.

```
description-buffer = *description-line
```

(nnchoke-request-newgroups DATE &optional SERVER) The result data from this function should be all groups that were created after "date", which is in normal human-readable date format (i.e., the date format used in mail and news headers, and returned by the function message-make-date by default). The data should be in the active buffer format.

It is okay for this function to return "too many" groups; some back ends might find it cheaper to return the full list of groups, rather than just the new groups. But don't do this for back ends with many groups. Normally, if the user creates the groups herself, there won't be too many groups, so nnml and the like are probably safe. But for back ends like nntp, where the groups have been created by the server, it is quite likely that there can be many groups.

(nnchoke-request-create-group GROUP &optional SERVER) This function should create an empty group with name group.

There should be no return data.

(nnchoke-request-expire-articles ARTICLES &optional GROUP SERVER FORCE) This function should run the expiry process on all articles in the articles range (which is currently a simple list of article numbers.) It is left up to the back end to decide how old articles should be before they are removed by this function. If force is non-nil, all articles should be deleted, no matter how new they are.

This function should return a list of articles that it did not/was not able to delete.

There should be no result data returned.

(nnchoke-request-move-article ARTICLE GROUP SERVER ACCEPT-FORM &optional LAST) This function should move article (which is a number) from group by calling accept-form.

This function should ready the article in question for moving by removing any header lines it has added to the article, and generally should "tidy up" the

article. Then it should eval accept-form in the buffer where the "tidy" article is. This will do the actual copying. If this eval returns a non-nil value, the article should be removed.

If last is nil, that means that there is a high likelihood that there will be more requests issued shortly, so that allows some optimizations.

The function should return a cons where the car is the group name and the cdr is the article number that the article was entered as.

There should be no data returned.

(nnchoke-request-accept-article GROUP &optional SERVER LAST) This function takes the current buffer and inserts it into group. If last in nil, that means that there will be more calls to this function in short order.

The function should return a cons where the car is the group name and the cdr is the article number that the article was entered as.

The group should exist before the back end is asked to accept the article for that group.

There should be no data returned.

(nnchoke-request-replace-article ARTICLE GROUP BUFFER) This function should remove article (which is a number) from group and insert buffer there instead.

There should be no data returned.

(nnchoke-request-delete-group GROUP FORCE &optional SERVER) This function should delete group. If force, it should really delete all the articles in the group, and then delete the group itself. (If there is such a thing as "the group itself".)

There should be no data returned.

(nnchoke-request-rename-group GROUP NEW-NAME &optional SERVER) This function should rename group into new-name. All articles in group should move to new-name.

There should be no data returned.

#### 14.8.2.3 Error Messaging

The back ends should use the function nnheader-report to report error conditions—they should not raise errors when they aren't able to perform a request. The first argument to this function is the back end symbol, and the rest are interpreted as arguments to format if there are multiple of them, or just a string if there is one of them. This function must always returns nil.

```
(nnheader-report 'nnchoke "You did something totally bogus")

(nnheader-report 'nnchoke "Could not request group %s" group)
```

Gnus, in turn, will call nnheader-get-report when it gets a nil back from a server, and this function returns the most recently reported message for the back end in question. This function takes one argument—the server symbol.

Internally, these functions access back-end-status-string, so the nnchoke back end will have its error message stored in nnchoke-status-string.

#### 14.8.2.4 Writing New Back Ends

Many back ends are quite similar. nnml is just like nnspool, but it allows you to edit the articles on the server. nnmh is just like nnml, but it doesn't use an active file, and it doesn't maintain overview databases. nndir is just like nnml, but it has no concept of "groups", and it doesn't allow editing articles.

It would make sense if it were possible to "inherit" functions from back ends when writing new back ends. And, indeed, you can do that if you want to. (You don't have to if you don't want to, of course.)

All the back ends declare their public variables and functions by using a package called nnoo.

To inherit functions from other back ends (and allow other back ends to inherit functions from the current back end), you should use the following macros:

nnoo-declare This macro declares the first parameter to be a child of the subsequent parameters. For instance:

```
(nnoo-declare nndir
  nnml nnmh)
```

nndir has declared here that it intends to inherit functions from both nnml and nnmh.

defvoo This macro is equivalent to defvar, but registers the variable as a public server variable. Most state-oriented variables should be declared with defvoo instead of defvar.

In addition to the normal defvar parameters, it takes a list of variables in the parent back ends to map the variable to when executing a function in those back ends.

```
(defvoo nndir-directory nil
  "Where nndir will look for groups."
  nnml-current-directory nnmh-current-directory)
```

This means that nnml-current-directory will be set to nndir-directory when an nnml function is called on behalf of nndir. (The same with nnmh.)

nnoo-define-basics This macro defines some common functions that almost all back ends should have.

```
(nnoo-define-basics nndir)
```

**deffoo** This macro is just like **defun** and takes the same parameters. In addition to doing the normal **defun** things, it registers the function as being public so that other back ends can inherit it.

**nnoo-map-functions** This macro allows mapping of functions from the current back end to functions from the parent back ends.

```
(nnoo-map-functions nndir
  (nnml-retrieve-headers 0 nndir-current-group 0 0)
  (nnmh-request-article 0 nndir-current-group 0 0))
```

This means that when **nndir-retrieve-headers** is called, the first, third, and fourth parameters will be passed on to **nnml-retrieve-headers**, while the second parameter is set to the value of **nndir-current-group**.

**nnoo-import** This macro allows importing functions from back ends. It should be the last thing in the source file, since it will only define functions that haven't already been defined.

```
(nnoo-import nndir
  (nnmh
   nnmh-request-list
   nnmh-request-newgroups)
  (nnml))
```

This means that calls to **nndir-request-list** should just be passed on to **nnmh-request-list**, while all public functions from **nnml** that haven't been defined in **nndir** yet should be defined now.

Below is a slightly shortened version of the **nndir** back end.

```
;;; \gnusr{nndir.el --- single directory newsgroup access for Gnus}
;; \gnusr{Copyright (C) 1995,96 Free Software Foundation, Inc.}

;;; \gnusr{Code:}

(require 'nnheader)
(require 'nnmh)
(require 'nnml)
(require 'nnoo)
(eval-when-compile (require 'cl))
```

```
(nnoo-declare nndir
  nnml nnmh)

(defvoo nndir-directory nil
  "Where nndir will look for groups."
  nnml-current-directory nnmh-current-directory)

(defvoo nndir-nov-is-evil nil
  "*Non-nil means that nndir will never retrieve NOV headers."
  nnml-nov-is-evil)

(defvoo nndir-current-group ""
  nil
  nnml-current-group nnmh-current-group)
(defvoo nndir-top-directory nil nil nnml-directory nnmh-directory)
(defvoo nndir-get-new-mail nil nil nnml-get-new-mail nnmh-get-new-mail)

(defvoo nndir-status-string "" nil nnmh-status-string)
(defconst nndir-version "nndir 1.0")

;;; \gnusr{Interface functions.}

(nnoo-define-basics nndir)

(deffoo nndir-open-server (server &optional defs)
  (setq nndir-directory
        (or (cadr (assq 'nndir-directory defs))
            server))
  (unless (assq 'nndir-directory defs)
    (push `(nndir-directory ,server) defs))
  (push `(nndir-current-group
          ,(file-name-nondirectory
            (directory-file-name nndir-directory)))
        defs)
  (push `(nndir-top-directory
          ,(file-name-directory (directory-file-name nndir-directory)))
        defs)
  (nnoo-change-server 'nndir server defs))

(nnoo-map-functions nndir
  (nnml-retrieve-headers 0 nndir-current-group 0 0)
  (nnmh-request-article 0 nndir-current-group 0 0)
  (nnmh-request-group nndir-current-group 0 0)
  (nnmh-close-group nndir-current-group 0))
```

```
(nnoo-import nndir
  (nnmh
   nnmh-status-message
   nnmh-request-list
   nnmh-request-newgroups))

(provide 'nndir)
```

#### 14.8.2.5 Hooking New Back Ends Into Gnus

Having Gnus start using your new back end is rather easy—you just declare it with the gnus-declare-backend functions. This will enter the back end into the gnus-valid-select-methods variable.

gnus-declare-backend takes two parameters—the back end name and an arbitrary number of *abilities*.

Here's an example:

```
(gnus-declare-backend "nnchoke" 'mail 'respool 'address)
```

The above line would then go in the 'nnchoke.el' file.

The abilities can be:

mail This is a mailish back end—followups should (probably) go via mail.

post This is a newsish back end—followups should (probably) go via news.

post-mail This back end supports both mail and news.

none This is neither a post nor mail back end—it's something completely different.

respool It supports respooling—or rather, it is able to modify its source articles and groups.

address The name of the server should be in the virtual server name. This is true for almost all back ends.

prompt-address The user should be prompted for an address when doing commands like 'B' in the group buffer. This is true for back ends like nntp, but not nnmbox, for instance.

#### 14.8.2.6 Mail-like Back Ends

One of the things that separate the mail back ends from the rest of the back ends is the heavy dependence by most of the mail back ends on common functions in 'nnmail.el'. For instance, here's the definition of nnml-request-scan:

```
(deffoo nnml-request-scan (&optional group server)
  (setq nnml-article-file-alist nil)
  (nnmail-get-new-mail 'nnml 'nnml-save-nov nnml-directory group))
```

It simply calls nnmail-get-new-mail with a few parameters, and nnmail takes care of all the moving and splitting of the mail.

This function takes four parameters.

method This should be a symbol to designate which back end is responsible for the call.

exit-function This function should be called after the splitting has been performed.

temp-directory Where the temporary files should be stored.

group This optional argument should be a group name if the splitting is to be performed for one group only.

nnmail-get-new-mail will call back-end-save-mail to save each article. back-end-active-number will be called to find the article number assigned to this article.

The function also uses the following variables: back-end-get-new-mail (to see whether to get new mail for this back end); and back-end-group-alist and back-end-active-file to generate the new active file. back-end-group-alist should be a group-active alist, like this:

```
(("a-group" (1 . 10))
 ("some-group" (34 . 39)))
```

### 14.8.3 Score File Syntax

Score files are meant to be easily parseable, but yet extremely mallable. It was decided that something that had the same read syntax as an Emacs Lisp list would fit that spec.

Here's a typical score file:

```
(("summary"
  ("win95" -10000 nil s)
  ("Gnus"))
 ("from"
  ("Lars" -1000))
 (mark -100))
```

BNF definition of a score file:

```
score-file      = "" / "(" *element ")"
element         = rule / atom
rule            = string-rule / number-rule / date-rule
string-rule     = "(" quote string-header quote space *string-match "
number-rule     = "(" quote number-header quote space *number-match "
date-rule       = "(" quote date-header quote space *date-match ")"
quote           = <ascii 34>
string-header   = "subject" / "from" / "references" / "message-id" /
                  "xref" / "body" / "head" / "all" / "followup"
number-header   = "lines" / "chars"
date-header     = "date"
string-match    = "(" quote <string> quote [ "" / [ space score [ "" 
                  space date [ "" / [ space string-match-t ] ] ] ] ]
score           = "nil" / <integer>
date            = "nil" / <natural number>
string-match-t  = "nil" / "s" / "substring" / "S" / "Substring" /
                  "r" / "regex" / "R" / "Regex" /
                  "e" / "exact" / "E" / "Exact" /
                  "f" / "fuzzy" / "F" / "Fuzzy"
number-match    = "(" <integer> [ "" / [ space score [ "" /
                  space date [ "" / [ space number-match-t ] ] ] ] ]
number-match-t  = "nil" / "=" / "<" / ">" / ">=" / "<="
date-match      = "(" quote <string> quote [ "" / [ space score [ "" 
                  space date [ "" / [ space date-match-t ] ] ] ] ")"
date-match-t    = "nil" / "at" / "before" / "after"
atom            = "(" [ required-atom / optional-atom ] ")"
required-atom   = mark / expunge / mark-and-expunge / files /
                  exclude-files / read-only / touched
optional-atom   = adapt / local / eval
mark            = "mark" space nil-or-number
nil-or-number   = "nil" / <integer>
expunge         = "expunge" space nil-or-number
mark-and-expunge = "mark-and-expunge" space nil-or-number
files           = "files" *[ space <string> ]
exclude-files   = "exclude-files" *[ space <string> ]
read-only       = "read-only" [ space "nil" / space "t" ]
adapt        = "adapt" [ space "ignore" / space "t" / space adapt-rul
adapt-rule      = "(" *[ <string> *[ "(" <string> <integer> ")" ] ")"
local           = "local" *[ space "(" <string> space <form> ")" ]
eval            = "eval" space <form>
space           = *[ " " / <TAB> / <NEWLINE> ]
```

Any unrecognized elements in a score file should be ignored, but not discarded.

As you can see, white space is needed, but the type and amount of white space is irrelevant. This means that formatting of the score file is left up to the programmer—if it's simpler to just spew it all out on one looong line, then that's ok.

The meaning of the various atoms are explained elsewhere in this manual (see "Score File Format" on page 239).

### 14.8.4 Headers

Internally Gnus uses a format for storing article headers that corresponds to the NOV format in a mysterious fashion. One could almost suspect that the author looked at the NOV specification and just shamelessly *stole* the entire thing, and one would be right.

*Header* is a severely overloaded term. "Header" is used in RFC 1036 to talk about lines in the head of an article (e.g., From). It is used by many people as a synonym for "head"—"the header and the body". (That should be avoided, in my opinion.) And Gnus uses a format internally that it calls "header", which is what I'm talking about here. This is a 9-element vector, basically, with each header (ouch) having one slot.

These slots are, in order: number, subject, from, date, id, references, chars, lines, xref, and extra. There are macros for accessing and setting these slots—they all have predictable names beginning with mail-header- and mail-header-set-, respectively.

All these slots contain strings, except the extra slot, which contains an alist of header/value pairs (see "To From Newsgroups" on page 51).

### 14.8.5 Ranges

GNUS introduced a concept that I found so useful that I've started using it a lot and have elaborated on it greatly.

The question is simple: If you have a large amount of objects that are identified by numbers (say, articles, to take a *wild* example) that you want to qualify as being "included", a normal sequence isn't very useful. (A 200,000 length sequence is a bit long-winded.)

The solution is as simple as the question: You just collapse the sequence.

```
(1 2 3 4 5 6 10 11 12)
```

is transformed into

```
((1 . 6) (10 . 12))
```

To avoid having those nasty "(13 . 13)" elements to denote a lonesome object, a "13" is a valid element:

```
((1 . 6) 7 (10 . 12))
```

This means that comparing two ranges to find out whether they are equal is slightly tricky:

```
((1 . 5) 7 8 (10 . 12))
```

and

```
((1 . 5) (7 . 8) (10 . 12))
```

are equal. In fact, any non-descending list is a range:

```
(1 2 3 4 5)
```

is a perfectly valid range, although a pretty long-winded one. This is also valid:

```
(1 . 5)
```

and is equal to the previous range.

Here's a BNF definition of ranges. Of course, one must remember the semantic requirement that the numbers are non-descending. (Any number of repetition of the same number is allowed, but apt to disappear in range handling.)

```
range           = simple-range / normal-range
simple-range    = "(" number " . " number ")"
normal-range    = "(" start-contents ")"
contents        = "" / simple-range *[ " " contents ] /
                  number *[ " " contents ]
```

Gnus currently uses ranges to keep track of read articles and article marks. I plan on implementing a number of range operators in C if The Powers That Be are willing to let me. (I haven't asked yet, because I need to do some more thinking on what operators I need to make life totally range-based without ever having to convert back to normal sequences.)

### 14.8.6 Group Info

Gnus stores all permanent info on groups in a *group info* list. This list is from three to six elements (or more) long and exhaustively describes the group.

Here are two example group infos; one is a very simple group while the second is a more complex one:

```
("no.group" 5 ((1 . 54324)))

("nnml:my.mail" 3 ((1 . 5) 9 (20 . 55))
                ((tick (15 . 19)) (replied 3 6 (19 . 3)))
                (nnml "")
                ((auto-expire . t) (to-address . "ding@gnus.org")))
```

The first element is the *group name*—as Gnus knows the group, anyway. The second element is the *subscription level*, which normally is a small integer. (It can also be the *rank*, which is a cons cell where the car is the level and the cdr is the score.) The third element is a list of ranges of read articles. The fourth element is a list of lists of article marks of various kinds. The fifth element is the select method (or virtual server, if you like). The sixth element is a list of *group parameters*, which is what this section is about.

Any of the last three elements may be missing if they are not required. In fact, the vast majority of groups will normally only have the first three elements, which saves quite a lot of cons cells.

Here's a BNF definition of the group info format:

```
info          = "(" group space ralevel space read
                [ "" / [ space marks-list [ "" / [ space method [ "" /
                space parameters ] ] ] ] ] ")"
group         = quote <string> quote
ralevel       = rank / level
level         = <integer in the range of 1 to inf>
rank          = "(" level "." score ")"
score         = <integer in the range of 1 to inf>
read          = range
marks-lists   = nil / "(" *marks ")"
marks         = "(" <string> range ")"
method        = "(" <string> *elisp-forms ")"
parameters    = "(" *elisp-forms ")"
```

Actually that "marks" rule is a fib. A "marks" is a "<string>" consed on to a "range", but that's a bitch to say in pseudo-BNF.

If you have a Gnus info and want to access the elements, Gnus offers a series of macros for getting/setting these elements.

gnus-info-group
gnus-info-set-group Get/set the group name.

gnus-info-rank
gnus-info-set-rank Get/set the group rank (see "Group Score" on page 22).

gnus-info-level
gnus-info-set-level Get/set the group level.

gnus-info-score
gnus-info-set-score Get/set the group score (see "Group Score" on page 22).

gnus-info-read
gnus-info-set-read Get/set the ranges of read articles.

gnus-info-marks

gnus-info-set-marks Get/set the lists of ranges of marked articles.

gnus-info-method
gnus-info-set-method Get/set the group select method.

gnus-info-params
gnus-info-set-params Get/set the group parameters.

All the getter functions take one parameter—the info list. The setter functions take two parameters—the info list and the new value.

The last three elements in the group info aren't mandatory, so it may be necessary to extend the group info before setting the element. If this is necessary, you can just pass on a non-nil third parameter to the three final setter functions to have this happen automatically.

### 14.8.7 Extended Interactive

Gnus extends the standard Emacs interactive specification slightly to allow easy use of the symbolic prefix (see "Symbolic Prefixes" on page 325). Here's an example of how this is used:

```
(defun gnus-summary-increase-score (&optional score symp)
  (interactive (gnus-interactive "P\ny"))
  ...
  )
```

The best thing to do would have been to implement gnus-interactive as a macro which would have returned an interactive form, but this isn't possible since Emacs checks whether a function is interactive or not by simply doing an assq on the lambda form. So, instead we have gnus-interactive function that takes a string and returns values that are usable to interactive.

This function accepts (almost) all normal interactive specs, but adds a few more.

"y" The current symbolic prefix—the gnus-current-prefix-symbol variable.

"Y" A list of the current symbolic prefixes—the gnus-current-prefix-symbol variable.

"A" The current article number—the gnus-summary-article-number function.

"H" The current article header—the gnus-summary-article-header function.

"g" The current group name—the gnus-group-group-name function.

### 14.8.8 Emacs/XEmacs Code

While Gnus runs under Emacs, XEmacs and Mule, I decided that one of the platforms must be the primary one. I chose Emacs. Not because I don't like XEmacs or Mule, but because it comes first alphabetically.

This means that Gnus will byte-compile under Emacs with nary a warning, while XEmacs will pump out gigabytes of warnings while byte-compiling. As I use byte-compilation warnings to help me root out trivial errors in Gnus, that's very useful.

I've also consistently used Emacs function interfaces, but have used Gnusey aliases for the functions. To take an example: Emacs defines a run-at-time function while XEmacs defines a start-itimer function. I then define a function called gnus-run-at-time that takes the same parameters as the Emacs run-at-time. When running Gnus under Emacs, the former function is just an alias for the latter. However, when running under XEmacs, the former is an alias for the following function:

```
(defun gnus-xmas-run-at-time (time repeat function &rest args)
  (start-itimer
   "gnus-run-at-time"
   `(lambda ()
      (,function ,@args))
   time repeat))
```

This sort of thing has been done for bunches of functions. Gnus does not redefine any native Emacs functions while running under XEmacs—it does this defalias thing with Gnus equivalents instead. Cleaner all over.

In the cases where the XEmacs function interface was obviously cleaner, I used it instead. For example gnus-region-active-p is an alias for region-active-p in XEmacs, whereas in Emacs it is a function.

Of course, I could have chosen XEmacs as my native platform and done mapping functions the other way around. But I didn't. The performance hit these indirections impose on Gnus under XEmacs should be slight.

### 14.8.9 Various File Formats

#### 14.8.9.1 Active File Format

The active file lists all groups available on the server in question. It also lists the highest and lowest current article numbers in each group.

Here's an excerpt from a typical active file:

```
soc.motss 296030 293865 y
alt.binaries.pictures.fractals 3922 3913 n
comp.sources.unix 1605 1593 m
comp.binaries.ibm.pc 5097 5089 y
no.general 1000 900 y
```

Here's a pseudo-BNF definition of this file:

```
active      = *group-line
group-line  = group spc high-number spc low-number spc flag <NEWLINE>
group       = <non-white-space string>
spc         = " "
high-number = <non-negative integer>
low-number  = <positive integer>
flag        = "y" / "n" / "m" / "j" / "x" / "=" group
```

For a full description of this file, see the manual pages for "innd", in particular "active(5)".

#### 14.8.9.2 Newsgroups File Format

The newsgroups file lists groups along with their descriptions. Not all groups on the server have to be listed, and not all groups in the file have to exist on the server. The file is meant purely as information to the user.

The format is quite simple; a group name, a tab, and the description. Here's the definition:

```
newsgroups    = *line
line          = group tab description <NEWLINE>
group         = <non-white-space string>
tab           = <TAB>
description   = <string>
```

## 14.9 Emacs for Heathens

Believe it or not, but some people who use Gnus haven't really used Emacs much before they embarked on their journey on the Gnus Love Boat. If you are one of those unfortunates whom "'C-M-a'", "kill the region", and "set gnus-flargblossen to an alist where the key is a regexp that is used for matching on the group name" are magical phrases with little or no meaning, then this appendix is for you. If you are already familiar with Emacs, just ignore this and go fondle your cat instead.

### 14.9.1 Keystrokes

- Q: What is an experienced Emacs user?
- A: A person who wishes that the terminal had pedals.

Yes, when you use Emacs, you are apt to use the control key, the shift key and the meta key a lot. This is very annoying to some people (notably vile users), and the rest of us just love the hell out of it. Just give up and submit. Emacs really does stand for "Escape-Meta-Alt-Control-Shift", and not "Editing Macros", as you may have heard from other disreputable sources (like the Emacs author).

The shift keys are normally located near your pinky fingers, and are normally used to get capital letters and stuff. You probably use it all the time. The control key is normally marked "CTRL" or something like that. The meta key is, funnily enough, never marked as such on any keyboard. The one I'm currently at has a key that's marked "Alt", which is the meta key on this keyboard. It's usually located somewhere to the left hand side of the keyboard, usually on the bottom row.

Now, us Emacs people don't say "press the meta-control-m key", because that's just too inconvenient. We say "press the 'C-M-m' key". 'M-' is the prefix that means "meta" and "C-" is the prefix that means "control". So "press 'C-k'" means "press down the control key, and hold it down while you press 'k'". "Press 'C-M-k'" means "press down and hold down the meta key and the control key and then press 'k'". Simple, ay?

This is somewhat complicated by the fact that not all keyboards have a meta key. In that case you can use the "escape" key. Then 'M-k' means "press escape, release escape, press 'k'". That's much more work than if you have a meta key, so if that's the case, I respectfully suggest you get a real keyboard with a meta key. You can't live without it.

### 14.9.2 Emacs Lisp

Emacs is the King of Editors because it's really a Lisp interpreter. Each and every key you tap runs some Emacs Lisp code snippet, and since Emacs Lisp is an interpreted language, that means that you can configure any key to run any arbitrary code. You just, like, do it.

Gnus is written in Emacs Lisp, and is run as a bunch of interpreted functions. (These are byte-compiled for speed, but it's still interpreted.) If you decide that

you don't like the way Gnus does certain things, it's trivial to have it do something a different way. (Well, at least if you know how to write Lisp code.) However, that's beyond the scope of this manual, so we are simply going to talk about some common constructs that you normally use in your '.emacs' file to customize Gnus.

If you want to set the variable gnus-florgbnize to four (4), you write the following:

```
(setq gnus-florgbnize 4)
```

This function (really "special form") setq is the one that can set a variable to some value. This is really all you need to know. Now you can go and fill your '.emacs' file with lots of these to change how Gnus works.

If you have put that thing in your '.emacs' file, it will be read and evaled (which is lisp-ese for "run") the next time you start Emacs. If you want to change the variable right away, simply say 'C-x C-e' after the closing parenthesis. That will eval the previous "form", which is a simple setq statement here.

Go ahead—just try it, if you're located at your Emacs. After you 'C-x C-e', you will see "4" appear in the echo area, which is the return value of the form you evaled.

Some pitfalls:

If the manual says "set gnus-read-active-file to some", that means:

```
(setq gnus-read-active-file 'some)
```

On the other hand, if the manual says "set gnus-nntp-server to "nntp.ifi.uio.no"", that means:

```
(setq gnus-nntp-server "nntp.ifi.uio.no")
```

So be careful not to mix up strings (the latter) with symbols (the former). The manual is unambiguous, but it can be confusing.

## 14.10 Frequently Asked Questions

### Abstract

This is the new Gnus Frequently Asked Questions list. If you have a Web browser, the official hypertext version is at http://my.gnus.org/FAQ/, the Docbook source is available from http://sourceforge.net/projects/gnus/.

Please submit features and suggestions to the *faq-discuss@my.gnus.org,FAQ discussion list*. The list is protected against junk mail with http://smarden.org/qconfirm/index.html,qconfirm, qconfirm. As a subscriber, your submissions will automatically pass. You can also subscribe to the list by sending a blank email to *faq-discuss-subscribe@my.gnus.org* and http://mail1.kens.com/cgi-bin/ezmlm-browse?command=monthbythread%26list=faq-discuss,browse the archive, browse the archive.

## Introduction

This is the Gnus Frequently Asked Questions list.

Gnus is a Usenet Newsreader and Electronic Mail User Agent implemented as a part of Emacs. It's been around in some form for almost a decade now, and has been distributed as a standard part of Emacs for much of that time. Gnus 5 is the latest (and greatest) incarnation. The original version was called GNUS, and was written by Masanobu UMEDA. When autumn crept up in '94, Lars Magne Ingebrigtsen grew bored and decided to rewrite Gnus.

Its biggest strength is the fact that it is extremely customizable. It is somewhat intimidating at first glance, but most of the complexity can be ignored until you're ready to take advantage of it. If you receive a reasonable volume of e-mail (you're on various mailing lists), or you would like to read high-volume mailing lists but cannot keep up with them, or read high volume newsgroups or are just bored, then Gnus is what you want.

This FAQ was maintained by Justin Sheehy until March 2002. He would like to thank Steve Baur and Per Abrahamsen for doing a wonderful job with this FAQ before him. We would like to do the same - thanks, Justin!

If you have a Web browser, the official hypertext version is at: http://my.gnus.org/FAQ/. This version is much nicer than the unofficial hypertext versions that are archived at Utrecht, Oxford, Smart Pages, Ohio State, and other FAQ archives. See the resources question below if you want information on obtaining it in another format.

The information contained here was compiled with the assistance of the Gnus development mailing list, and any errors or misprints are the my.gnus.org team's fault, sorry.

### 14.10.1 Installation

**Question 1.1:**

What is the latest version of Gnus?

Answer:

Jingle please: Gnus 5.10.0 is released, get it while it's hot! As well as the step in version number is rather small, Gnus 5.10 has tons of new features which you shouldn't miss, however if you are cautious, you might prefer to stay with 5.8.8 respectively 5.9 (they are basically the same) until some bugfix releases are out.

**Question 1.2:**

What's new in 5.10.0?

Answer:

First of all, you should have a look into the file GNUS-NEWS in the toplevel directory of the Gnus tarball, there the most important changes are listed. Here's a short list of the changes I find especially important/interesting:

- Major rewrite of the Gnus agent, Gnus agent is now active by default.
- Many new article washing functions for dealing with ugly formatted articles.
- Anti Spam features.
- message-utils now included in Gnus.
- New format specifiers for summary lines, e.g. %B for a complex trn-style thread tree.

**Question 1.3:**

Where and how to get Gnus?

Answer:

The latest released version of Gnus isn't included in Emacs 21 and until now it also isn't available through the package system of XEmacs 21.4, therefor you should get the Gnus tarball from http://www.gnus.org/dist/gnus.tar.gz or via anonymous FTP from ftp://ftp.gnus.org/pub/gnus/gnus.tar.gz.

**Question 1.4:**

What to do with the tarball now?

Answer:

Untar it via "tar xvzf gnus.tar.gz" and do the common "./configure; make; make install" circle. (under MS-Windows either get the Cygwin environment from http://www.cygwin.com which allows you to do what's described above or unpack the tarball with some packer (e.g. Winace from http://www.winace.com) and use the batch-file make.bat included in the tarball to install Gnus. If you don't want

to (or aren't allowed to) install Gnus system-wide, you can install it in your home directory and add the following lines to your ~/.xemacs/init.el or ~/.emacs:

```
(add-to-list 'load-path "/path/to/gnus/lisp")
(if (featurep 'xemacs)
    (add-to-list 'Info-directory-list "/path/to/gnus/texi/")
  (add-to-list 'Info-default-directory-list "/path/to/gnus/texi/"))
```

Make sure that you don't have any Gnus related stuff before this line, on MS Windows use something like "C:/path/to/lisp" (yes, "/").

**Question 1.5:**

Which version of Emacs do I need?

Answer:

Gnus 5.10.0 requires an Emacs version that is greater than or equal to Emacs 20.7 or XEmacs 21.1.

**Question 1.6:**

How do I run Gnus on both Emacs and XEmacs?

Answer:

You can't use the same copy of Gnus in both as the Lisp files are byte-compiled to a format which is different depending on which Emacs did the compilation. Get one copy of Gnus for Emacs and one for XEmacs.

### 14.10.2 Startup / Group buffer

**Question 2.1:**

Every time I start Gnus I get a message "Gnus auto-save file exists. Do you want to read it?", what does this mean and how to prevent it?

Answer:

This message means that the last time you used Gnus, it wasn't properly exited and therefor couldn't write its informations to disk (e.g. which messages you read), you are now asked if you want to restore those informations from the auto-save file.

To prevent this message make sure you exit Gnus via "q" in group buffer instead of just killing Emacs.

**Question: 2.2**

Gnus doesn't remember which groups I'm subscribed to, what's this?

Answer:

You get the message described in the q/a pair above while starting Gnus, right? It's an other symptom for the same problem, so read the answer above.

**Question 2.3:**

How to change the format of the lines in Group buffer?

Answer:

You've got to tweak the value of the variable gnus-group-line-format. See the manual node "Group Line Specification" for information on how to do this. An example for this (guess from whose .gnus :-)):

```
(setq gnus-group-line-format "%P%M%S[%5t]%5y : %(%g%)\n")
```

**Question 2.4:**

My group buffer becomes a bit crowded, is there a way to sort my groups into categories so I can easier browse through them?

Answer:

Gnus offers the topic mode, it allows you to sort your groups in, well, topics, e.g. all groups dealing with Linux under the topic linux, all dealing with music under the topic music and all dealing with scottish music under the topic scottish which is a subtopic of music.

To enter topic mode, just hit t while in Group buffer. Now you can use "T n" to create a topic at point and "T m" to move a group to a specific topic. For more commands see the manual or the menu. You might want to include the %P specifier at the beginning of your gnus-group-line-format variable to have the groups nicely indented.

**Question 2.5:**

How to manually sort the groups in Group buffer? How to sort the groups in a topic?

Answer:

Move point over the group you want to move and hit "C-k", now move point to the place where you want the group to be and hit "C-y".

### 14.10.3 Getting messages

**Question 3.1:**

I just installed Gnus, started it via "M-x gnus" but it only says "nntp (news) open error", what to do?

Answer:

You've got to tell Gnus where to fetch the news from. Read the documentation for information on how to do this. As a first start, put those lines in ~/.gnus:

```
(setq gnus-select-method '(nntp "news.yourprovider.net"))
```

```
(setq user-mail-address "you@yourprovider.net")
(setq user-full-name "Your Name")
```

**Question 3.2:**

I'm working under Windows and have no idea what ~/.gnus means.

Answer:

The ~/ means the home directory where Gnus and Emacs look for the configuration files. However, you don't really need to know what this means, it suffices that Emacs knows what it means :-) You can type "C-x C-f ~/.gnus RET " (yes, with the forward slash, even on Windows), and Emacs will open the right file for you. (It will most likely be new, and thus empty.) However, I'd discourage you from doing so, since the directory Emacs chooses will most certainly not be what you want, so let's do it the correct way. The first thing you've got to do is to create a suitable directory (no blanks in directory name please) e.g. 'c:/myhome'. Then you must set the environment variable HOME to this directory. To do this under Win9x or Me include the line

```
SET HOME=C:\myhome
```

in your autoexec.bat and reboot. Under NT, 2000 and XP, hit Winkey+Pause/Break to enter system options (if it doesn't work, go to Control Panel -> System). There you'll find the possibility to set environment variables, create a new one with name HOME and value 'c:/myhome', a reboot is not necessary.

Now to create ~/.gnus, say "C-x C-f ~/.gnus RET C-x C-s". in Emacs.

**Question 3.3:**

My news server requires authentication, how to store user name and password on disk?

Answer:

Create a file ~/.authinfo which includes for each server a line like this

```
machine news.yourprovider.net login YourUserName password YourPassword
```

. Make sure that the file isn't readable to others if you work on a OS which is capable of doing so. (Under Unix say

```
chmod 600 ~/.authinfo
```

in a shell.)

**Question 3.4:**

Gnus seems to start up OK, but I can't find out how to subscribe to a group.

Answer:

If you know the name of the group say "U name.of.group RET" in group buffer (use the tab-completion Luke). Otherwise hit ^ in group buffer, this brings you to the server buffer. Now place point (the cursor) over the server which carries the group you want, hit "RET", move point to the group you want to subscribe to and say "u" to subscribe to it.

**Question 3.5:**

Gnus doesn't show all groups / Gnus says I'm not allowed to post on this server as well as I am, what's that?

Answer:

Some providers allow restricted anonymous access and full access only after authorization. To make Gnus send authinfo to those servers append

```
force yes
```

to the line for those servers in ~/.authinfo.

**Question 3.6:**

I want Gnus to fetch news from several servers, is this possible?

Answer:

Of course. You can specify more sources for articles in the variable gnus-secondary-select-methods. Add something like this in ~/.gnus:

```
(add-to-list 'gnus-secondary-select-methods
     '(nntp "news.yourSecondProvider.net"))
(add-to-list 'gnus-secondary-select-methods
     '(nntp "news.yourThirdProvider.net"))
```

**Question 3.7:**

And how about local spool files?

Answer:

No problem, this is just one more select method called nnspool, so you want this:

```
(add-to-list 'gnus-secondary-select-methods '(nnspool ""))
```

Or this if you don't want an NNTP Server as primary news source:

```
(setq gnus-select-method '(nnspool ""))
```

Gnus will look for the spool file in /usr/spool/news, if you want something different, change the line above to something like this:

```
(add-to-list 'gnus-secondary-select-methods
             '(nnspool "" (nnspool-directory "/usr/local/myspoolddir")))
```

This sets the spool directory for this server only. You might have to specify more stuff like the program used to post articles, see the Gnus manual on how to do this.

**Question 3.8:**

OK, reading news works now, but I want to be able to read my mail with Gnus, too. How to do it?

Answer:

That's a bit harder since there are many possible sources for mail, many possible ways for storing mail and many different ways for sending mail. The most common cases are these: 1: You want to read your mail from a pop3 server and send them directly to a SMTP Server 2: Some program like fetchmail retrieves your mail and stores it on disk from where Gnus shall read it. Outgoing mail is sent by Sendmail, Postfix or some other MTA. Sometimes, you even need a combination of the above cases.

However, the first thing to do is to tell Gnus in which way it should store the mail, in Gnus terminology which back end to use. Gnus supports many different back ends, the most commonly used one is nnml. It stores every mail in one file and is therefor quite fast. However you might prefer a one file per group approach if your file system has problems with many small files, the nnfolder back end is then probably the choice for you. To use nnml add the following to ~/.gnus:

```
(add-to-list 'gnus-secondary-select-methods '(nnml ""))
```

As you might have guessed, if you want nnfolder, it's

```
(add-to-list 'gnus-secondary-select-methods '(nnfolder ""))
```

Now we need to tell Gnus, where to get it's mail from. If it's a POP3 server, then you need something like this:

```
(eval-after-load "mail-source"
  '(add-to-list 'mail-sources '(pop :server "pop.YourProvider.net"
                                    :user "yourUserName"
                                    :password "yourPassword")))
```

Make sure ~/.gnus isn't readable to others if you store your password there. If you want to read your mail from a traditional spool file on your local machine, it's

```
(eval-after-load "mail-source"
  '(add-to-list 'mail-sources '(file :path "/path/to/spool/file")))
```

If it's a Maildir, with one file per message as used by postfix, Qmail and (optionally) fetchmail it's

```
(eval-after-load "mail-source"
  '(add-to-list 'mail-sources '(maildir :path "/path/to/Maildir/"
                                        :subdirs ("cur" "new")))
```

And finally if you want to read your mail from several files in one directory, for example because procmail already split your mail, it's

```
(eval-after-load "mail-source"
  '(add-to-list 'mail-sources '(directory :path "/path/to/procmail-di
                                          :suffix ".prcml"))
```

Where :suffix ".prcml" tells Gnus only to use files with the suffix .prcml.

OK, now you only need to tell Gnus how to send mail. If you want to send mail via sendmail (or whichever MTA is playing the role of sendmail on your system), you don't need to do anything. However, if you want to send your mail to an SMTP Server you need the following in your ~/.gnus

```
(setq send-mail-function 'smtpmail-send-it)
(setq message-send-mail-function 'smtpmail-send-it)
(setq smtpmail-default-smtp-server "smtp.yourProvider.net")
```

**Question 3.9:**

And what about IMAP?

Answer:

There are two ways of using IMAP with Gnus. The first one is to use IMAP like POP3, that means Gnus fetches the mail from the IMAP server and stores it on disk. If you want to do this (you don't really want to do this) add the following to ~/.gnus

```
(add-to-list 'mail-sources '(imap :server "mail.mycorp.com"
                                  :user "username"
                                  :pass "password"
                                  :stream network
                                  :authentication login
                                  :mailbox "INBOX"
                                  :fetchflag "\\Seen"))
```

You might have to tweak the values for stream and/or authentification, see the Gnus manual node "Mail Source Specifiers" for possible values.

If you want to use IMAP the way it's intended, you've got to follow a different approach. You've got to add the nnimap back end to your select method and give the information about the server there.

```
(add-to-list
 'gnus-secondary-select-methods
 '(nnimap "Give the baby a name"
   (nnimap-address "imap.yourProvider.net")
   (nnimap-port 143)
   (nnimap-list-pattern "archive.*")))
```

Again, you might have to specify how to authenticate to the server if Gnus can't guess the correct way, see the Manual Node "IMAP" for detailed information.

**Question 3.10:**

At the office we use one of those MS Exchange servers, can I use Gnus to read my mail from it?

Answer:

Offer your administrator a pair of new running shoes for activating IMAP on the server and follow the instructions above.

**Question 3.11:**

Can I tell Gnus not to delete the mails on the server it retrieves via POP3?

Answer:

First of all, that's not the way POP3 is intended to work, if you have the possibility, you should use the IMAP Protocol if you want your messages to stay on the server. Nevertheless there might be situations where you need the feature, but sadly Gnus itself has no predefined functionality to do so.

However this is Gnus county so there are possibilities to achieve what you want. The easiest way is to get an external program which retrieves copies of the mail and stores them on disk, so Gnus can read it from there. On Unix systems you could use e.g. fetchmail for this, on MS Windows you can use Hamster, an excellent local news and mail server.

The other solution would be, to replace the method Gnus uses to get mail from POP3 servers by one which is capable of leaving the mail on the server. If you use XEmacs, get the package mail-lib, it includes an enhanced pop3.el, look in the file, there's documentation on how to tell Gnus to use it and not to delete the retrieved mail. For GNU Emacs look for the file epop3.el which can do the same (If you know the home of this file, please send me an e-mail). You can also tell Gnus to use an external program (e.g. fetchmail) to fetch your mail, see the info node "Mail Source Specifiers" in the Gnus manual on how to do it.

### 14.10.4 Reading messages

**Question 4.1:**

When I enter a group, all read messages are gone. How to view them again?

Answer:

If you enter the group by saying "RET" in summary buffer with point over the group, only unread and ticked messages are loaded. Say "C-u RET" instead to load all available messages. If you want only the e.g. 300 newest say "C-u 300 RET"

Loading only unread messages can be annoying if you have threaded view enabled, say

```
(setq gnus-fetch-old-headers 'some)
```

in ~/.gnus to load enough old articles to prevent teared threads, replace 'some with t to load all articles (Warning: Both settings enlarge the amount of data which is fetched when you enter a group and slow down the process of entering a group).

If you already use Gnus 5.10.0, you can say "/o N" In summary buffer to load the last N messages, this feature is not available in 5.8.8

If you don't want all old messages, but the parent of the message you're just reading, you can say "^", if you want to retrieve the whole thread the message you're just reading belongs to, "A T" is your friend.

**Question 4.2:**

How to tell Gnus to show an important message every time I enter a group, even when it's read?

Answer:

You can tick important messages. To do this hit "u" while point is in summary buffer over the message. When you want to remove the mark, hit either "d" (this deletes the tick mark and set's unread mark) or "M c" (which deletes all marks for the message).

**Question 4.3:**

How to view the headers of a message?

Answer:

Say "t" to show all headers, one more "t" hides them again.

**Question 4.4:**

How to view the raw unformatted message?

Answer:

Say "C-u g" to show the raw message "g" returns to normal view.

**Question 4.5:**

How can I change the headers Gnus displays by default at the top of the article buffer?

Answer:

The variable gnus-visible-headers controls which headers are shown, its value is a regular expression, header lines which match it are shown. So if you want author,

subject, date, and if the header exists, Followup-To and MUA / NUA say this in ~/.gnus:

```
(setq gnus-visible-headers
      "^\\(From:\\|Subject:\\|Date:\\|Followup-To:\
\\|X-Newsreader:\\|User-Agent:\\|X-Mailer:\\)")
```

**Question 4.6:**

I'd like Gnus NOT to render HTML-mails but show me the text part if it's available. How to do it?

Answer:

Say

```
(eval-after-load "mm-decode"
 '(progn
      (add-to-list 'mm-discouraged-alternatives "text/html")
      (add-to-list 'mm-discouraged-alternatives "text/richtext")))
```

in ~/.gnus. If you don't want HTML rendered, even if there's no text alternative add

```
(setq mm-automatic-display (remove "text/html" mm-automatic-display))
```

too.

**Question 4.7:**

Can I use some other browser than w3 to render my HTML-mails?

Answer:

Only if you use Gnus 5.10.0 or younger. In this case you've got the choice between w3, w3m, links, lynx and html2text, which one is used can be specified in the variable mm-text-html-renderer, so if you want links to render your mail say

```
(setq mm-text-html-renderer 'links)
```

**Question 4.8:**

Is there anything I can do to make poorly formatted mails more readable?

Answer:

Gnus offers you several functions to "wash" incoming mail, you can find them if you browse through the menu, item Article->Washing. The most interesting ones are probably "Wrap long lines" ( "W w" ), "Decode ROT13" ( "W r" ) and "Outlook Deuglify" which repairs the dumb quoting used by many users of Microsoft products ( "W Y f" gives you full deuglify. See "W Y C-h" or have a look at the menus for other deuglifications). Outlook deuglify is only available since Gnus 5.10.0.

**Question 4.9:**

Is there a way to automatically ignore posts by specific authors or with specific words in the subject? And can I highlight more interesting ones in some way?

Answer:

You want Scoring. Scoring means, that you define rules which assign each message an integer value. Depending on the value the message is highlighted in summary buffer (if it's high, say +2000) or automatically marked read (if the value is low, say -800) or some other action happens.

There are basically three ways of setting up rules which assign the scoring-value to messages. The first and easiest way is to set up rules based on the article you are just reading. Say you're reading a message by a guy who always writes nonsense and you want to ignore his messages in the future. Hit "L", to set up a rule which lowers the score. Now Gnus asks you which the criteria for lowering the Score shall be. Hit "?" twice to see all possibilities, we want "a" which means the author (the from header). Now Gnus wants to know which kind of matching we want. Hit either "e" for an exact match or "s" for substring-match and delete afterwards everything but the name to score down all authors with the given name no matter which email address is used. Now you need to tell Gnus when to apply the rule and how long it should last, hit e.g. "p" to apply the rule now and let it last forever. If you want to raise the score instead of lowering it say "I" instead of "L".

You can also set up rules by hand. To do this say "V f" in summary buffer. Then you are asked for the name of the score file, it's name.of.group.SCORE for rules valid in only one group or all.Score for rules valid in all groups. See the Gnus manual for the exact syntax, basically it's one big list whose elements are lists again. the first element of those lists is the header to score on, then one more list with what to match, which score to assign, when to expire the rule and how to do the matching. If you find me very interesting, you could e.g. add the following to your all.Score:

```
(("references" ("hschmi22.userfqdn.rz-online.de" 500 nil s))
 ("message-id" ("hschmi22.userfqdn.rz-online.de" 999 nil s)))
```

This would add 999 to the score of messages written by me and 500 to the score of messages which are a (possibly indirect) answer to a message written by me. Of course nobody with a sane mind would do this :-)

The third alternative is adaptive scoring. This means Gnus watches you and tries to find out what you find interesting and what annoying and sets up rules which reflect this. Adaptive scoring can be a huge help when reading high traffic groups. If you want to activate adaptive scoring say

```
(setq gnus-use-adaptive-scoring t)
```

in ~/.gnus.

**Question 4.10:**

How can I disable threading in some (e.g. mail-) groups, or set other variables specific for some groups?

Answer:

While in group buffer move point over the group and hit "G c", this opens a buffer where you can set options for the group. At the bottom of the buffer you'll find an item that allows you to set variables locally for the group. To disable threading enter gnus-show-threads as name of variable and nil as value. Hit button done at the top of the buffer when you're ready.

**Question 4.11:**

Can I highlight messages written by me and follow-ups to those?

Answer:

Stop those "Can I ..." questions, the answer is always yes in Gnus Country :-). It's a three step process: First we make faces (specifications of how summary-line shall look like) for those postings, then we'll give them some special score and finally we'll tell Gnus to use the new faces. You can find detailed instructions on how to do it on http://my.gnus.org/Members/dzimmerm/HowTo%2C2002-07-25%2C1027619165012198456/view,my.gnus.org

**Question 4.12:**

The number of total messages in a group which Gnus displays in group buffer is by far to high, especially in mail groups. Is this a bug?

Answer:

No, that's a matter of design of Gnus, fixing this would mean reimplementation of major parts of Gnus' back ends. Gnus thinks "highest-article-number - lowest-article-number = total-number-of-articles". This works OK for Usenet groups, but if you delete and move many messages in mail groups, this fails. To cure the symptom, enter the group via "C-u RET" (this makes Gnus get all messages), then hit "M P b" to mark all messages and then say "B m name.of.group" to move all messages to the group they have been in before, they get new message numbers in this process and the count is right again (until you delete and move your mail to other groups again).

**Question 4.13:**

I don't like the layout of summary and article buffer, how to change it? Perhaps even a three pane display?

Answer:

You can control the windows configuration by calling the function gnus-add-configuration. The syntax is a bit complicated but explained very well in the manual node "Window Layout". Some popular examples:

Instead 25% summary 75% article buffer 35% summary and 65% article (the 1.0 for article means "take the remaining space"):

```
(gnus-add-configuration
 '(article (vertical 1.0
     (summary .35 point)
     (article 1.0))))
```

A three pane layout, Group buffer on the left, summary buffer top-right, article buffer bottom-right:

```
(gnus-add-configuration
 '(article
   (horizontal 1.0
       (vertical 25
 (group 1.0))
       (vertical 1.0
 (summary 0.25 point)
 (article 1.0)))))
(gnus-add-configuration
 '(summary
   (horizontal 1.0
       (vertical 25
 (group 1.0))
       (vertical 1.0
 (summary 1.0 point)))))
```

**Question 4.14:**

I don't like the way the Summary buffer looks, how to tweak it?

Answer:

You've got to play around with the variable gnus-summary-line-format. It's value is a string of symbols which stand for things like author, date, subject etc. A list of the available specifiers can be found in the manual node "Summary Buffer Lines" and the often forgotten node "Formatting Variables" and it's sub-nodes. There you'll find useful things like positioning the cursor and tabulators which allow you a summary in table form, but sadly hard tabulators are broken in 5.8.8.

Since 5.10.0, Gnus offers you some very nice new specifiers, e.g. %B which draws a thread-tree and %&user-date which gives you a date where the details are dependent of the articles age. Here's an example which uses both:

```
(setq gnus-summary-line-format
      ":%U%R %B %s %-60=|%4L |%-20,20f |%&user-date; \n")
```

resulting in:

```
:O     Re: [Richard Stallman] rfc2047.el          |  13 |Lars Magne Ingebrigt
:O     Re: Revival of the ding-patches list       |  13 |Lars Magne Ingebrigt
:R  >  Re: Find correct list of articles for a gro|  25 |Lars Magne Ingebrigt
:O  \->  ...                                      |  21 |Kai Grossjohann
:R  >  Re: Cry for help: deuglify.el - moving stuf|  28 |Lars Magne Ingebrigt
:O  \->  ...                                      | 115 |Raymond Scholz
:O    \->  ...                                    |  19 |Lars Magne Ingebrigt
:O     Slow mailing list                          |  13 |Lars Magne Ingebrigt
:O     Re: '@' mark not documented                |  13 |Lars Magne Ingebrigt
:R  >  Re: Gnus still doesn't count messages prope|  23 |Lars Magne Ingebrigt
:O  \->  ...                                      |  18 |Kai Grossjohann
:O    \->  ...                                    |  13 |Lars Magne Ingebrigt
```

**Question 4.15:**

How to split incoming mails in several groups?

Answer:

Gnus offers two possibilities for splitting mail, the easy nnmail-split-methods and the more powerful Fancy Mail Splitting. I'll only talk about the first one, refer to the manual, node "Fancy Mail Splitting" for the latter.

The value of nnmail-split-methods is a list, each element is a list which stands for a splitting rule. Each rule has the form "group where matching articles should go to", "regular expression which has to be matched", the first rule which matches wins. The last rule must always be a general rule (regular expression .*) which denotes where articles should go which don't match any other rule. If the folder doesn't exist yet, it will be created as soon as an article lands there. By default the mail will be send to all groups whose rules match. If you don't want that (you probably don't want), say

```
(setq nnmail-crosspost nil)
```

in ~/.gnus.

An example might be better than thousand words, so here's my nnmail-split-methods. Note that I send duplicates in a special group and that the default group is spam, since I filter all mails out which are from some list I'm subscribed to or which are addressed directly to me before. Those rules kill about 80% of the Spam which reaches me (Email addresses are changed to prevent spammers from using them):

```
(setq nnmail-split-methods
  '(("duplicates" "^Gnus-Warning:.*duplicate")
    ("XEmacs-NT" "^\\(To:\\|CC:\\).*localpart@xemacs.bla.*")
    ("Gnus-Tut" "^\\(To:\\|CC:\\).*localpart@socha.bla.*")
    ("tcsh" "^\\(To:\\|CC:\\).*localpart@mx.gw.bla.*")
    ("BAfH" "^\\(To:\\|CC:\\).*localpart@.*uni-muenchen.bla.*")
    ("Hamster-src"
```

```
 "^\\(CC:\\|To:\\).*hamster-sourcen@yahoogroups.\\(de\\|com\\).*"
("Tagesschau" "^From: tagesschau <localpart@www.tagesschau.bla>$"
("Replies" "^\\(CC:\\|To:\\).*localpart@Frank-Schmitt.bla.*")
("EK"
 "^From:.*\\(localpart@privateprovider.bla\\|localpart@workplace.
("Spam"
 "^Content-Type:.*\\(ks_c_5601-1987\\|EUC-KR\\|big5\\|iso-2022-jp
("Spam"
 "^Subject:.*\\(This really work\\|XINGA\\|ADV:\\|XXX\\|adult\\|s
("Spam"
 "^Subject:.*\\(\=\?ks_c_5601-1987\?\\|\=\?euc-kr\?\\|\=\?big5\?\
("Spam" "^X-Mailer:\\(.*BulkMailer.*\\|.*MIME::Lite.*\\|\\)")
("Spam"
 "^X-Mailer:\\(.*CyberCreek Avalanche\\|.*http\:\/\/GetResponse\.
("Spam"
 "^From:.*\\(verizon\.net\\|prontomail\.com\\|money\\|ConsumerDir
("Spam" "^Delivered-To: GMX delivery to spamtrap@gmx.bla$")
("Spam" "^Received: from link2buy.com")
("Spam" "^CC: .*azzrael@t-online.bla")
("Spam" "^X-Mailer-Version: 1.50 BETA")
("Uni" "^\\(CC:\\|To:\\).*localpart@uni-koblenz.bla.*")
("Inbox"
 "^\\(CC:\\|To:\\).*\\(my\ name\\|address@one.bla\\|adress@two.bl
("Spam" "")))
```

### 14.10.5 Composing messages

**Question 5.1:**

What are the basic commands I need to know for sending mail and postings?

Answer:

To start composing a new mail hit "m" either in Group or Summary buffer, for a posting, it's either "a" in Group buffer and filling the Newsgroups header manually or "a" in the Summary buffer of the group where the posting shall be send to. Replying by mail is "r" if you don't want to cite the author, or import the cited text manually and "R" to cite the text of the original message. For a follow up to a newsgroup, it's "f" and "F" (analog to "r" and "R".

Enter new headers above the line saying "–text follows this line–", enter the text below the line. When ready hit "C-c C-c", to send the message, if you want to finish it later hit "C-c C-d" to save it in the drafts group, where you can start editing it again by saying "D e".

**Question 5.2:**

How to enable automatic word-wrap when composing messages?

Answer:
Say

```
(add-hook 'message-mode-hook
      (lambda ()
           (setq fill-column 72)
           (turn-on-auto-fill)))
```

in ~/.gnus. You can reformat a paragraph by hitting "M-q" (as usual)

**Question 5.3:**

How to set stuff like From, Organization, Reply-To, signature...?
Answer:
There are other ways, but you should use posting styles for this. (See below why). This example should make the syntax clear:

```
(setq gnus-posting-styles
  '(((".*"
      (name "Frank Schmitt")
      (address "me@there.bla")
      (organization "Hamme net, kren mer och nimmi")
      (signature-file "~/.signature")
      ("X-SampleHeader" "foobar")
      (eval (setq some-variable "Foo bar")))))
```

The ".*" means that this settings are the default ones (see below), valid values for the first element of the following lists are signature, signature-file, organization, address, name or body. The attribute name can also be a string. In that case, this will be used as a header name, and the value will be inserted in the headers of the article; if the value is 'nil', the header name will be removed. You can also say (eval (foo bar)), then the function foo will be evaluated with argument bar and the result will be thrown away.

**Question 5.4:**

Can I set things like From, Signature etc group based on the group I post too?
Answer:
That's the strength of posting styles. Before, we used ".*" to set the default for all groups. You can use a regexp like "^gmane" and the following settings are only applied to postings you send to the gmane hierarchy, use ".*binaries" instead and they will be applied to postings send to groups containing the string binaries in their name etc.

You can instead of specifying a regexp specify a function which is evaluated, only if it returns true, the corresponding settings take effect. Two interesting candidates

for this are message-news-p which returns t if the current Group is a newsgroup and the corresponding message-mail-p.

Note that all forms that match are applied, that means in the example below, when I post to gmane.mail.spam.spamassassin.general, the settings under ".*" are applied and the settings under message-news-p and those under "^gmane" and those under "^gmane/.mail/.spam/.spamassassin/.general$". Because of this put general settings at the top and specific ones at the bottom.

```
(setq gnus-posting-styles
  '((".*"  ;;default
      (name "Frank Schmitt")
      (organization "Hamme net, kren mer och nimmi")
      (signature-file "~/.signature"))
     ((message-news-p)  ;;Usenet news?
      (address "mySpamTrap@Frank-Schmitt.bla")
      ("Reply-To" "hereRealRepliesOnlyPlease@Frank-Schmitt.bla"))
     ((message-mail-p)  ;;mail?
      (address "usedForMails@Frank-Schmitt.bla"))
     ("^gmane" ;;this is mail, too in fact
      (address "usedForMails@Frank-Schmitt.net")
      ("Reply-To" nil))
     ("^gmane.mail.spam.spamassassin.general$"
      (eval (setq mail-envelope-from "Azzrael@rz-online.de"))
      (address "Azzrael@rz-online.de"))))
```

**Question 5.5:**

Is there a spell-checker? Perhaps even on-the-fly spell-checking?

Answer:

You can use ispell.el to spell-check stuff in Emacs. So the first thing to do is to make sure that you've got either

- http://fmg-www.cs.ucla.edu/fmg-members/geoff/ispell.html,ispell or
- http://aspell.sourceforge.net/,aspell

installed and in your Path.

Then you need http://www.kdstevens.com/~stevens/ispell-page.html,ispell.el,ispell.el and for on-the-fly spell-checking http://www-sop.inria.fr/mimosa/personnel/Manuel.Serrano/flyspell/flys Ispell.el is shipped with Gnus Emacs and available through the Emacs package system, flyspell.el is shipped with Emacs and part of XEmacs text-modes package which is available through the package system, so there should be no need to install them manually.

Ispell.el assumes you use ispell, if you choose aspell say

```
(setq ispell-program-name "aspell")
```

in your Emacs configuration file.

If you want your outgoing messages to be spell-checked, say

```
(add-hook 'message-send-hook 'ispell-message)
```

In your ~/.gnus, if you prefer on-the-fly spell-checking say

```
(add-hook 'message-mode-hook (lambda () (flyspell-mode 1)))
```

**Question 5.6:**

Can I set the dictionary based on the group I'm posting to?

Answer:

Yes, say something like

```
(add-hook 'gnus-select-group-hook
          (lambda ()
            (cond
             ((string-match
               "^de\\." (gnus-group-real-name gnus-newsgroup-name))
              (ispell-change-dictionary "deutsch8"))
             (t
              (ispell-change-dictionary "english")))))
```

in ~/.gnus. Change "^de/." and "deutsch8" to something that suits your needs.

**Question 5.7:**

Is there some kind of address-book, so I needn't remember all those email addresses?

Answer:

There's an very basic solution for this, mail aliases. You can store your mail addresses in a ~/.mailrc file using a simple alias syntax:

```
alias al "Al <al@english-heritage.bla>"
```

Then typing your alias (followed by a space or punctuation character) on a To: or Cc: line in the message buffer will cause Gnus to insert the full address for you. See the node "Mail Aliases" in Message (not Gnus) manual for details.

However, what you really want is the Insidious Big Brother Database bbdb. Get it through the XEmacs package system or from http://bbdb.sourceforge.net/,bbdb's homepage. Now place the following in ~/.gnus, to activate bbdb for Gnus:

```
(require 'bbdb)
(bbdb-initialize 'gnus 'message)
```

Now you probably want some general bbdb configuration, place them in ~/.emacs:

```
(require 'bbdb)
;;If you don't live in Northern America, you should disable the
;;syntax check for telephone numbers by saying
(setq bbdb-north-american-phone-numbers-p nil)
;;Tell bbdb about your email address:
(setq bbdb-user-mail-names
      (regexp-opt '("Your.Email@here.bla"
                    "Your.other@mail.there.bla")))
;;cycling while completing email addresses
(setq bbdb-complete-name-allow-cycling t)
;;No popup-buffers
(setq bbdb-use-pop-up nil)
```

Now you should be ready to go. Say "M-x bbdb RET RET" to open a bbdb buffer showing all entries. Say "c" to create a new entry, "b" to search your BBDB and "C-o" to add a new field to an entry. If you want to add a sender to the BBDB you can also just hit ':' on the posting in the summary buffer and you are done. When you now compose a new mail, hit "TAB" to cycle through know recipients.

**Question 5.8:**

Sometimes I see little images at the top of article buffer. What's that and how can I send one with my postings, too?

Answer:

Those images are called X-Faces. They are 48*48 pixel b/w pictures, encoded in a header line. If you want to include one in your posts, you've got to convert some image to a X-Face. So fire up some image manipulation program (say Gimp), open the image you want to include, cut out the relevant part, reduce color depth to 1 bit, resize to 48*48 and save as bitmap. Now you should get the compface package from ftp://ftp.cs.indiana.edu:/pub/faces/,this site. and create the actual X-face by saying

```
cat file.xbm | xbm2ikon |compface > file.face
cat ./file.face | sed 's/\\/\\\\/g' | sed 's/\"/\\\"/g' > ./file.face
```

If you can't use compface, there's an online X-face converter at http://www.dairiki.org/xface/. If you use MS Windows, you could also use the WinFace program from http://www.xs4all.nl/~walterln/winface/.

Now you only have to tell Gnus to include the X-face in your postings by saying

```
(setq message-default-headers
        (with-temp-buffer
          (insert "X-Face: ")
          (insert-file-contents "~/.xemacs/xface")
          (buffer-string)))
```

in ~/.gnus.

**Question 5.9:**

Sometimes I accidentally hit r instead of f in newsgroups. Can Gnus warn me, when I'm replying by mail in newsgroups?

Answer:

Put this in ~/.gnus:

```
(setq gnus-confirm-mail-reply-to-news t)
```

if you already use Gnus 5.10.0, if you still use 5.8.8 or 5.9 try this instead:

```
(defadvice gnus-summary-reply (around reply-in-news activate)
       (interactive)
        (when (or (not (gnus-news-group-p gnus-newsgroup-name))
                  (y-or-n-p "Really reply? "))
         ad-do-it))
```

**Question 5.10:**

How to tell Gnus not to generate a sender header?

Answer:

Since 5.10.0 Gnus doesn't generate a sender header by default. For older Gnus' try this in ~/.gnus:

```
(eval-after-load "message"
      '(add-to-list 'message-syntax-checks '(sender . disabled)))
```

**Question 5.11:**

I want gnus to locally store copies of my send mail and news, how to do it?

Answer:

You must set the variable gnus-message-archive-group to do this. You can set it to a string giving the name of the group where the copies shall go or like in the example below use a function which is evaluated and which returns the group to use.

```
(setq gnus-message-archive-group
'((if (message-news-p)
      "nnml:Send-News"
    "nnml:Send-Mail")))
```

**Question 5.12:**

People tell me my Message-IDs are not correct, why aren't they and how to fix it?

Answer:

The message-ID is an unique identifier for messages you send. To make it unique, Gnus need to know which machine name to put after the "@". If the

name of the machine where Gnus is running isn't suitable (it probably isn't at most private machines) you can tell Gnus what to use by saying:

```
(defun message-make-message-id()
   (concat "<"(message-unique-id)"@yourmachine.yourdomain.tld>"))
```

in ~/.gnus. If you have no idea what to insert for "yourmachine.yourdomain.tld", you've got several choices. You can either ask your provider if he allows you to use something like yourUserName.userfqdn.provider.net, or you can use somethingUnique.yourdomain.tld if you own the domain yourdomain.tld, or you can register at a service which gives private users a FQDN for free, e.g. http://www.stura.tu-freiberg.de/~dlx/addfqdn.html. (Sorry but this website is in German, if you know of an English one offering the same, drop me a note).

Finally you can tell Gnus not to generate a Message-ID for News at all (and letting the server do the job) by saying

```
(setq message-required-news-headers
  (remove' Message-ID message-required-news-headers))
```

you can also tell Gnus not to generate Message-IDs for mail by saying

```
(setq message-required-mail-headers
  (remove' Message-ID message-required-mail-headers))
```

, however some mail servers don't generate proper Message-IDs, too, so test if your Mail Server behaves correctly by sending yourself a Mail and looking at the Message-ID.

### 14.10.6 Old messages

**Question 6.1:**

How to import my old mail into Gnus?

Answer:

The easiest way is to tell your old mail program to export the messages in mbox format. Most Unix mailers are able to do this, if you come from the MS Windows world, you may find tools at http://mbx2mbox.sourceforge.net/.

Now you've got to import this mbox file into Gnus. To do this, create a nndoc group based on the mbox file by saying "G f /path/file.mbox RET" in Group buffer. You now have read-only access to your mail. If you want to import the messages to your normal Gnus mail groups hierarchy, enter the nndoc group you've just created by saying "C-u RET" (thus making sure all messages are retrieved), mark all messages by saying "M P b" and either copy them to the desired group by saying "B c name.of.group RET" or send them through nnmail-split-methods (respool them) by saying "B r".

**Question 6.2:**

How to archive interesting messages?

Answer:

If you stumble across an interesting message, say in gnu.emacs.gnus and want to archive it there are several solutions. The first and easiest is to save it to a file by saying "O f". However, wouldn't it be much more convenient to have more direct access to the archived message from Gnus? If you say yes, put this snippet by Frank Haun <pille3003@fhaun.de> in ~/.gnus:

```
(defun my-archive-article (&optional n)
  "Copies one or more article(s) to a corresponding `nnml:' group, e.g.
`gnus.ding' goes to `nnml:1.gnus.ding'. And `nnml:List-gnus.ding' goes
to `nnml:1.List-gnus-ding'.

Use process marks or mark a region in the summary buffer to archive
more then one article."
  (interactive "P")
  (let ((archive-name
         (format
          "nnml:1.%s"
          (if (featurep 'xemacs)
              (replace-in-string gnus-newsgroup-name "^.*:" "")
            (replace-regexp-in-string "^.*:" "" gnus-newsgroup-name)))))
    (gnus-summary-copy-article n archive-name)))
```

You can now say "M-x my-archive-article" in summary buffer to archive the article under the cursor in a nnml group. (Change nnml to your preferred back end)

Of course you can also make sure the cache is enabled by saying

```
(setq gnus-use-cache t)
```

then you only have to set either the tick or the dormant mark for articles you want to keep, setting the read mark will remove them from cache.

**Question 6.3:**

How to search for a specific message?

Answer:

There are several ways for this, too. For a posting from a Usenet group the easiest solution is probably to ask http://groups.google.com,groups.google.com, if you found the posting there, tell Google to display the raw message, look for the message-id, and say "M-^ the@message.id RET" in a summary buffer. Since Gnus 5.10.0 there's also a Gnus interface for groups.google.com which you can call with "G W") in group buffer.

Another idea which works for both mail and news groups is to enter the group where the message you are searching is and use the standard Emacs search "C-s", it's smart enough to look at articles in collapsed threads, too. If you want to search bodies, too try "M-s" instead. Further on there are the gnus-summary-limit-to-foo functions, which can help you, too.

Of course you can also use grep to search through your local mail, but this is both slow for big archives and inconvenient since you are not displaying the found mail in Gnus. Here comes nnir into action. Nnir is a front end to search engines like swish-e or swish++ and others. You index your mail with one of those search engines and with the help of nnir you can search trough the indexed mail and generate a temporary group with all messages which met your search criteria. If this sound cool to you get nnir.el from ftp://ls6-ftp.cs.uni-dortmund.de/pub/src/emacs/ or ftp://ftp.is.informatik.uni-duisburg.de/pub/src/emacs/. Instructions on how to use it are at the top of the file.

**Question 6.4:**

How to get rid of old unwanted mail?

Answer:

You can of course just mark the mail you don't need anymore by saying "#" with point over the mail and then say "B DEL" to get rid of them forever. You could also instead of actually deleting them, send them to a junk-group by saying "B m nnml:trash-bin" which you clear from time to time, but both are not the intended way in Gnus.

In Gnus, we let mail expire like news expires on a news server. That means you tell Gnus the message is expirable (you tell Gnus "I don't need this mail anymore") by saying "E" with point over the mail in summary buffer. Now when you leave the group, Gnus looks at all messages which you marked as expirable before and if they are old enough (default is older than a week) they are deleted.

**Question 6.5:**

I want that all read messages are expired (at least in some groups). How to do it?

Answer:

If you want all read messages to be expired (e.g. in mailing lists where there's an online archive), you've got two choices: auto-expire and total-expire. Auto-expire means, that every article which has no marks set and is selected for reading is marked as expirable, Gnus hits "E" for you every time you read a message. Total-expire follows a slightly different approach, here all article where the read mark is set are expirable.

To activate auto-expire, include auto-expire in the Group parameters for the group. (Hit "G c" in summary buffer with point over the group to change group parameters). For total-expire add total-expire to the group-parameters.

Which method you choose is merely a matter of taste: Auto-expire is faster, but it doesn't play together with Adaptive Scoring, so if you want to use this feature,

you should use total-expire.

If you want a message to be excluded from expiration in a group where total or auto expire is active, set either tick (hit "u") or dormant mark (hit "u"), when you use auto-expire, you can also set the read mark (hit "d").

**Question 6.6:**

I don't want expiration to delete my mails but to move them to another group.

Answer:

Say something like this in ~/.gnus:

```
(setq nnmail-expiry-target "nnml:expired")
```

(If you want to change the value of nnmail-expiry-target on a per group basis see the question "How can I disable threading in some (e.g. mail-) groups, or set other variables specific for some groups?")

### 14.10.7 Gnus in a dial-up environment

**Question 7.1:**

I don't have a permanent connection to the net, how can I minimize the time I've got to be connected?

Answer:

You've got basically two options: Either you use the Gnus Agent (see below) for this, or you can install programs which fetch your news and mail to your local disk and Gnus reads the stuff from your local machine.

If you want to follow the second approach, you need a program which fetches news and offers them to Gnus, a program which does the same for mail and a program which receives the mail you write from Gnus and sends them when you're online.

Let's talk about Unix systems first: For the news part, the easiest solution is a small nntp server like http://www.leafnode.org/,Leafnode or http://infa.abo.fi/~patrik/sn/,sn, of course you can also install a full featured news server like http://www.isc.org/products/INN/,inn.

Then you want to fetch your Mail, popular choices are

- http://www.catb.org/~esr/fetchmail/,fetchmail and
- http://www.qcc.ca/~charlesc/software/getmail-3.0/,getmail.

You should tell those to write the mail to your disk and Gnus to read it from there. Last but not least the mail sending part: This can be done with every MTA like http://www.sendmail.org/,sendmail, http://www.qmail.org/,postfix, http://www.exim.org/,exim or http://www.qmail.org/,qmail.

On windows boxes I'd vote for http://www.tglsoft.de/,Hamster, it's a small free-ware, open-source program which fetches your mail and news from remote servers and offers them to Gnus (or any other mail and/or news reader) via nntp respectively POP3 or IMAP. It also includes a smtp server for receiving mails from Gnus.

**Question 7.2:**

So what was this thing about the Agent?

Answer:

The Gnus agent is part of Gnus, it allows you to fetch mail and news and store them on disk for reading them later when you're offline. It kind of mimics offline newsreaders like e.g. Forte Agent. If you want to use the Agent place the following in ~/.gnus if you are still using 5.8.8 or 5.9 (it's the default since 5.10.0):

```
(setq gnus-agent t)
```

Now you've got to select the servers whose groups can be stored locally. To do this, open the server buffer (that is press "^" while in the group buffer). Now select a server by moving point to the line naming that server. Finally, agentize the server by typing "J a". If you make a mistake, or change your mind, you can undo this action by typing "J r". When you're done, type 'q' to return to the group buffer. Now the next time you enter a group on a agentized server, the headers will be stored on disk and read from there the next time you enter the group.

**Question 7.3:**

I want to store article bodies on disk, too. How to do it?

Answer:

You can tell the agent to automatically fetch the bodies of articles which fulfill certain predicates, this is done in a special buffer which can be reached by saying "J c" in group buffer. Please refer to the documentation for information which predicates are possible and how exactly to do it.

Further on you can tell the agent manually which articles to store on disk. There are two ways to do this: Number one: In the summary buffer, process mark a set of articles that shall be stored in the agent by saying "#" with point over the article and then type "J s". The other possibility is to set, again in the summary buffer, downloadable (%) marks for the articles you want by typing "@" with point over the article and then typing "J u". What's the difference? Well, process marks are erased as soon as you exit the summary buffer while downloadable marks are permanent. You can actually set downloadable marks in several groups then use fetch session ('J s' in the GROUP buffer) to fetch all of those articles. The only downside is that fetch session also fetches all of the headers for every selected group on an agentized server. Depending on the volume of headers, the initial fetch session could take hours.

**Question 7.4:**

How to tell Gnus not to try to send mails / postings while I'm offline?

Answer:

All you've got to do is to tell Gnus when you are online (plugged) and when you are offline (unplugged), the rest works automatically. You can toggle plugged/unplugged

state by saying "J j" in group buffer. To start Gnus unplugged say "M-x gnus-unplugged" instead of "M-x gnus". Note that for this to work, the agent must be active.

### 14.10.8 Getting help

**Question 8.1:**

How to find information and help inside Emacs?

Answer:

The first stop should be the Gnus manual (Say "C-h i d m Gnus RET" to start the Gnus manual, then walk through the menus or do a full-text search with "s"). Then there are the general Emacs help commands starting with C-h, type "C-h ? ?" to get a list of all available help commands and their meaning. Finally "M-x apropos-command" lets you search through all available functions and "M-x apropos" searches the bound variables.

**Question 8.2:**

I can't find anything in the Gnus manual about X (e.g. attachments, PGP, MIME...), is it not documented?

Answer:

There's not only the Gnus manual but also the manuals for message, emacs-mime, sieve and pgg. Those packages are distributed with Gnus and used by Gnus but aren't really part of core Gnus, so they are documented in different info files, you should have a look in those manuals, too.

**Question 8.3:**

Which websites should I know?

Answer:

The two most important ones are the http://www.gnus.org,official Gnus website. and it's sister site http://my.gnus.org,my.gnus.org (MGO), hosting an archive of lisp snippets, howtos, a (not really finished) tutorial and this FAQ.

Tell me about other sites which are interesting.

**Question 8.4:**

Which mailing lists and newsgroups are there?

Answer:

There's the newsgroup gnu.emacs.gnus (pull it from e.g. news.gnus.org) which deals with general questions and the ding mailing list (ding@gnus.org) dealing with development of Gnus. You can read the ding list via NNTP, too under the name gnus.ding from news.gnus.org.

If you want to stay in the big8, news.software.newssreaders is also read by some Gnus users (but chances for qualified help are much better in the above groups) and if you speak German, there's de.comm.software.gnus.

**Question 8.5:**

Where to report bugs?

Answer:

Say "M-x gnus-bug", this will start a message to the *bugs@gnus.org,gnus bug mailing list* including information about your environment which make it easier to help you.

**Question 8.6:**

I need real-time help, where to find it?

Answer:

Point your IRC client to irc.my.gnus.org channel #mygnus. Don't be afraid if people there speak German, they are willing and capable of switching to English when people from outside Germany enter.

### 14.10.9 Tuning Gnus

**Question 9.1:**

Starting Gnus is really slow, how to speed it up?

Answer:

The reason for this could be the way Gnus reads it's active file, see the node "The Active File" in the Gnus manual for things you might try to speed the process up. An other idea would be to byte compile your ~/.gnus (say "M-x byte-compile-file RET ~/.gnus RET" to do it). Finally, if you have require statements in your .gnus, you could replace them with eval-after-load, which loads the stuff not at startup time, but when it's needed. Say you've got this in your ~/.gnus:

```
(require 'message)
(add-to-list 'message-syntax-checks '(sender . disabled))
```

then as soon as you start Gnus, message.el is loaded. If you replace it with

```
(eval-after-load "message"
      '(add-to-list 'message-syntax-checks '(sender . disabled)))
```

it's loaded when it's needed.

**Question 9.2:**

How to speed up the process of entering a group?

Answer:

A speed killer is setting the variable gnus-fetch-old-headers to anything different from nil, so don't do this if speed is an issue. To speed up building of summary say

```
(gnus-compile)
```

at the bottom of your ~/.gnus, this will make gnus byte-compile things like gnus-summary-line-format. then you could increase the value of gc-cons-threshold by saying something like

```
(setq gc-cons-threshold 3500000)
```

in ~/.emacs. If you don't care about width of CJK characters or use Gnus 5.10.0 or younger together with a recent GNU Emacs, you should say

```
(setq gnus-use-correct-string-widths nil)
```

in ~/.gnus (thanks to Jesper harder for the last two suggestions). Finally if you are still using 5.8.8 or 5.9 and experience speed problems with summary buffer generation, you definitely should update to 5.10.0 since there quite some work on improving it has been done.

**Question 9.3:**

Sending mail becomes slower and slower, what's up?

Answer:

The reason could be that you told Gnus to archive the messages you wrote by setting gnus-message-archive-group. Try to use a nnml group instead of an archive group, this should bring you back to normal speed.

### 14.10.10 Glossary

*~/.gnus* When the term ~/.gnus is used it just means your Gnus configuration file. You might as well call it ~/.gnus.el or specify another name.

*Back End* In Gnus terminology a back end is a virtual server, a layer between core Gnus and the real NNTP-, POP3-, IMAP- or whatever-server which offers Gnus a standardized interface to functions like "get message", "get Headers" etc.

*Emacs* When the term Emacs is used in this FAQ, it means either GNU Emacs or XEmacs.

*Message* In this FAQ message means a either a mail or a posting to a Usenet News-group or to some other fancy back end, no matter of which kind it is.

*MUA* MUA is an acronym for Mail User Agent, it's the program you use to read and write e-mails.

*NUA* NUA is an acronym for News User Agent, it's the program you use to read and write Usenet news.

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This manual was written by Lars Magne Ingebrigtsen (1968 — ) who resides in Oslo, Norway and poses as a student, but doesn't get much studying done, for some strange reason or other. When not worshipping at the altar of Emacs, he can often be found slouching on his couch reading while bopping his head gently to some obscure music. He does not have a cat.

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