Texinfo modules documentation
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1 Texinfo::Commands

1.1 Texinfo::Commands NAME
Texinfo::Commands - Classification of commands

1.2 Texinfo::Commands SYNOPSIS

```perl
use Texinfo::Commands;
if ($Texinfo::Commands::accent_commands{$a_command}) {
    print STDERR "$a_command is an accent command\n";
}
```

1.3 Texinfo::Commands NOTES
The Texinfo Perl module main purpose is to be used in texi2any to convert Texinfo to other formats. There is no promise of API stability.

1.4 Texinfo::Commands DESCRIPTION
Texinfo::Commands holds a few hashes with information on @-commands and hashes classifying Texinfo @-commands.

1.5 @-COMMAND INFORMATION
Hashes are defined as our variables, and are therefore available outside of the module.

%index_names
Hash describing the default Texinfo indices. The format of this hash is described in [Texinfo::Parser indices information], page 14.

1.6 @-COMMAND CLASSES
Hashes are defined as our variables, and are therefore available outside of the module.

The key of the hashes are @-command names without the @. The following hashes are available:

%accent_commands
Accent @-commands taking an argument, like @’ or @ringaccent, including @dotless and @tieaccent.

%block_commands
Commands delimiting a block with a closing @end. The values are:

    conditional
        @if* commands;

    def
        Definition commands like @deffn;

    float
        @float;
Chapter 1: Texinfo::Commands

format_raw
raw output format commands such as @html or @info;

item_container
commands with @item containing any content, @itemize and @enumerate;

item_line
commands like @table in which the @item argument is on its line;

menu
menu @-commands, @menu, @detailmenu and @dirent;

math
Math block commands, like @displaymath.

multitable
@multitable;

other
The remaining block commands.

preformatted
Commands whose content should not be filled, like @example or @display.

quotation
Commands like @quotatation.

raw
@-commands that have no expansion of @-commands in their bodies (@macro, @verbatim and @ignore);

region
Commands delimiting a region of the document out of the main processing: @titlepage, @copying, @documentdescription.

%commands_args_number
Set to the number of arguments separated by commas that may appear in braces or on the @-command line. That means 0 or unset for most block commands, including @example which has an unlimited (variadic) number of arguments, 1 for @quotatation, 2 for @float, 1 for most brace commands, 2 for @email or @abbr, 5 for @image of @ref.

Values are not necessarily set for all the commands, as commands are also classified by type of command, some type of commands implying a number of arguments, and the number of arguments may not be set if it corresponds to the default (0 for block commands, 1 for other commands).

%brace_commands
The commands that take braces. Value is noarg for brace commands without argument such as @AA, @TeX, or @equiv. Other values include accent, arguments, context and other values.
%def_commands
Definition commands.
%default_index_commands
Index entry commands corresponding to default indices. For example @cindex.
%heading_spec_commands
@-commands used to specify custom headings, like @everyheading.
%in_heading_spec_commands
Special @-commands appearing in custom headings, such as @thischapter or @thistitle.
%letter_no_arg_commands
@-commands with braces but no argument corresponding to letters, like @AA{} or @ss{} or @o{}.
%math_commands
@-commands which contains math, like @math or @displaymath.
%line_commands
Command that do not take braces, take arguments on the command line and are not block commands either, like @node, @chapter, @cindex, @deffnx, @end, @footnotestyle, @set, @settitle, @itemx, @deffninfoenclose, @comment and many others.
Note that @item is in %line_commands for its role in @table and similar @-commands.
%nobrace_commands
Command that do not take braces, do not have argument on their line and are not block commands either. The value is symbol for single character non-alphabetical @-commands such as @®, @ or @:. Other commands in that hash include @indent, @tab or @thissection.
Note that @item is in %nobrace_commands for its role in @multitable, @itemize and @enumerate.
%preformatted_commands
%preformatted_code_commands
%preformatted_commands is for commands whose content should not be filled, like @example or @display. If the command is meant for code, it is also in %preformatted_code_commands, like @example.
%ref_commands
Cross reference @-command referencing nodes, like @xref.
%root_commands
Commands that are at the root of a Texinfo document, namely @node and sectioning commands, except heading commands like @heading.
%sectioning_heading_commands
All the sectioning and heading commands.
%variadic_commands
Commands with unlimited arguments, like @example.
1.7 Texinfo::Commands SEE ALSO
Section 3.1 [Texinfo::Parser], page 10, Section 2.1 [Texinfo::Common], page 5.

1.8 Texinfo::Commands AUTHOR
Patrice Dumas, <pertusus@free.fr>

1.9 Texinfo::Commands COPYRIGHT AND LICENSE
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2 Texinfo::Common

2.1 Texinfo::Common NAME
Texinfo::Common - Texinfo modules common data and miscellaneous methods

2.2 Texinfo::Common SYNOPSIS

```perl
use Texinfo::Common;

my @commands_to_collect = ('math');
my $collected_commands
    = Texinfo::Common::collect_commands_in_tree($document_root,
        \@commands_to_collect);
```

2.3 Texinfo::Common NOTES
The Texinfo Perl module main purpose is to be used in texi2any to convert Texinfo to other formats. There is no promise of API stability.

2.4 Texinfo::Common DESCRIPTION
Texinfo::Common holds hashes with miscellaneous information and some hashes with information on Texinfo @-commands, as well as miscellaneous methods.

2.5 MISC INFORMATION
Hashes are defined as our variables, and are therefore available outside of the module.

TODO: undocumented %null_device_file %default_parser_customization_values %document_settable_multiple_at_commands %document_settable_unique_at_commands %default_converter_command_line_options %default_main_program_customization_options %default_converter_customization @variable_string_settables %document_settable_at_commands %def_map %commandstructuring_level %level_to_structuring_command

%texinfo_output_formats
   Cannonical output formats that have associated conditionals. In practice corresponds to format_raw %block_commands plus info and plaintext.

2.6 @-COMMAND INFORMATION
Hashes are defined as our variables, and are therefore available outside of the module.

The key of the hashes are @-command names without the @. The following hashes are available:

%all_commands
   All the @-commands.

%brace_code_commands
   Brace commands that have their argument in code style, like @code.
Chapter 2: Texinfo::Common

%def_aliases
%def_no_var_arg_commands
%def_aliases associates an aliased command to the original command, for example defun is associated to deffn.
%def_no_var_arg_commands associates a definition command name with a true value if the argument on the definition command line can contain non-metasyntactic variables. For instance, it is true for deftypevr but false for defun, since @defun argument is supposed to contain metasyntactic variables only.

%explained_commands
@-commands whose second argument explain first argument and further @-command call without first argument, as @abbr and @acronym.

%inline_conditional_commands
%inline_format_commands
Inline conditional commands, like @inlineifclear, and inline format commands like inlineraw and inlinefmt.

%nobrace_symbol_text
Values are ASCII representation of single character non-alphabetical commands without brace such as * or :. The value may be an empty string.

%small_block_associated_command
Associate small command like smallexample to the regular command example.

2.7 Texinfo::Common METHODS

Two methods are exported in the default case for Texinfo modules messages translation in the Uniforum gettext framework, \_ and \_p.

The Texinfo tree and Texinfo tree elements used in argument of some functions are documented in Section 3.6 [Texinfo::Parser TEXINFO TREE], page 15. When customization information is needed, an object that defines set_conf and/or get_conf is expected, for example a converter inheriting from Texinfo::Convert::Converter, see Section 13.5.2 [Texinfo::Convert::Converter Getting and setting customization variables], page 55.

$translated_string = \_($msgid)
$translated_string = \_p($msgctxt, $msgid)
Returns the $msgid string translated in the Texinfo messages text domain. \_p can be used instead of \_ to pass a $msgctxt context string to provide translators with information on the string context when the string is short or if the translation could depend on the context. \_ corresponds to the gettext function and \_p to the pgettext function.

It is not advised to use those functions in user-defined code. It is not practical either, as the translatable strings marked by \_ or \_p need to be collected and added to the Texinfo messages domain. This facility could only be used in user-defined code with translatable strings already present in the domain anyway. In fact, these functions are documented mainly because they are automatically exported.

\begin{verbatim}
collect_commands_in_tree($tree, $commands_list)
  Returns a hash reference with keys @-commands names specified in the $commands_list array reference and values arrays of tree elements corresponding to those @-command found in $tree by traversing the tree.

collect_commands_list_in_tree($tree, $commands_list)
  Return a list reference containing the tree elements corresponding to the @-commands names specified in the $commands_list found in $tree by traversing the tree. The order of the @-commands should be kept.

$result = element_is_inline($element, $check_current)
  Return true if the element passed in argument is in running text context. If the optional $check_current argument is set, check the element itself, in addition to the parent context.

($encoded_file_name, $encoding) = encode_file_name($file_name, $input_encoding)
  Encode the $file_name text string to a binary string $encoded_file_name based on $input_encoding. Also returns the $encoding name actually used which may have undergone some normalization. This function is mostly a wrapper around Section “Encode::encode” in Encode which avoids calling the module if not needed. Do nothing if $input_encoding is undef.

$text = enumerate_item_representation($specification, $number)
  This function returns the number or letter corresponding to item number $number for an @enumerate specification $specification, appearing on an @enumerate line. For example
  enumerate_item_representation('c', 3)
  is e.

$command = find_parent_root_command($object, $tree_element)
  Find the parent root command (sectioning command or node) of a tree element. The $object argument is optional, its global_commands field is used to continue through @insertcopying if in a @copying.

$result = is_content_empty($tree, $do_not_ignore_index_entries)
  Return true if the $tree has content that could be formatted. $do_not_ignore_index_entries is optional. If set, index entries are considered to be formatted.

$file = locate_include_file($customization_information, file_path)
  Locate $file_path. If $file_path is an absolute path or has .. or . in the path directories it is checked that the path exists and is a file. Otherwise, the file name in $file_path is located in include directories also used to find texinfo files included in Texinfo documents. $file_path should be a binary string. undef is returned if the file was not found, otherwise the file found is returned as a binary string.
\end{verbatim}
move_index_entries_after_items_in_tree($tree)
   
   In @enumerate and @itemize from the tree, move index entries appearing just before @item after the @item. Comment lines between index entries are moved too.

$normalized_name = normalize_top_node_name($node_string)
   
   Normalize the node name string given in argument, by normalizing Top node case.

protect_colon_in_tree($tree)
protect_node_after_label_in_tree($tree)
   
   Protect colon with protect_colon_in_tree and characters that are special in node names after a label in menu entries (tab dot and comma) with protect_node_after_label_in_tree. The protection is achieved by putting protected characters in @asis{}.

protect_comma_in_tree($tree)
   
   Protect comma characters, replacing , with @comma{} in tree.

$contents_result = protect_first_parenthesis($contents)
   
   Return a contents array reference with first parenthesis in the contents array reference protected. If $contents is undef a fatal error with a backtrace will be emitted.

relate_index_entries_to_table_entries_in_tree($tree)
   
   In @*table @-commands, reassociate the index entry information from an index @-command appearing right after an @item line to the @item first element. Remove the index @-command from the tree.

$level = section_level($section)
   
   Return numbered level of the tree sectioning element $section, as modified by raise/lowersections.

$element = set_global_document_command($customization_information, $global_commands_information, $cmdname, $command_location)
   
   Set the Texinfo configuration option corresponding to $cmdname in $customization_information. The $global_commands_information should contain information about global commands in a Texinfo document, typically obtained from a parser [Sparser->global_commands_information()], page 13. $command_location specifies where in the document the value should be taken from, for commands that may appear more than once. The possibilities are:

   last
      
      Set to the last value for the command.

   preamble
      
      Set sequentially to the values in the Texinfo preamble.

   preamble_or_first
      
      Set to the first value of the command if the first command is not in the Texinfo preamble, else set as with preamble, sequentially to the values in the Texinfo preamble.
The \$element returned is the last element that was used to set the configuration value, or undef if no configuration value was found.

Notice that the only effect of this function is to set a customization variable value, no @-command side effects are run, no associated customization variables are set.

set_informative_command_value($customization_information, $element)
Set the Texinfo configuration option corresponding to the tree element \$element. The command associated to the tree element should be a command that sets some information, such as @documentlanguage, @contents or @footnotestyle for example.

set_output_encodings($customization_information, $parser_information)
If not already set, set OUTPUT_ENCODING_NAME based on input file encoding. Also set OUTPUT_PERL_ENCODING accordingly which is used to output in the correct encoding. In general, OUTPUT_PERL_ENCODING should not be set directly by user-defined code such that it corresponds to OUTPUT_ENCODING_NAME.

$split_contents = split_custom_heading_command_contents($contents)
Split the $contents array reference at @| in at max three parts. Return an array reference containing the split parts. The $contents array reference is supposed to be $element->{'args'}->[0]->{'contents'} of %Texinfo::Commands::heading_spec_commands commands such as @everyheading.

trim_spaces_comment_from_content($contents)
Remove empty spaces after commands or braces at begin and spaces and comments at end from a content array, modifying it.

valid_customization_option($name)
Return true if the $name is a known customization option.

valid_tree_transformation($name)
Return true if the $name is a known tree transformation name that may be passed with TREE_TRANSFORMATIONS to modify a texinfo tree.

2.8 Texinfo::Common SEE ALSO
Section 3.1 [Texinfo::Parser], page 10, Section 13.1 [Texinfo::Convert::Converter], page 53, and Section 5.1 [Texinfo::Report], page 34.

2.9 Texinfo::Common AUTHOR
Patrice Dumas, <pertusus@free.fr>

2.10 Texinfo::Common COPYRIGHT AND LICENSE
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3 Texinfo::Parser

3.1 Texinfo::Parser NAME
Texinfo::Parser - Parse Texinfo code into a Perl tree

3.2 Texinfo::Parser SYNOPSIS
use Texinfo::Parser;
my $parser = Texinfo::Parser::parser();
my $tree = $parser->parse_texi_file("somefile.texi");
# a Texinfo::Report object in which the errors and warnings
# encountered while parsing are registered.
my $registrar = $parser->registered_errors();
my ($errors, $errors_count) = $registrar->errors();
foreach my $error_message (@$errors) {
  warn $error_message->{'error_line'};
}

my $index_names = $parser->indices_information();
my $float_types_arrays = $parser->floats_information();
my $internal_references_array = $parser->internal_references_information();
# $labels_information is an hash reference on normalized node/float/anchor names.
my ($labels_information, $targets_list, $nodes_list) = $parser->labels_information();
# A hash reference, keys are @-command names, value is an
# array reference holding all the corresponding @-commands.
my $global_commands_information = $parser->global_commands_information();
# a hash reference on document information (encodings,
# input file name, dircategory and direntry list, for example).
my $global_information = $parser->global_information();

3.3 Texinfo::Parser NOTES
The Texinfo Perl module main purpose is to be used in texi2any to convert Texinfo to other formats. There is no promise of API stability.

3.4 Texinfo::Parser DESCRIPTION
Texinfo::Parser will parse Texinfo text into a Perl tree. In one pass it expands user-defined @-commands, conditionals (@ifset, @ifinfo...) and @value and constructs the tree. Some extra information is gathered while doing the tree: for example, the @quotation associated to an @author command, the number of columns in a multitable, or the node associated with a section.
Chapter 3: Texinfo::Parser

3.5 Texinfo::Parser METHODS

No method is exported in the default case. The module allows both an object-oriented syntax, or traditional function, with the parser as an opaque data structure given as an argument to every function.

3.5.1 Initialization

The following method is used to construct a new Texinfo::Parser object:

```perl
$parser = Texinfo::Parser::parser($options);
```

This method creates a new parser. The options may be provided as a hash reference. Most of those options correspond to Texinfo customization options described in the Texinfo manual.

**CPP_LINE_DIRECTIVES**

Handle cpp like synchronization lines if set. Set in the default case.

**EXPANDED_FORMATS**

An array reference of the output formats for which @if FORMAT conditional blocks should be expanded. Default is empty.

**FORMAT_MENU**

Possible values are nomenu, menu and sectiontoc. Only report menu-related errors for menu.

**INCLUDE_DIRECTORIES**

An array reference of directories in which @include files should be searched for. Default contains the working directory, ..

**IGNORE_SPACE_AFTER_BRACED_COMMAND_NAME**

If set, spaces after an @-command name that take braces are ignored. Default on.

**MAX_MACRO_CALL_NESTING**

Maximal number of nested user-defined macro calls. Default is 100000.

**documentlanguage**

A string corresponding to a document language set by @documentlanguage. It overrides the document @documentlanguage information, if present.

**registrar**

Section 5.1 [Texinfo::Report], page 34, object reused by the parser to register errors.

**values**

A hash reference. Keys are names, values are the corresponding values. Same as values set by @set.
3.5.2 Parsing Texinfo text

Different methods may be called to parse some Texinfo code: `parse_texi_line` for a line, `parse_texi_piece` for a fragment of Texinfo, `parse_texi_text` for a string corresponding to a full document and `parse_texi_file` for a file.

For all those functions, if the `$parser` argument is `undef`, a new parser object is generated to parse the line. Otherwise the parser given as an argument is used to parse into a tree.

When `parse_texi_line` is used, the resulting tree is rooted at a `root_line` type container. Otherwise, the resulting tree should be rooted at a `document_root` type container.

```perl
$tree = parse_texi_line($parser, $text, $first_line_number)
```

This function is used to parse a short fragment of Texinfo code. `$text` is the string containing the texinfo line. `$first_line_number` is the line number of the line, if `undef`, it will be set to 1.

```perl
$tree = parse_texi_piece($parser, $text, $first_line_number)
```

This function is used to parse Texinfo fragments. `$text` is the string containing the texinfo text. `$first_line_number` is the line number of the first text line, if `undef`, it will be set to 1.

```perl
$tree = parse_texi_text($parser, $text, $first_line_number)
```

This function is used to parse a text as a whole document. `$text` is the string containing the texinfo text. `$first_line_number` is the line number of the first text line, if `undef`, it will be set to 1.

```perl
$tree = parse_texi_file($parser, $file_name)
```

The file with name `$file_name` is considered to be a Texinfo file and is parsed into a tree. `$file_name` should be a binary string.

`undef` is returned if the file couldn’t be read.

The errors collected during the tree parsing are registered in a Section 5.1 [Texinfo::Report], page 34, object. This object is available with `registered_errors`. The errors registered in the `Texinfo::Report` object are available through the `errors` method. This method is described in [Texinfo::Report::errors], page 35.

```perl
$registrar = registered_errors($parser)
```

`$registrar` is a Section 5.1 [Texinfo::Report], page 34, object in which the errors and warnings encountered while parsing are registered. If a `registrar` is passed to the parser initialization options, it is reused, otherwise a new one is created.

3.5.3 Getting information on the document

After parsing some information about the Texinfo code that was processed is available from the parser.

Some global information is available through `global_information`:

```perl
$info = global_information($parser)
```

The `$info` returned is a hash reference. The possible keys are

- `dircategory`
- `direntry`

An array of successive `dircategory` and `direntry` as they appear in the document.
input_encoding_name
input_perl_encoding

input_encoding_name string is the encoding name used for the Texinfo code. input_perl_encoding string is a corresponding Perl encoding name.

input_file_name
input_directory

The name of the main Texinfo input file and the associated directory. Binary strings. In texi2any, they should come from the command line (and can be decoded with the encoding in the customization variable COMMAND_LINE_ENCODING).

Some command lists are available, such that it is possible to go through the corresponding tree elements without walking the tree. They are available through global_commands_information:

$commands = global_commands_information($parser)

$commands is an hash reference. The keys are @-command names. The associated values are array references containing all the corresponding tree elements.

All the @-commands that have an associated label (so can be the target of cross references) – @node, @anchor and @float with label – have a normalized name associated, constructed as described in the HTML Xref node in the Texinfo documentation. Those normalized labels and the association with @-commands is available through labels_information:

$labels_information, $targets_list, $nodes_list = labels_information($parser)

$labels_information is a hash reference whose keys are normalized labels, and the associated value is the corresponding @-command. $targets_list is a list of labels @-command. Using $labels_information is preferred. $nodes_list is a list of all the nodes appearing in the document.

Information on @float is also available, grouped by type of floats, each type corresponding to potential @listoffloats. This information is available through the method floats_information.

$float_types = floats_information($parser)

$float_types is a hash reference whose keys are normalized float types (the first float argument, or the @listoffloats argument). The normalization is the same as for node names. The value is the list of float tree elements appearing in the texinfo document.

Internal references, that is, @-commands that refer to node, anchors or floats within the document are also available:

$internal_references_array = internal_references_information($parser);

The function returns a list of cross-reference commands referring to the same document.

Information about defined indices, merged indices and index entries is also available through the indices_information method.
indices_information

    $index_names = indices_information($parser);

The index names is a hash reference. The keys are

in_code

    1 if the index entries should be formatted as code, 0 in the opposite case.

name

    The index name.

prefix

    An array reference of prefix associated to the index.

merged_in

    In case the index is merged to another index, this key holds the name of the index the index is merged into. It takes into account indirectly merged indices.

contained_indices

    An hash reference holding names of indices that are merged into the index, including itself. It also contains indirectly merged indices. This key is removed if the index is itself later merged to another index.

index_entries

    An array reference containing index entry structures for index entries associated with the index. The index entry could be associated to @-commands like @cindex, or @item in @vtable, or definition commands entries like @deffn.

    The keys of the index entry structures are

index_name

    The index name.

index_at_command

    The name of the @-command associated with the index entry.

index_ignore_chars

    A hash reference with characters as keys and 1 as value. Corresponds to the characters flagged as ignored in key sorting in the document by setting flags such as txiindexbackslashignore.

entry_content

    An array reference corresponding to the index entry content.

content_normalized

    An array reference corresponding to the index entry content, independent of the current language.
entry_element
The element in the parsed tree associated with the
@-command holding the index entry.

text_node
The node in the parsed tree containing the index entry.

text_number
The number of the index entry.

text_region
The region command (@copying, @titlepage) containing
the index entry, if it is in such an environment.

The following shows the references corresponding to the default indexes cp and fn,
the fn index having its entries formatted as code and the indices corresponding
to the following texinfo

```plaintext
@defindex some
@defcodeindex code

$index_names = {
  'cp' => { 'name' => 'cp', 'in_code' => 0, },
  'fn' => { 'name' => 'fn', 'in_code' => 1, },
  'some' => { 'in_code' => 0, },
  'code' => { 'in_code' => 1, }};
```

If name is not set, it is set to the index name.

3.6 TEXINFO TREE

A Texinfo tree element (called element because node is overloaded in the Texinfo world) is
an hash reference. There are three main categories of tree element. Tree elements associated
with an @-command have a cmdname key holding the @-command name. Tree elements
corresponding to text fragments have a text key holding the corresponding text. Finally,
the last category is other elements, which in most cases have a type key holding their name.
Text fragments and @-command elements may also have an associated type when such
information is needed.

The children of an @-command or of other container element are in the array referred to
with the args key or with the contents key. The args key is for arguments of @-commands,
either in braces or on the rest of the line after the command, depending on the type of
command. args is also used for the elements of a menu entry, as a menu entry is well-
structured with a limited number of arguments. The contents key array holds the contents
of the texinfo code appearing within a block @-command, within a container, or within a
@node or sectioning @-command.

Another important key for the elements is the extra key which is associated to a hash
reference and holds all kinds of information that is gathered during the parsing and may help with the conversion.

You can see examples of the tree structure by running makeinfo like this:
```
makeinfo -c DUMP_TREE=1 -c TEXINFO_OUTPUT_FORMAT=parse document.texi
```
For a simpler, more regular representation of the tree structure, you can do:
```
makeinfo -c TEXINFO_OUTPUT_FORMAT=debugtree document.texi
```
3.6.1 Element keys

**cmdname**

The command name of @-command elements.

**text**

The text fragment of text elements.

**type**

The type of element considered, in general a container. Frequent types encountered are `paragraph` for a paragraph container, `brace_command_arg` for the container holding the brace @-commands contents, `line_arg` and `block_line_arg` contain the arguments appearing on the line of @-commands. Text fragments may have a type to give an information of the kind of text fragment, for example `spaces_before_paragraph` is associated to spaces appearing before a paragraph beginning. Most @-commands elements do not have a type associated.

**args**

Arguments in braces or on @-command line, and the elements of a menu entry. An array reference.

**contents**

The Texinfo appearing in the element. For block commands, other containers, `@node` and sectioning commands. An array reference.

**parent**

The parent element.

**source_info**

An hash reference corresponding to information on the location of the element in the Texinfo input manual. It should mainly be available for @-command elements, and only for @-commands that are considered to be complex enough that the location in the document is needed, for example to prepare an error message.

The keys of the line number hash references are

- **line_nr**
  
  The line number of the @-command.

- **file_name**
  
  The file name where @-command appeared.

- **macro**
  
  The user macro name the @-command is expanded from.

**extra**

A hash reference holding any other information. See Section 3.6.3 [Information available in the extra key], page 22.

3.6.2 Element types
3.6.2.1 Types for command elements

Some types can be associated with @-commands (in addition to cmdname), although usually there will be no type at all. The following are the possible values of type for tree elements for @-commands.

command_as_argument
   This is the type of a command given in argument of @itemize, @table, @vtable or @ftable. For example in
   @itemize @bullet
   @item item
   @end itemize
   the element corresponding with bullet has the following keys:

      'cmdname' => 'bullet'
      'type' => 'command_as_argument'

   The parent @-command has an entry in extra for the command_as_argument element:

      'cmdname' => 'itemize'
      'extra' => {'command_as_argument' => $command_element_as_argument}

def_line
   This type may be associated with a definition command with a x form, like @defunx, @defvrx. For the form without x, the associated def_line is the first contents element. It is described in more details below.

definfoenclose_command
   This type is set for an @-command that is redefined by @definfoenclose. The beginning is in {'extra'}->{'begin'} and the end in {'extra'}->{'end'}.

following_arg
   This type is set for accent @-commands that don’t use braces but instead have their argument after them, as

      @'n
      @ringaccent A

index_entry_command
   This is the type of index entry command like @cindex, and, more importantly user-defined index entry commands. So for example if there is:

      @defindex foo
      ...

      @fooindex index entry

   the @fooindex @-command element will have the index_entry_command type.

3.6.2.2 Types for text elements

The text elements may have the following types (or may have no type at all):
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after_menu_description_line
space_at_end_menu_node
  Space after a node in the menu entry, when there is no description, and space appearing after the description line.
empty_line
  An empty line (possibly containing whitespace characters only).
ignorable_spaces_after_command
  Spaces appearing after an @-command without braces that does not take takes argument on the line, but which is followed by ignorable spaces, such as @item in @itemize of @multitable, or @noindent.
spaces_after_close_brace
  Spaces appearing after a closing brace, for some rare commands for which this space should be ignorable (like @caption or @sortas).
spaces_before_paragraph
  Space appearing before a paragraph beginning.
misc_arg
  Used for the arguments to some special line commands whose arguments aren't subject to the usual macro expansion. For example @set, @clickstyle, @unmacro, @comment. The argument is associated to the text key.
raw
  Text in an environment where it should be kept as is (in @verbatim, @verb, @macro body).
spaces_at_end
  Space within an index @-command before an @-command interrupting the index command, or at the end of line and end of bracketed content on a definition line.
text_before_beginning
  Text appearing before real content, including the \input texinfo.tex.
untranslated
  English text added by the parser that may need to be translated during conversion. Happens for @def* @-commands aliases that leads to prepending text such as 'Function'.

3.6.2.3 Tree container elements

Some types of element are containers of portions of the tree, either for the whole tree, or for contents appearing before @node and sectioning commands.

before_node_section
  Content before nodes and sectioning commands at the beginning of document_root.
document_root
root_line
  root_line is the type of the root tree when parsing Texinfo line fragments using parse_texi_line. document_root is the document root otherwise.
**document_root** first content should be **before_node_section**, then nodes and sections @-commands elements, and also @bye element.

**preamble_before_beginning**
This container holds everything appearing before the first content, including the \input texinfo.tex line and following blank lines.

**preamble_before_setfilename**
This container holds everything that appears before @setfilename.

**preamble_before_content**
This container holds everything appearing before the first formatted content, corresponding to the preamble in the Texinfo documentation.

### 3.6.2.4 Types of container elements

The other types of element are containers with other elements appearing in their contents. The paragraph container holds normal text from the Texinfo manual outside of any @-commands, and within @-commands with blocks of text (@footnote, @itemize @item, @quotation for example). The preformatted container holds the content appearing in @-commands like @example and the rawpreformatted container holds the content appearing in format commands such as @html. The other containers are more specific.

The types of container element are the following:

**before_item**
A container for content before the first @item of block @-commands with items (@table, @multitable, @enumerate...).

**brace_command_arg**
**brace_command_context**
**line_arg**
**block_line_arg**
Those containers occur within the **args** array of @-commands taking an argument. **brace_command_arg** is used for the arguments to commands taking arguments surrounded by braces (and in some cases separated by commas). **brace_command_context** is used for @-commands with braces that start a new context (@footnote, @caption, @math).

**line_arg** is used for commands that take the texinfo code on the rest of the line as their argument, such as @settitle, @node, @section. **block_line_arg** is similar but is used for commands that start a new block (which is to be ended with @end).

For example

```
@code{(in code)}
```

leads to

```json
{
  'cmdname' => 'code',
  'args' => [{
    'type' => 'brace_command_arg',
    'contents' => [{
      'text' => 'in code'}]
  }]
}
```

bracketed
This a special type containing content in brackets in the context where they are valid, in \texttt{@math}.

**bracketed_def_content**
Content in brackets on definition command lines.

**bracketed_multitable_prototype**
**row_prototype**
On \texttt{@multitable} line, content in brackets is in \texttt{bracketed_multitable_prototype}, text not in brackets is in \texttt{row_prototype}.

**def_aggregate**
Contains several elements that together are a single unit on a \texttt{@def*} line.

**def_line**
**def_item**

**inter_def_item**
The \texttt{def_line} type is either associated with a container within a definition command, or is the type of a definition command with a \texttt{x} form, like \texttt{@deffnx}. It holds the definition line arguments. The container with type \texttt{def_item} holds the definition text content. Content appearing before a definition command with a \texttt{x} form is in an \texttt{inter_def_item} container.

**macro_name**
**macro_arg**
Taken from \texttt{@macro} definition and put in the \texttt{args} key array of the macro, \texttt{macro_name} is the type of the text fragment corresponding to the macro name, \texttt{macro_arg} is the type of the text fragments corresponding to macro formal arguments.

**menu_comment**
The \texttt{menu_comment} container holds what is between menu entries in menus. For example, in:

- \texttt{@menu}
  Menu title

- * entry::
  Between entries
- * other::
  \texttt{@end menu}

Both

- Menu title

and

- Between entries
will be in a \texttt{menu_comment}.
A *menu_entry* holds a full menu entry, like

```
* node:: description.
```

The different elements of the menu entry are directly in the *menu_entry* args array reference.

*menu_entry_leading_text* holds the star and following spaces. *menu_entry_name* is the menu entry name (if present), *menu_entry_node* corresponds to the node in the menu entry, *menu_entry_separator* holds the text after the node and before the description, in most cases ::. Lastly, *menu_entry_description* is for the description.

In *@multitable*, a *multitable_head* container contains all the rows with *@headitem*, while *multitable_body* contains the rows associated with *@item*. A *row* container contains the *@item* and *@tab* forming a row.

A paragraph. The contents of a paragraph (like other container elements for Texinfo content) are elements representing the contents of the paragraph in the order they occur, such as simple text elements without a *cmdname* or *type*, or @-command elements for commands appearing in the paragraph.

Texinfo code within a format that is not filled. Happens within some block commands like *@example*, but also in menu (in menu descriptions, menu comments...).

Texinfo code within raw output format block commands such as *@tex* or *@html*.

Those containers appear in *@table*, *@ftable* and *@vtable*. A *table_entry* container contains an entire row of the table. It contains a *table_term* container, which holds all the *@item* and *@itemx* lines. This is followed by a *table_item* container, which holds the content that is to go into the second column of the table.

If there is any content before an *@itemx* (normally only comments, empty lines or maybe index entries are allowed), it will be in a container with type *inter_item* at the same level of *@item* and *@itemx*, in a *table_term*. 
3.6.3 Information available in the extra key

3.6.3.1 Extra keys available for more than one @-command

arg_line
The string correspond to the line after the @-command for @-commands that have special arguments on their line, and for @macro line.

index_entry
The index entry information (described in [index_entries], page 14, in details) is associated to @-commands that have an associated index entry.

misc_args
An array holding strings, the arguments of @-commands taking simple textual arguments as arguments, like @everyheadingmarks, @frenchspacing, @alias, @synindex, @columnfractions. Also filled for @set, @clickstyle, @unmacro or @comment arguments.

missing_argument
Set for some @-commands with line arguments and a missing argument.

spaces
For accent commands with spaces following the @-command, like:

@ringaccent A
@^ u

there is a spaces key which holds the spaces appearing after the command.

spaces_after_argument
A reference to spaces after @-command arguments before a comma, a closing brace or at end of line, for some @-commands and bracketed content type with opening brace, and line commands and block command lines taking Texinfo as argument and comma delimited arguments. Depending on the @-command, the spaces_after_argument is associated with the @-command element, or with each argument element.

spaces_before_argument
A reference to spaces following the opening brace of some @-commands with braces and bracketed content type, spaces following @-commands for line commands and block command taking Texinfo as argument, and spaces following comma delimited arguments. For context brace commands, line commands and block commands, spaces_before_argument is associated with the @-command element, for other brace commands and for spaces after comma, it is associated with each argument element.

text_arg
The string correspond to the line after the @-command for @-commands that have an argument interpreted as simple text, like @setfilename, @end or @documentencoding.
3.6.3.2 Extra keys specific of certain @-commands or containers

@abbr
@acronym
The first argument normalized is in normalized.

@anchor
@float
@-commands that are targets for cross-references have a normalized key for the normalized label, built as specified in the Texinfo documentation in the HTML Xref node. There is also a node_content key for an array holding the corresponding content.

@anchor also has region set to the special region name if in a special region (@copying, @titlepage).

@author
If in a @titlepage, the titlepage is in titlepage, if in @quotation or @smallquotation, the corresponding tree element is in quotation.
The author tree element is in the authors array of the @titlepage or the @quotation or @smallquotation it is associated with.

@click
In clickstyle there is the current clickstyle command.

definition command
def_command holds the command name, without x if it is an x form of a definition command. original_def_cmdname is the original def command.
If it is an x form, it has not_after_command set if not appearing after the definition command without x.

def_line
For each element in a def_line, the key def_role holds a string describing the meaning of the element. It is one of category, name, class, type, arg, typearg, spaces or delimiter, depending on the definition.
The def_parsed_hash hash reference has these strings as keys, and the values are the corresponding elements.
The omit_def_name_space key value is set and true if the Texinfo variable txidefnamenspac was set for the def_line, signaling that the space between function definition name and arguments should be omitted.

@definfoenclose defined commands
begin holds the string beginning the @definfoenclose, end holds the string ending the @definfoenclose.

@documentencoding
The argument, normalized is in input_encoding_name if it is recognized. The corresponding Perl encoding name is in input_perl_encoding.
@enumerate

The `enumerate_specification` extra key contains the enumerate argument.

@float

@listoffloats

If float has a second argument, and for `@listoffloats` argument there is a `type` key which is also a hash reference, with two keys. `content` is an array holding the associated contents, `normalized` holds the normalized float type.

`caption` and `shortcaption` holds the corresponding tree elements for float. The `@caption` or `@shortcaption` have the float tree element stored in `float`.

@ifclear
@ifset

The original line is in `line`.

@inlinefmt
@inlineraw
@inlinefmtifelse
@ifclear
@ifset

The first argument is in `format`. If an argument has been determined as being expanded by the Parser, the index of this argument is in `expand_index`. Index numbering begins at 0, but the first argument is always the format or flag name, so, if set, it should be 1 or 2 for `@inlinefmtifelse`, and 1 for other commands.

@item in @enumerate or @itemize

The `item_number` extra key holds the number of this item.

@item and @tab in @multitable

The `cell_number` index key holds the index of the column of the cell.

@itemize
@table
@vtable
@ftable

The `command_as_argument` extra key points to the `@`-command on as argument on the `@`-command line.

If the command in argument for `@table`, `@vtable` or `@ftable` is `@kbd` and the context and `@kbdinputstyle` is such that `@kbd` should be formatted as code, the `command_as_argument_kbd_code` extra key is set to 1.

@kbd

code is set depending on the context and `@kbdinputstyle`.

@macro

`invalid_syntax` is set if there was an error on the `@macro` line. `arg_line` holds the line after `@macro`.
menu_entry

The `menu_entry_description` and `menu_entry_name` keys are associated with the corresponding tree elements. The `menu_entry_node` value is a hash with information about the parsed node entry; its keys are the same as those appearing in the elements of the `nodes_manuals` array for `@node`.

@multitable

The key `max_columns` holds the maximal number of columns. If there are prototypes on the line they are in the array associated with `prototypes`. If there is a `@columnfractions` as argument, then the `columnfractions` key is associated with the element for the `@columnfractions` command.

@node

The arguments are in the `nodes_manuals` array. Each of the entries is a hash with a `node_content` key for an array holding the corresponding content, a `manual_content` key if there is an associated external manual name, and a `normalized` key for the normalized label, built as specified in the HTML Xref Texinfo documentation node.

An `associated_section` key holds the tree element of the sectioning command that follows the node. An `node_preceding_part` key holds the tree element of the `@part` that precedes the node, if there is no sectioning command between the `@part` and the node.

A node containing a menu have a `menus` key which refers to an array of references to menu elements occurring in the node.

The first node containing a `@printindex` @-command has the `isindex` key set.

paragraph

The `indent` or `noindent` key value is set if the corresponding @-commands are associated with that paragraph.

@part

The next sectioning command tree element is in `part_associated_section`. The following node tree element is in `part_following_node` if there is no sectioning command between the `@part` and the node.

@ref
@xref
@pxref
@inforef

The `node_argument` entry holds a parsed node entry, like the one appearing in the `nodes_manuals` array for `@node`.

row

The `row_number` index key holds the index of the row in the `@multitable`. sectioning command

The node preceding the command is in `associated_node`. The part preceding the command is in `associated_part`. If the level of the document was modified by `@raisections` or `@lowersections`, the differential level is in `sections_level`. 
@value
The value argument string is in *flag*. Only for a @value command that is not expanded because there is no corresponding value set, as only those are present in the tree.

@verb
The delimiter is in *delimiter*.

3.7 Texinfo::Parser SEE ALSO

3.8 Texinfo::Parser AUTHOR
Patrice Dumas, <pertusus@free.fr>

3.9 Texinfo::Parser COPYRIGHT AND LICENSE
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4 Texinfo::Structuring

4.1 Texinfo::Structuring NAME
Texinfo::Structuring - information on Texinfo::Parser tree

4.2 Texinfo::Structuring SYNOPSIS

use Texinfo::Structuring qw(sectioning_structure nodes_tree number_floats
associate_internal_references split_by_node split_by_section split_pages
merge_indices sort_indices elements_directions elements_file_directions);

# $tree is a Texinfo document tree. $parser is a Texinfo::Parser object.
# $config is an object implementing the get_conf() method.
my $registrar = $parser->registered_errors();
my $sections_root = sectioning_structure ($registrar, $config, $tree);
my ($labels, $targets_list, $nodes_list) = $parser->labels_information();
my $parser_information = $parser->global_information();
my $global_commands = $parser->global_commands_information();
set_menus_node_directions($registrar, $config, $parser_information,
$global_commands, $nodes_list, $labels);
my $top_node = nodes_tree($registrar, $config, $parser_information, $nodes_list, $labels);
complete_node_tree_with_menus($registrar, $config, $nodes_list, $top_node);
my $refs = $parser->internal_references_information();
check_nodes_are_referenced($registrar, $config, $nodes_list, $top_node, $labels, $refs);
associate_internal_references($registrar, $parser, $parser_information, $labels, $refs);
number_floats($parser->floats_information());
my $tree_units;
if ($split_at_nodes) {
  $tree_units = split_by_node($tree);
} else {
  $tree_units = split_by_section($tree);
}
split_pages($tree_units, $split);
elements_directions($config, $labels, $tree_units);
elements_file_directions($tree_units);

my $index_names = $parser->indices_information();
my $merged_index_entries
  = merge_indices($index_names);
my $index_entries_sorted;
if ($sort_by_letter) {
  $index_entries_sorted = sort_indices($registrar, $config,
                                    $merged_index_entries, 'by_letter');
} else {
  $index_entries_sorted = sort_indices($registrar, $config,
                                    $merged_index_entries);
4.3 Texinfo::Structuring NOTES

The Texinfo Perl module main purpose is to be used in texi2any to convert Texinfo to other formats. There is no promise of API stability.

4.4 Texinfo::Structuring DESCRIPTION

Texinfo::Structuring first allows to collect information on a Texinfo tree. In most case, it also requires information from a parser object to do that job. Thanks to sectioning_structure the hierarchy of sectioning commands is determined. The directions implied by menus are determined with set_menus_node_directions. The node tree is analysed with nodes_tree. Nodes directions are completed with menu directions with complete_node_tree_with_menus. Floats get their standard numbering with number_floats and internal references are matched up with nodes, floats or anchors with associate_internal_references.

The following methods depend on the output format, so are usually called from converters.

It is also possible to associate top-level contents of the tree, which consist in nodes and sectioning commands with tree unit elements that group together a node and the next sectioning element. With split_by_node nodes are considered to be the main sectioning elements, while with split_by_section the sectioning command elements are the main elements. The first mode is typical of Info format, while the second corresponds to a traditional book. The elements may be further split in pages, which are not pages as in book pages, but more like web pages, and hold series of tree unit elements.

The elements may have directions to other elements prepared by elements_directions. elements_file_directions should also set direction related to files, provided files are associated with elements by the user.

merge_indices may be used to merge indices, which may be sorted with sort_indices.

4.5 Texinfo::Structuring METHODS

No method is exported in the default case.

Most methods takes a Section 5.1 [Texinfo::Report], page 34, $registrar as argument for error reporting. Most also require Texinfo customization variables information, which means an object implementing the get_conf method, in practice the main program configuration or a converter (Section 13.5.2 [Texinfo::Convert::Converter Getting and setting customization variables], page 55). Other common input arguments such as parser information, labels or refs are obtained from a parser, see Section 3.1 [Texinfo::Parser], page 10.

associate_internal_references($registrar, $customization_information, $parser_information, $labels, $refs)

Verify that internal references (@ref and similar without fourth of fifth argument and menu entries) have an associated node, anchor or float. Set the normalized key in the extra hash menu_entry_node hash for menu entries and in the extra hash node_argument hash for internal references @ref and similar @-commands. Set the label key in the extra hash of the reference tree element to the associated labeled tree element. Register errors in $registrar.
check_nodes_are_referenced($registrar, $customization_information, $nodes_list, $top_node, $labels, $refs)

Check that all the nodes are referenced (in menu, @*ref or node direction). Register errors in $registrar. Should be called after complete_node_tree_with_menus in order to have the autogenerated menus available.

complete_node_tree_with_menus($registrar, $customization_information, $nodes_list, $top_node)

Complete nodes directions with menu directions. Check consistency of menus, sectionning and nodes direction structures. Register errors in $registrar.

elements_directions($customization_information, $labels, $tree_units)

Directions are set up for the tree unit elements in the array reference $tree_units given in argument. The corresponding hash is in {'structure'}->{'directions'} and keys correspond to directions while values are elements. The following directions are set up:

This

The element itself.

Forward

Element next.

Back

Previous element.

NodeForward

Following node element in reading order. It is the next node, or the first in menu or the next of the up node.

NodeBack

Preceding node element.

NodeUp

NodeNext

NodePrev

The up, next and previous node elements.

Up

Next

Prev

The up, next and previous section elements.

FastBack

For top level elements, the previous top level element. For other elements the up top level element. For example, for a chapter element it is the previous chapter, for a subsection element it is the chapter element that contains the subsection.
FastForward

The next top level section element.

elements_file_directions($tree_units)

In the directions reference described above for elements_directions, sets the
PrevFile and NextFile directions to the elements in previous and following files.
It also sets FirstInFile* directions for all the elements by using the directions of
the first element in file. So, for example, FirstInFileNodeNext is the next node
of the first element in the file of each element.
The API for association of pages/elements to files is not defined yet.

@nodes_list = get_node_node_childs_from_sectioning($node)

$node is a node tree element. Find the node $node children based on the
sectioning structure. For the node associated with @top sectioning command,
the sections associated with parts are considered.

$entry_key = index_entry_sort_string($main_entry, $entry_tree_element, $sortas, $options)

Return a string suitable as a sort string, for index entries. The index entry
processed is $entry_tree_element, and can be a @subentry. $main_entry is the
main index entry tree element that can be used to gather information. $sortas
can be given to override the sort string (typically obtained from @sortas). The
$options are options used for Texinfo to text conversion for the generation of
the sort string, typically obtained from [setup_index_entry_keys_formatting],
page 32.

$merged_entries = merge_indices($index_names)

Using information returned by [Texinfo::Parser indices_information], page 14, a
structure holding all the index entries by index name is returned, with all the
entries of merged indices merged with those of the indice merged into.
The $merged_entries returned is a hash reference whose keys are the index names
and values arrays of index entry structures described in details in [Texinfo::Parser
index_entries], page 14.

$new_block = new_block_command($content, $parent, $command_name)

Returns the texinfo tree corresponding to a block command named $command_name
with contents $content and parent in tree $parent.

$new_menu = new_complete_node_menu($node, $use_sections)

Returns a texinfo tree menu for node $node, pointing to the children of the
node obtained with the sectioning structure. If $use_sections is set, use section
names for the menu entry names.

$entry = new_node_menu_entry($node, $use_sections)

Returns the texinfo tree corresponding to a single menu entry pointing to $node.
If $use_sections is set, use the section name for the menu entry name. Returns
undef if the node argument is missing.

$top_node = nodes_tree($registrar, $customization_information, $parser_information,
$nodes_list, $labels)

Goes through nodes and set directions. Returns the top node. Register errors
in $registrar.
This function sets, in the `structure` node element hash:

- `node_up`
- `node_prev`
- `node_next`

Up, next and previous directions for the node.

`number_floats($float_information)`

Number the floats as described in the Texinfo manual. Sets the `number` key in the `structure` hash of the float tree elements.

`$command_name = section_level_adjusted_command_name($element)`

Return the sectioning command name corresponding to the sectioning element `$element`, adjusted in order to take into account raised and lowered sections, when needed.

`$sections_root, $sections_list = sectioning_structure($registrar, $customization_information, $tree)`

This function goes through the tree and gather information on the document structure for sectioning commands. It returns `$sections_root` the root of the sectioning commands tree and a reference on the sections elements list. Errors are registered in `$registrar`.

It sets section elements `structure` hash values:

- `section_level`
  The level in the sectioning tree hierarchy. 0 is for `@top` or `@part`, 1 for `@chapter`, `@appendix`... This level is corrected by `@raisesections` and `@lowersections`.

- `section_number`
  The sectioning element number.

- `section_childs`
  An array holding sectioning elements children of the element.

- `section_up`
- `section_prev`
- `section_next`

  The up, previous and next sectioning elements.

- `toplevel_next`
- `toplevel_prev`
- `toplevel_up`

  The next and previous and up sectioning elements of toplevel sectioning elements (like `@top`, `@chapter`, `@appendix`), not taking into account `@part` elements.

`set_menus_node_directions($registrar, $customization_information, $parser_information, $global_commands, $nodes_list, $labels);`

Goes through menu and set directions. Register errors in `$registrar`. 
This functions sets, in the `structure` node element hash reference:

```
menu_child
  The first child in the menu of the node.
menu_up
menu_next
menu_prev
  Up, next and previous directions as set in menus.
```

```
$option = setup_index_entry_keys_formatting($customization_information)
  Return options for conversion of Texinfo to text relevant for index keys sorting.
($index_entries_sorted, $index_entries_sort_strings) = sort_indices($registrar,
$customization_information, $merged_index_entries, $sort_by_letter)
  If $sort_by_letter is set, sort by letter, otherwise sort all entries together. In
both cases, a hash reference with index names as keys $index_entries_sorted is
returned.
When sorting by letter, an array reference of letter hash references is associated
with each index name. Each letter hash reference has two keys, a `letter` key with
the letter, and an `entries` key with an array reference of sorted index entries
beginning with the letter.
When simply sorting, the array of the sorted index entries is associated with
the index name.
$index_entries_sort_strings is a hash reference associating the index entries with
the strings that were used to sort them.
Register errors in $registrar.

$tree_units = split_by_node($tree)
  Returns a reference array of tree units where a node is associated to the following
sectioning commands. Sectioning commands without nodes are also with the
previous node, while nodes without sectioning commands are alone in their tree
units.
Tree units are regular tree elements with type `unit`, the associated nodes and
sectioning tree elements are in the array associated with the `contents` key. The
associated elements have a `associated_unit` key set in the `structure` hash that
points to the associated tree unit.
Tree units have directions in the `structure` hash reference, namely `unit_next`
and `unit_prev` pointing to the previous and the next tree unit.
In the `extra` hash reference, tree units have:
```
unit_command
  The node command associated with the element.
```

```
$tree_units = split_by_section($tree)
  Similarly with `split_by_node`, returns an array of tree units. This time, lone
nodes are associated with the previous sections and lone sections makes up a
tree unit.
The `structure` and `extra` hash keys set are the same, except that `unit_command`
is the sectioning command associated with the element.
$pages = split_pages($tree_units, $split)
    The tree units from the array reference argument have an extra first_in_page
    value set in the structure hash reference to the first tree unit in the group,
    and based on the value of $split. The possible values for $split are
    chapter
    The tree units are split at chapter or other toplevel sectioning tree
    units.
    node
    Each element has its own page.
    section
    The tree units are split at sectioning commands below chapter.
    value evaluating to false
    No splitting, only one page is returned, holding all the tree units.

warn_non_empty_parts($registrar, $customization_information, $global_commands)
    Register a warning in $registrar for each @part that is not empty in
    $global_commands information (typically obtained by calling global_commands_information() on a parser).

4.6 Texinfo::Structuring SEE ALSO

4.7 Texinfo::Structuring AUTHOR
Patrice Dumas, <pertusus@free.fr>

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5 Texinfo::Report

5.1 Texinfo::Report NAME
Texinfo::Report - Error storing for Texinfo modules

5.2 Texinfo::Report SYNOPSIS

use Texinfo::Report;

my $registrar = Texinfo::Report::new();

if ($warning_happened) {
    $registrar->line_warn($converter, sprintf("\@%s is wrongly used"),
        $current->{cmdname}), $current->{source_info});
}

my ($errors, $errors_count) = $registrar->errors();
foreach my $error_message (@$errors) {
    warn $error_message->{error_line};
}

5.3 Texinfo::Report NOTES
The Texinfo Perl module main purpose is to be used in texi2any to convert Texinfo to other formats. There is no promise of API stability.

5.4 Texinfo::Report DESCRIPTION
The Texinfo::Report module helps with error handling. It is used by the Texinfo modules Section 3.1 [Texinfo::Parser], page 10, and Section 13.1 [Texinfo::Convert::Converter], page 53. To use this module, either create a new Texinfo::Report object or initialize another object such as to be able to call Texinfo::Report methods. In any case, Texinfo::Report::new() is called to setup the module.

Besides the new method, errors is used for reporting errors, and the other methods to store errors (and warnings).

5.5 Texinfo::Report METHODS
No method is exported in the default case.

The new method initializes Texinfo::Report related fields. The errors collected are available through the errors method, the other methods allow registering errors and warnings.

my $registrar = Texinfo::Report::new();
$converter->Texinfo::Report::new();

If called without argument, a Texinfo::Report object is initialized and returned. This is how the module is used in the Texinfo Parsers, as a separate object.
If called on a $converter, the $converter is initialized itself such as to be able to call Texinfo::Report methods. It is how it is used in the Converters.

($error_warnings_list, $error_count) = errors($registrar)

This function returns as $error_count the count of errors since calling new. The $error_warnings_list is an array of hash references one for each error, warning or error line continuation. Each of these has the following keys:

- **type**
  - May be **warning**, or **error**.

- **text**
  - The text of the error.

- **error_line**
  - The text of the error formatted with the file name, line number and macro name, as needed.

- **line_nr**
  - The line number of the error or warning.

- **file_name**
  - The file name where the error or warning occurs.

- **macro**
  - The user macro name that is expanded at the location of the error or warning.

$registrar->line_warn($text, $configuration_information, $error_location_info)

$registrar->line_error($text, $configuration_information, $error_location_info)

Register a warning or an error. The $text is the text of the error or warning. The $configuration_information object gives some information that can modify the messages or their delivery. The optional $error_location_info holds the information on the error or warning location. The $error_location_info reference on hash may be obtained from Texinfo elements source_info keys. It may also be setup to point to a file name, using the file_name key and to a line number, using the line_nr key. The file_name key value should be a binary string.

The source_info key of Texinfo tree elements is described in more details in [Texinfo::Parser source_info], page 16.

$registrar->document_warn($configuration_information, $text)

$registrar->document_error($configuration_information, $text)

Register a document-wide error or warning. $text is the error or warning message. The $configuration_information object gives some information that can modify the messages or their delivery.

## 5.6 Texinfo::Report AUTHOR

Patrice Dumas, <pertusus@free.fr>
5.7 Texinfo::Report COPYRIGHT AND LICENSE

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6 Texinfo::Translations

6.1 Texinfo::Translations NAME
Texinfo::Translations - Translations of output documents strings for Texinfo modules

6.2 Texinfo::Translations SYNOPSIS
@ISA = qw(Texinfo::Translations);

my $tree_translated = $converter->gdt('See {reference} in @cite{{book}}',
    {'reference' => $tree_reference,
    'book' => {'text' => $book_name}});

6.3 Texinfo::Translations NOTES
The Texinfo Perl module main purpose is to be used in texi2any to convert Texinfo to
text, texi2any to convert Texinfo to other formats. There is no promise of API stability.

6.4 Texinfo::Translations DESCRIPTION
The Texinfo::Translations module helps with translations in output documents.

Translation of error messages uses another interface, which is the classical gettext based
perl interface. It is not described as it is described in details elsewhere, some elements are
in [Texinfo::Common __ and __p], page 6.

6.5 Texinfo::Translations METHODS
No method is exported.

The gdt method is used to translate strings to be output in converted documents, and
returns, in general, a texinfo tree.

$tree = $object->gdt($string, $replaced_substrings, $mode, $lang)

The $string is a string to be translated. In the default case, the function returns
a Texinfo tree, as the string is interpreted as Texinfo code after translation. $replaced_substrings is an optional hash reference specifying some substitution
to be done after the translation. The key of the $replaced_substrings hash reference identifies what is to be substituted, and the value is some string,
texinfo tree or array content that is substituted in the resulting texinfo tree. In
the string to be translated word in brace matching keys of $replaced_substrings
are replaced. The $object is typically a converter, but can be any object that
implements get_conf, or undefined (undef). If not undefined, the information
in the $object is used to determine the encoding, the document language and
get some customization information. $lang is optional. If set, it overrides
the document language.

For example, in the following call, the string See {reference} in @cite{{book}} is translated, then parsed as a Texinfo string, with {reference}
substituted by $tree_reference$ in the resulting tree, and $\{book\}$ replaced by the associated texinfo tree text element:

```perl
$tree = $converter->gdt('See \{reference\} in @cite\{\{book\}\}',
    {'reference' => $tree_reference,
     'book'   => {'text' => $book_name}});
```

gdt uses a gettext-like infrastructure to retrieve the translated strings, using the texinfo_document domain.

$mode$ is an optional string which may modify how the function behaves. The possible values are:

- translated_text
  In that case the string is not considered to be Texinfo, a plain string that is returned after translation and substitution. The substitutions may only be strings in that case.

### 6.6 Texinfo::Translations AUTHOR

Patrice Dumas, <pertusus@free.fr>

### 6.7 Texinfo::Translations COPYRIGHT AND LICENSE

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7 Texinfo::Transformations

7.1 Texinfo::Transformations NAME
Texinfo::Transformations - transformations of Texinfo Perl tree

7.2 Texinfo::Transformations NOTES
The Texinfo Perl module main purpose is to be used in texi2any to convert Texinfo to other formats. There is no promise of API stability.

7.3 Texinfo::Transformations DESCRIPTION
Includes miscellaneous methods set_menus_to_simple_menu and menu_to_simple_menu to change the menu texinfo tree, as well as insert_nodes_for_sectioning_commands that adds nodes for sectioning commands without nodes and complete_tree_nodes_menus and complete_tree_nodes_missing_menu that completes the node menus based on the sectioning tree.

7.4 Texinfo::Transformations METHODS
No method is exported in the default case.

```
complete_tree_nodes_menus($tree, $add_section_names_in_entries)
    Add menu entries or whole menus for nodes associated with sections, based on the sectioning tree. If the optional $add_section_names_in_entries argument is set, a menu entry name is added using the section name. This function should be called after [sectioning_structure], page 31.

complete_tree_nodes_missing_menu($tree, $use_section_names_in_entries)
    Add whole menus for nodes associated with sections and without menu, based on the sectioning tree. If the optional $add_section_names_in_entries argument is set, a menu entry name is added using the section name. This function should be called after [sectioning_structure], page 31.

($root_content, $added_sections) = fill_gaps_in_sectioning($tree)
    This function adds empty @unnumbered and similar commands in a tree to fill gaps in sectioning. This may be used, for example, when converting from a format that can handle gaps in sectioning. $tree is the tree root. An array reference is returned, containing the root contents with added sectioning commands, as well as an array reference containing the added sectioning commands. If the sectioning commands are lowered or raised (with @raisessections, @lowersection) the tree may be modified with @raisessections or @lowersection added to some tree elements.

($root_content, $added_nodes) = insert_nodes_for_sectioning_commands($tree, $nodes_list, $targets_list, $labels)
    Insert nodes for sectioning commands without node in $tree. Add nodes to the labels used as targets for references $labels and $targets_list and to $nodes_list.
```
An array reference is returned, containing the root contents with added nodes, as well as an array reference containing the added nodes.

\begin{verbatim}
menu_to_simple_menu($menu)
go_to_simple_menu($nodes_list)

menu_to_simple_menu transforms the tree of a menu tree element. set_menus_to_simple_menu calls menu_to_simple_menu for all the menus of the nodes in $nodes_list.

A simple menu has no menu_comment, menu_entry or menu_entry_description container anymore, their content are merged directly in the menu in preformatted container.
\end{verbatim}

$detailmenu = new_master_menu($translations, $labels)

Returns a detailmenu tree element formatted as a master node. $translations, if defined, should be a Section 6.1 [Texinfo::Translations], page 37, object and should also hold customization information.

\begin{verbatim}
protect_hashchar_at_line_beginning($registrar, $customization_information, $tree)

Protect hash (#) character at the beginning of line such that they would not be considered as lines to be processed by the CPP processor. The $registrar and $customization_information arguments may be undef. If defined, the $registrar argument should be a Section 5.1 [Texinfo::Report], page 34, object in which the errors and warnings encountered while parsing are registered. If defined, $customization_information should give access to customization through get_conf. If both $registrar and $customization_information are defined they are used for error reporting in case an hash character could not be protected because it appeared in a raw environment.
\end{verbatim}

$modified_tree = reference_to_arg_in_tree($tree)

Modify $tree by converting reference @-commands to simple text using one of the arguments. This transformation can be used, for example, to remove reference @-command from constructed node names trees, as node names cannot contain reference @-command while there could be some in the tree used in input for the node name tree.

\begin{verbatim}
regenerate_master_menu($translations, $labels)

Regenerate the Top node master menu, replacing the first detailmenu in Top node menus or appending at the end of the Top node menu. $translations, if defined, should be a Section 6.1 [Texinfo::Translations], page 37, object and should also hold customization information.
\end{verbatim}

7.5 Texinfo::Transformations SEE ALSO


7.6 Texinfo::Transformations AUTHOR

Patrice Dumas, <pertusus@free.fr>
7.7 Texinfo::Transformations COPYRIGHT AND LICENSE

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8 Texinfo::Convert::Texinfo

8.1 Texinfo::Convert::Texinfo NAME
Texinfo::Convert::Texinfo - Convert a Texinfo tree to Texinfo code

8.2 Texinfo::Convert::Texinfo SYNOPSIS

use Texinfo::Convert::Texinfo qw(convert_to_texinfo);

my $texinfo_text = convert_to_texinfo($tree);

8.3 Texinfo::Convert::Texinfo NOTES
The Texinfo Perl module main purpose is to be used in texi2any to convert Texinfo to other formats. There is no promise of API stability.

8.4 Texinfo::Convert::Texinfo DESCRIPTION
Texinfo::Convert::Texinfo converts a Texinfo tree (described in Section 3.1 [Texinfo::Parser], page 10) to Texinfo code. If the Texinfo tree results from parsing some Texinfo document, The converted Texinfo code should be exactly the same as the initial document, except that user defined @-macros and @value are expanded, and some invalid code is discarded.

8.5 Texinfo::Convert::Texinfo METHODS

$texinfo_text = convert_to_texinfo($tree)
    Converts the Texinfo tree $tree to Texinfo code.

8.6 Texinfo::Convert::Texinfo AUTHOR
Patrice Dumas, <pertusus@free.fr>

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9 Texinfo::Convert::Utils

9.1 Texinfo::Convert::Utils NAME
Texinfo::Convert::Utils - miscellaneous functions usable in all converters

9.2 Texinfo::Convert::Utils SYNOPSIS
use Texinfo::Convert::Utils qw(expand_today expand_verbatiminclude);

my $today_tree = expand_today($converter);
my $verbatiminclude_tree
  = expand_verbatiminclude(undef, $converter, $verbatiminclude);

9.3 Texinfo::Convert::Utils NOTES
The Texinfo Perl module main purpose is to be used in texi2any to convert Texinfo to
other formats. There is no promise of API stability.

9.4 Texinfo::Convert::Utils DESCRIPTION
miscellaneous methods that may be useful for backends converting texinfo trees. This
module contains the methods that can be used in converters that do not inherit Section 13.1
[Texinfo::Convert::Converter], page 53.

9.5 Texinfo::Convert::Utils METHODS
No method is exported in the default case.

Most methods takes a $converter as argument, in general optionally, to get some infor-
mation and use methods for error reporting, see Section 13.1 [Texinfo::Convert::Converter],
page 53, and Section 5.1 [Texinfo::Report], page 34. On strings translations, see Section 6.1
[Texinfo::Translations], page 37.

$arguments = definition_arguments_content($element)
$element should be a @def* Texinfo tree element. Texinfo elements on the
@-command line corresponding to arguments in the function definition are
returned in the $arguments array reference. Arguments correspond to text
following the category and the name on the @-command line. If there is no
argument, $arguments will be undef.

$tree = definition_category_tree($converter, $def_line)
The $converter argument may be undef. $def_line is a def_line texinfo tree
container. This function returns a texinfo tree corresponding to the category of
the $def_line taking the class into account, if there is one. If $converter is not
defined, the resulting string won’t be translated.

($encoded_name, $encoding) = $converter->encoded_output_file_name($converter,
$character_string_name)
Encode $character_string_name in the same way as other file name are encoded
in converters, based on customization variables, and possibly on the input file
encoding. Return the encoded name and the encoding used to encode the 
name. The $converter argument is not optional and is used both to access to 
customization variables and to access to parser information.

$tree = expand_today($converter)
    Expand today's date, as a texinfo tree with translations.

$tree = expand_verbatiminclude($registrar, $customization_information, $verbatiminclude)
The $registrar argument may be undef. $verbatiminclude is a 
verbatiminclude tree element. This function returns a @verbatim tree 
elements after finding the included file and reading it. If $registrar is not 
defined, errors messages are not registered.

(\@contents, \@accent_commands) = find_innermost_accent_contents($element)
    $element should be an accent command Texinfo tree element. Returns an array 
reference containing the innermost accent command contents, normally a text 
element with one or two letter, and an array reference containing the accent 
commands nested in $element (including $element).

$result = add_heading_number($converter, $heading_element, $heading_text, $do_number)
The $converter argument may be undef. $heading_element is a heading com-
mand tree element. $heading_text is the already formatted heading text. if the 
$do_number optional argument is defined and false, no number is used and the 
text is returned as is. This function returns the heading with a number and the 
appendix part if needed. If $converter is not defined, the resulting string won't 
be translated.

9.6 Texinfo::Convert::Utils SEE ALSO
Section 13.1 [Texinfo::Convert::Converter], page 53, and Section 6.1 [Texinfo::Translations], 
page 37.

9.7 Texinfo::Convert::Utils AUTHOR
Patrice Dumas, <pertusus@free.fr>

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10 Texinfo::Convert::Unicode

10.1 Texinfo::Convert::Unicode NAME
Texinfo::Convert::Unicode - Representation as Unicode characters

10.2 Texinfo::Convert::Unicode SYNOPSIS

```perl
use Texinfo::Convert::Unicode qw(unicode_accent encoded_accents
   unicode_text);

my ($innermost_contents, $stack) = Texinfo::Convert::Utils::find_innermost_accent_contents($accent);

my $formatted_accents = encoded_accents ($converter,
   convert_to_text($innermost_contents), $stack, $encoding,
   \&Texinfo::Text::ascii_accent_fallback);

my $accent_text = unicode_accent('e', $accent_command);
```

10.3 Texinfo::Convert::Unicode NOTES
The Texinfo Perl module main purpose is to be used in texi2any to convert Texinfo to other formats. There is no promise of API stability.

10.4 Texinfo::Convert::Unicode DESCRIPTION
Texinfo::Convert::Unicode provides methods dealing with Unicode representation and conversion of Unicode code points, to be used in converters.

When an encoding supported in Texinfo is given as argument of a method of the module, the accented letters or characters should only be represented by Unicode code points if it is known that Perl should manage to convert the Unicode code points to encoded characters in the encoding character set. Note that the actual conversion is done by Perl, not by the module.

10.5 Texinfo::Convert::Unicode METHODS

$result = brace_no_arg_command($command_name, $encoding)

Return the Unicode representation of a command with brace and no argument
$command_name (like @bullet{}, @aa{} or @guilsinglleft{}), or undef if the Unicode representation cannot be converted to encoding $encoding.

$possible_conversion = check_unicode_point_conversion($arg, $output_debug)

Check that it is possible to output actual UTF-8 binary bytes corresponding to the Unicode code point string $arg (such as 201D). Perl gives a warning and will not output UTF-8 for Unicode non-characters such as U+10FFFF. If the optional $output_debug argument is set, a debugging output warning is emitted if the test of the conversion failed. Returns 1 if the conversion is possible and can be attempted, 0 otherwise.
$result = encoded_accents($converter, $text, $stack, $encoding, $format_accent, $set_case)

$encoding is the encoding the accented characters should be encoded to. If $encoding not set, $result is set to undef. Nested accents and their content are passed with $text and $stack. $text is the text appearing within nested accent commands. $stack is an array reference holding the nested accents texinfo tree elements. In general, $text is the formatted contents and $stack the stack returned by \[Texinfo::Convert::Utils::find\] innermost accent contents], page 44. The function tries to convert as much as possible the accents to $encoding starting from the innermost accent.

$format_accent is a function reference that is used to format the accent commands if there is no encoded character available at some point of the conversion of the $stack. $converter is a converter object optionally used by $format_accent. It may be undef if there is no need of converter object in $format_accent.

If $set_case is positive, the result is upper-cased, while if it is negative, the result is lower-cased.

$width = string_width($string)

Return the string width, taking into account the fact that some characters have a zero width (like composing accents) while some have a width of 2 (most chinese characters, for example).

$result = unicode_accents($text, $accent_command)

$text is the text appearing within an accent command. $accent_command should be a Texinfo tree element corresponding to an accent command taking an argument. The function returns the Unicode representation of the accented character.

$is_decoded = unicode_point_decoded_in_encoding($encoding, $unicode_point)

Return true if the $unicode_point will be encoded in the encoding $encoding. The $unicode_point should be specified as a four letter string describing an hexadecimal number with letters in upper case (such as 201D). Tables are used to determine if the $unicode_point will be encoded, when the encoding does not cover the whole Unicode range.

If the encoding is not supported in Texinfo, the result will always be false.

$result = unicode_text($text, $in_code)

Return $text with dashes and quotes corresponding, for example to --- or ’, represented as Unicode code points. If $in_code is set, the text is considered to be in code style.

10.6 Texinfo::Convert::Unicode AUTHOR

Patrice Dumas, <pertusus@free.fr>

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11 Texinfo::Convert::NodeNameNormalization

11.1 Texinfo::Convert::NodeNameNormalization NAME
Texinfo::Convert::NodeNameNormalization - Normalize and transliterate Texinfo trees

11.2 Texinfo::Convert::NodeNameNormalization SYNOPSIS
use Texinfo::Convert::NodeNameNormalization qw(normalize_node transliterate_texinfo);

my $normalized = normalize_node({'contents' => $node_contents});
my $file_name = transliterate_texinfo({'contents' => $section_contents});

11.3 Texinfo::Convert::NodeNameNormalization NOTES
The Texinfo Perl module main purpose is to be used in texi2any to convert Texinfo to other formats. There is no promise of API stability.

11.4 Texinfo::Convert::NodeNameNormalization DESCRIPTION
Texinfo::Convert::NodeNameNormalization allows to normalize node names, with normalize_node following the specification described in the Texinfo manual HTML Xref node. This is useful each time one want a unique identifier for Texinfo content that is only composed of letter, digits, and _. In Section 3.1 [Texinfo::Parser], page 10, normalize_node is used for @node, @float and @anchor names normalization, but also @float types and @acronym and @abbr first argument.

It is also possible to transliterate non-ASCII letters, instead of mangling them, with transliterate_texinfo, losing the uniqueness feature of normalized node names.

Another method, transliterate_protect_file_name transliterates non-ASCII letters and protect characters that should not appear on file names.

11.5 Texinfo::Convert::NodeNameNormalization METHODS
$partially_normalized = convert_to_normalized($tree)
The Texinfo $tree is returned as a string, with @-commands and spaces normalized as described in the Texinfo manual HTML Xref node. ASCII 7-bit characters other than spaces and non-ASCII characters are left as is in the resulting string.

$normalized = normalize_node($tree)
The Texinfo $tree is returned as a string, normalized as described in the Texinfo manual HTML Xref node.
The result will be poor for Texinfo trees which are not @-command arguments (on an @-command line or in braces), for instance if the tree contains @node or block commands.

\$transliterated = transliterate_texinfo(\$tree, \$no_unidecode)

The Texinfo \$tree is returned as a string, with non-ASCII letters transliterated as ASCII, but otherwise similar with normalize_node output. If the optional \$no_unidecode argument is set, Text::Unidecode is not used for characters whose transliteration is not built-in.

\$file_name = transliterate_protection_file_name(\$string, \$no_unidecode)

The string \$string is returned with non-ASCII letters transliterated as ASCII, and ASCII characters not safe in file names protected as in node normalization. If the optional \$no_unidecode argument is set, Text::Unidecode is not used for characters whose transliteration is not built-in.

11.6 Texinfo::Convert::NodeNameNormalization AUTHOR
Patrice Dumas, <pertusus@free.fr>

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12 Texinfo::Convert::Text

12.1 Texinfo::Convert::Text NAME
Texinfo::Convert::Text - Convert Texinfo tree to simple text

12.2 Texinfo::Convert::Text SYNOPSIS
use Texinfo::Convert::Text qw(convert_to_text ascii_accent text_accents);

my $result = convert_to_text($tree);
my $result_encoded = convert_to_text($tree,
  {'enabled_encoding' => 'utf-8'});
my $result_converter = convert_to_text($tree,
  {'converter' => $converter});

my $result_accent_text = ascii_accent('e', $accent_command);
my $accents_text = text_accents($accents, 'utf-8');

12.3 Texinfo::Convert::Text NOTES
The Texinfo Perl module main purpose is to be used in texi2any to convert Texinfo to other formats. There is no promise of API stability.

12.4 Texinfo::Convert::Text DESCRIPTION
Texinfo::Convert::Text is a simple backend that converts a Texinfo tree to simple text. It is used in converters, especially for file names. The converter is very simple, and, in the default case, cannot handle output strings translation or error handling.

12.5 Texinfo::Convert::Text METHODS
$result = convert_to_text($tree, $options)
Convert a Texinfo tree to simple text. $options is a hash reference of options. The converter is very simple, and has almost no internal state besides the options. It cannot handle as is output strings translation or error storing.
If the converter option is set, some additional features may be available for the conversion of some @-commands, like output strings translation or error reporting.
The following options may be set:

   enabled_encoding
   If set, the value is considered to be the encoding name texinfo accented letters should be converted to. This option being set corresponds to the --enable-encoding option, or the ENABLE_ENCODING customization variable for Info and Plaintext. For HTML, DocBook or Texinfo XML, this variable should in general be set unless the output encoding is US-ASCII.
sc

If set, the text is upper-cased.

code

If set the text is in code style. (mostly --, ---, ’’ and ‘‘ are kept as is).

NUMBER SECTIONS

If set, sections are numbered when output.

sort_string

A somehow internal option to convert to text more suitable for alphabetical sorting rather than presentation.

converter

If this converter object is passed to the function, some features of this object may be used during conversion. Mostly error reporting and strings translation, as the converter object is also supposed to be a Section 5.1 [Texinfo::Report], page 34, objet. See also Section 13.1 [Texinfo::Convert::Converter], page 53.

expanded_formats_hash

A reference on a hash. The keys should be format names (like html, tex), and if the corresponding value is set, the format is expanded.

$\text{result}\_accent\_text = \text{ascii}\_accent(\text{text}, \text{accent}\_command)$

$\text{text}$ is the text appearing within an accent command. $\text{accent}\_command$ should be a Texinfo tree element corresponding to an accent command taking an argument. The function returns a transliteration of the accented character.

$\text{result}\_accent\_text = \text{ascii}\_accent\_fallback(\text{converter}, \text{text}, \text{accent}\_command)$

Same as ascii_accent but with an additional first argument converter, which is ignored, but needed if this function is to be in argument of functions that need a fallback for accents conversion.

$\text{accents}\_text = \text{text}\_accents(\text{accents}, \text{encoding}, \text{set}\_case)$

$\text{accents}$ is an accent command that may contain other nested accent commands. The function will format the whole stack of nested accent commands and the innermost text. If $\text{encoding}$ is set, the formatted text is converted to this encoding as much as possible instead of being converted as simple ASCII. If $\text{set}\_case$ is positive, the result is meant to be upper-cased, if it is negative, the result is to be lower-cased.

12.6 Texinfo::Convert::Text AUTHOR

Patrice Dumas, <pertusus@free.fr>

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13 Texinfo::Convert::Converter

13.1 Texinfo::Convert::Converter NAME
Texinfo::Convert::Converter - Parent class for Texinfo tree converters

13.2 Texinfo::Convert::Converter SYNOPSIS
package Texinfo::Convert::MyConverter;

use Texinfo::Convert::Converter;
@ISA = qw(Texinfo::Convert::Converter);

sub converter_defaults ($$) {
    return %myconverter_defaults;
}
sub converter_initialize($) {
    my $self = shift;
    $self->{‘document_context’} = [{}];
}

sub convert($$) {
    ...
}
sub convert_tree($$) {
    ...
}
sub output($$) {
    ...
}

# end of Texinfo::Convert::MyConverter

my $converter = Texinfo::Convert::MyConverter->converter(
    {‘parser’ => $parser});
$converter->output($texinfo_tree);

13.3 Texinfo::Convert::Converter NOTES
The Texinfo Perl module main purpose is to be used in texi2any to convert Texinfo to other formats. There is no promise of API stability.

13.4 Texinfo::Convert::Converter DESCRIPTION
Texinfo::Convert::Converter is a super class that can be used to simplify converters initialization. The class also provide some useful methods.
In turn, the converter should define some methods. Two are optional, `converter_defaults`, `converter_initialize` and used for initialization, to give information to `Texinfo::Convert::Converter`.

The `convert_tree` method is mandatory and should convert portions of Texinfo tree. The `output` method is used by converters as entry point for conversion to a file with headers and so on. Although it is not called from other modules, it should in general be implemented by converters. `output` is called from `texi2any`. `convert` is not required, but customarily used by converters as entry point for a conversion of a whole Texinfo tree without the headers done when outputting to a file.

Existing backends may be used as examples that implement those methods. `Texinfo::Convert::Texinfo` together with `Texinfo::Convert::PlainTexinfo`, as well as `Texinfo::Convert::TextContent` are trivial examples. `Texinfo::Convert::Text` is less trivial, although still simple, while `Texinfo::Convert::DocBook` is a real converter that is also not too complex.

The documentation of Section 2.1 [Texinfo::Common], page 5, Section 10.1 [Texinfo::Convert::Unicode], page 45, and Section 5.1 [Texinfo::Report], page 34, describes modules or additional function that may be useful for backends, while the parsed Texinfo tree is described in Section 3.1 [Texinfo::Parser], page 10.

### 13.5 Texinfo::Convert::Converter METHODS

#### 13.5.1 Initialization

A module subclassing `Texinfo::Convert::Converter` is created by calling the `converter` method that should be inherited from `Texinfo::Convert::Converter`.

```
$converter = MyConverter->converter($options)
```

The `$options` hash reference holds options for the converter. In this option hash reference a Section 3.1 [parser object], page 10, may be associated with the `parser` key. The other options are Texinfo customization options and a few other options that can be passed to the converter. Most of the customization options are described in the Texinfo manual. Those customization options, when appropriate, override the document content. TODO what about the other options (all are used in converters; 'structuring' is available in HTML) `$converter->get_info()'? The parser should not be available directly anymore after getting the associated information. TODO document this associated information ('parser_info', 'indices_information', 'floats'..., most available in HTML converter, either through `$converter->get_info()` or `label_command()`)

The `converter` function returns a converter object (a blessed hash reference) after checking the options and performing some initializations, especially when a parser is given among the options. The converter is also initialized as a Section 5.1 [Texinfo::Report], page 34.

To help with these initializations, the modules subclassing `Texinfo::Convert::Converter` can define two methods:

```
%defaults = $converter->converter_defaults($options)
```

The module can provide a defaults hash for converter customization options. The `$options` hash reference holds options for the converter.
converter_initialize

This method is called at the end of the `Texinfo::Convert::Converter` converter initialization.

### 13.5.2 Getting and setting customization variables

`Texinfo::Convert::Converter` implements a simple interface to set and retrieve Texinfo customization variables. Helper functions from diverse Texinfo modules needing customization information expect an object implementing `get_conf` and/or `set_conf`. The converter itself can therefore be used in such cases.

```perl
$converter->force_conf($variable_name, $variable_value)
Set the Texinfo customization option `$variable_name` to `$variable_value`. This should rarely be used, but the purpose of this method is to be able to revert a customization that is always wrong for a given output format, like the splitting for example.

$converter->get_conf($variable_name)
Returns the value of the Texinfo customization variable `$variable_name`.

$converter->set_conf($variable_name, $variable_value)
Set the Texinfo customization option `$variable_name` to `$variable_value` if not set as a converter option.
```

### 13.5.3 Conversion to XML

Some `Texinfo::Convert::Converter` methods target conversion to XML. Most methods take a `converter` as argument to get some information and use methods for error reporting.

```perl
$formatted_text = $converter->xml_format_text_with_numeric_entities($text)
Replace quotation marks and hyphens used to represent dash in Texinfo text with numeric XML entities.

$protected_text = $converter->xml_protect_text($text)
Protect special XML characters (&, <, >) of `$text`.

$comment = $converter->xml_comment($text)
Returns an XML comment for `$text`.

$result = xmlAccent($text, $accent_command, $in_upper_case, $use_numeric_entities)
`$text` is the text appearing within an accent command. `$accent_command` should be a Texinfo tree element corresponding to an accent command taking an argument. `$in_upper_case` is optional, and, if set, the text is put in upper case. The function returns the accented letter as XML named entity if possible, falling back to numeric entities if there is no named entity and to an ASCII transliteration as last resort. `$use_numeric_entities` is optional. If set, numerical entities are used instead of named entities if possible.

$result = $converter->xml_accents($accent_command, $in_upper_case)
`$accent_command` is an accent command, which may have other accent commands nested. If `$in_upper_case` is set, the result should be upper cased. The function returns the accents formatted as XML.
```
$result = \texttt{xml\_numeric\_entity\_accent}($accent\_command\_name, $text)

$accent\_command\_name is the name of an accent command. $text is the text appearing within the accent command. Returns the accented letter as XML numeric entity, or \texttt{undef} is there is no such entity.

### 13.5.4 Helper methods

The module provides methods that may be useful for converter. Most methods take a $\texttt{converter}$ as argument to get some information and use methods for error reporting, see Section 5.1 [Texinfo::Report], page 34. Also to translate strings, see Section 6.1 [Texinfo::Translations], page 37. For useful methods that need a converter optionally and can be used in converters that do not inherit from \texttt{Texinfo::Convert::Converter}, see Section 9.1 [Texinfo::Convert::Utils], page 43.

$\texttt{contents\_array} = \texttt{converter\textasciitilde comma\_index\_subentries\_tree}($entry)

$entry is a Texinfo tree index entry element. The function sets up an array with the $\texttt{subentry}$ contents, separated by commas. The array reference is returned as $\texttt{contents\_array}$, or \texttt{undef} if there is no such content.

$\texttt{convert\_accents}($accent\_command, $\texttt{format\_accents}$, $\texttt{in\_upper\_case}$)

$accent\_command is an accent command, which may have other accent commands nested. The function returns the accents formatted either as encoded letters, or formatted using $\texttt{\textbackslash Eformat\_accents}$. If $\texttt{in\_upper\_case}$ is set, the result should be uppercased.

$\texttt{convert\_document\_sections}($root, $\texttt{file\_handler}$)

This method splits the $\texttt{root}$ Texinfo tree at sections and calls $\texttt{convert\_tree}$ on the elements. If the optional $\texttt{file\_handler}$ is given in argument, the result are output in $\texttt{file\_handler}$, otherwise the resulting string is returned.

$\texttt{create\_destination\_directory}($destination\_directory\_path, $destination\_directory\_name)$

Create destination directory $destination\_directory\_path$. $destination\_directory\_path$ should be a binary string, while $destination\_directory\_name$ should be a character string, that can be used in error messages. $\texttt{succeeded}$ is true if the creation was successful or unneeded, false otherwise.

($\texttt{output\_file}$, $destination\_directory$, $\texttt{output\_filename}$, $document\_name$, $input\_basefile$) = $\texttt{determine\_files\_and\_directory}($output\_format)$

Determine output file and directory, as well as names related to files. The result depends on the presence of $\texttt{setfilename}$, on the Texinfo input file name, and on customization options such as OUTPUT, SUBDIR or SPLIT, as described in the Texinfo manual. $output\_format$ is optional. If it is not set the current output format, if defined, is used instead. If not an empty string, $\_output\_format$ is prepended to the default directory name.

$\texttt{output\_file}$ is mainly relevant when not split and should be used as the output file name. In general, if not split and $\texttt{output\_file}$ is an empty string, it means that text should be returned by the converter instead of being written to an output file. This is used in the test suite. $destination\_directory$ is either the
directory $output_file$ is in, or if split, the directory where the files should be created. $output_filename$ is, in general, the file name portion of $output_file$ (without directory) but can also be set based on @setfilename, in particular when $output_file$ is an empty string. $document_name$ is $output_filename$ without extension. $input_basefile$ is based on the input texinfo file name, with the file name portion only (without directory).

The strings returned are text strings.

($encoded_name, $encoding$) = $converter->encoded_input_file_name($character_string_name)
($encoded_name, $encoding$) = $converter->encoded_output_file_name($character_string_name)

Encode $character_string_name$ in the same way as other file name are encoded in the converter, based on customization variables, and possibly on the input file encoding. Return the encoded name and the encoding used to encode the name. The encoded_input_file_name and encoded_output_file_name functions use different customization variables to determine the encoding.

Note that encoded_output_file_name is a wrapper around the function with the same name in [Texinfo::Convert::Utils::encoded_output_file_name], page 43.

($caption, $prepended$) = $converter->float_name_caption($float)

$float$ is a texinfo tree @float element. This function returns the caption element that should be used for the float formatting and the $prepended$ texinfo tree combining the type and label of the float.

$tree = $converter->float_type_number($float)

$float$ is a texinfo tree @float element. This function returns the type and number of the float as a texinfo tree with translations.

$end_line = $converter->format_comment_or_return_end_line($element)

Format comment at end of line or return the end of line associated with the element. In many cases, converters ignore comments and output is better formatted with new lines added independently of the presence of newline or comment in the initial Texinfo line, so most converters are better off not using this method.

$filename = sub $converter->node_information_filename($node_info)
Returns the normalized file name corresponding to the $node_info node element tree extra field.

($normalized_name, $filename$) = $converter->normalized_sectioning_command_filename($element)

Returns a normalized name $normalized_name corresponding to a sectioning command tree element $element, expanding the command argument using transliteration and characters protection. Also returns $filename the corresponding filename based on $normalized_name taking into account additional constraint on file names and adding a file extension.

$converter->present_bug_message($message, $element)

Show a bug message using $message text. Use information on $element tree element if given in argument.
$converter->set_global_document_commands($commands_location, $selected_commands)

Set the Texinfo customization options for @-commands. $selected_commands is an optional array reference containing the @-commands set, if not given all the global informative @-commands are set. $commands_location specifies where in the document the value should be taken from. The possibilities are:

before
Set to the values before document conversion, from defaults and command-line.

last
Set to the last value for the command.

preamble
Set sequentially to the values in the Texinfo preamble.

preamble_or_first
Set to the first value of the command if the first command is not in the Texinfo preamble, else set as with preamble, sequentially to the values in the Texinfo preamble.

Notice that the only effect of this function is to set a customization variable value, no @-command side effects are run, no associated customization variables are set.

For more information on the function used to set the value for each of the command, see [Texinfo::Common set global document command], page 8.

$table_item_tree = $converter->table_item_content_tree($element, $contents)

$element should be an @item or @itemx tree element, $contents should be corresponding texinfo tree contents. Returns a tree in which the @-command in argument of @*table of the $element has been applied to $contents.

$result = $converter->top_node_filename($document_name)

Returns a file name for the Top node file using either TOP_FILE customization value, or EXTENSION customization value and $document_name.

Finally, there is:

$result = $converter->output_internal_links()

At this level, the method just returns undef. It is used in the HTML output, following the --internal-links option of texi2any specification.

13.6 Texinfo::Convert::Converter SEE ALSO

Section 2.1 [Texinfo::Common], page 5, Section 10.1 [Texinfo::Convert::Unicode], page 45, Section 5.1 [Texinfo::Report], page 34, Section 6.1 [Texinfo::Translations], page 37, Section 9.1 [Texinfo::Convert::Utils], page 43, and Section 3.1 [Texinfo::Parser], page 10.

13.7 Texinfo::Convert::Converter AUTHOR

Patrice Dumas, <pertusus@free.fr>
13.8 Texinfo::Convert::Converter COPYRIGHT AND LICENSE

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14 Texinfo::Convert::Info

14.1 Texinfo::Convert::Info NAME
Texinfo::Convert::Info - Convert Texinfo tree to Info

14.2 Texinfo::Convert::Info SYNOPSIS

my $converter = Texinfo::Convert::Info->converter({'parser' => $parser});

$converter->output($tree);
$converter->convert($tree);
$converter->convert_tree($tree);

14.3 Texinfo::Convert::Info NOTES
The Texinfo Perl module main purpose is to be used in texi2any to convert Texinfo to other formats. There is no promise of API stability.

14.4 Texinfo::Convert::Info DESCRIPTION
Texinfo::Convert::Info converts a Texinfo tree to Info.

14.5 Texinfo::Convert::Info METHODS

$converter = Texinfo::Convert::Info->converter($options)
Initialize converter from Texinfo to Info.

The $options hash reference holds options for the converter. In this option hash reference a Section 3.1 [parser object], page 10, may be associated with the parser key. The other options are Texinfo customization options and a few other options that can be passed to the converter. Most of the customization options are described in the Texinfo manual. Those customization options, when appropriate, override the document content. The parser should not be available directly anymore after getting the associated information.

See Section 13.1 [Texinfo::Convert::Converter], page 53, for more information.

$converter->output($tree)
Convert a Texinfo tree $tree and output the result in files as described in the Texinfo manual.

$result = $converter->convert($tree)
Convert a Texinfo tree $tree and return the resulting output.

$result = $converter->convert_tree($tree)
Convert a Texinfo tree portion $tree and return the resulting output. This function does not try to output a full document but only portions. For a full document use convert.
14.6 Texinfo::Convert::Info AUTHOR

Patrice Dumas, <pertusus@free.fr>

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15 Texinfo::Convert::HTML

15.1 Texinfo::Convert::HTML NAME
Texinfo::Convert::HTML - Convert Texinfo tree to HTML

15.2 Texinfo::Convert::HTML SYNOPSIS
my $converter
    = Texinfo::Convert::HTML->converter({'parser' => $parser});

$converter->output($tree);
$converter->convert($tree);
$converter->convert_tree($tree);
$converter->output_internal_links(); # HTML only

15.3 Texinfo::Convert::HTML NOTES
The Texinfo Perl module main purpose is to be used in texi2any to convert Texinfo to other formats. There is no promise of API stability.

15.4 Texinfo::Convert::HTML DESCRIPTION
Texinfo::Convert::HTML converts a Texinfo tree to HTML.

15.5 Texinfo::Convert::HTML METHODS
$converter = Texinfo::Convert::HTML->converter($options)
    Initialize converter from Texinfo to HTML.
    The $options hash reference holds options for the converter. In this option hash reference a Section 3.1 [parser object], page 10, may be associated with the parser key. The other options are Texinfo customization options and a few other options that can be passed to the converter. Most of the customization options are described in the Texinfo manual. Those customization options, when appropriate, override the document content. The parser should not be available directly anymore after getting the associated information.
    See Section 13.1 [Texinfo::Convert::Converter], page 53, for more information.

$converter->output($tree)
    Convert a Texinfo tree $tree and output the result in files as described in the Texinfo manual.

$result = $converter->convert($tree)
    Convert a Texinfo tree $tree and return the resulting output.

$result = $converter->convert_tree($tree)
    Convert a Texinfo tree portion $tree and return the resulting output. This function does not try to output a full document but only portions. For a full document use convert.
$result = $converter->output_internal_links()

Returns text representing the links in the document. The format should follow the `--internal-links` option of the `texi2any` specification. This is only supported in (and relevant for) HTML.

15.6 Texinfo::Convert::HTML AUTHOR

Patrice Dumas, <pertusus@free.fr>

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16 Texinfo::Convert::DocBook

16.1 Texinfo::Convert::DocBook NAME
Texinfo::Convert::DocBook - Convert Texinfo tree to DocBook

16.2 Texinfo::Convert::DocBook SYNOPSIS

```perl
my $converter = Texinfo::Convert::DocBook->converter({'parser' => $parser});
$converter->output($tree);
$converter->convert($tree);
$converter->convert_tree($tree);
```

16.3 Texinfo::Convert::DocBook NOTES
The Texinfo Perl module main purpose is to be used in texi2any to convert Texinfo to other formats. There is no promise of API stability.

16.4 Texinfo::Convert::DocBook DESCRIPTION
Texinfo::Convert::DocBook converts a Texinfo tree to DocBook.

16.5 Texinfo::Convert::DocBook METHODS

```perl
$converter = Texinfo::Convert::DocBook->converter($options)
Initialize converter from Texinfo to DocBook.

The $options hash reference holds options for the converter. In this option
hash reference a Section 3.1 [parser object], page 10, may be associated with
the parser key. The other options are Texinfo customization options and a few
other options that can be passed to the converter. Most of the customization
options are described in the Texinfo manual. Those customization options, when
appropriate, override the document content. The parser should not be available
directly anymore after getting the associated information.
See Section 13.1 [Texinfo::Convert::Converter], page 53, for more information.
```

```perl
$converter->output($tree)
Convert a Texinfo tree $tree and output the result in files as described in the
Texinfo manual.

$result = $converter->convert($tree)
Convert a Texinfo tree $tree and return the resulting output.

$result = $converter->convert_tree($tree)
Convert a Texinfo tree portion $tree and return the resulting output. This
function does not try to output a full document but only portions. For a full
document use convert.
```
16.6 Texinfo::Convert::DocBook AUTHOR

Patrice Dumas, <pertusus@free.fr>

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17 Texinfo::Convert::TexinfoMarkup

17.1 Texinfo::Convert::TexinfoMarkup NAME
Texinfo::Convert::TexinfoMarkup - Convert Texinfo tree to element and attribute markup

17.2 Texinfo::Convert::TexinfoMarkup SYNOPSIS

```perl
package Texinfo::Convert::TexinfoMyMarkup;
use Texinfo::Convert::TexinfoMarkup;
@ISA = qw(Texinfo::Convert::TexinfoMarkup);

sub converter_defaults ($$) {
    return %myconverter_defaults;
}

sub txi_markup_protect_text($$) {
    my $self = shift;
    ....
}
```

17.3 Texinfo::Convert::TexinfoMarkup NOTES
The Texinfo Perl module main purpose is to be used in texi2any to convert Texinfo to other formats. There is no promise of API stability.

17.4 Texinfo::Convert::TexinfoMarkup DESCRIPTION
Texinfo::Convert::TexinfoMarkup converts a Texinfo tree to the Texinfo Markup Language which is based on nested elements with attributes, similar to XML. All the information present in the Texinfo tree, after expansion of @macro, @value and inclusion of include files is kept. Texinfo::Convert::TexinfoMarkup is an abstract class, to be used as a super class for modules implementing specific markup formatting functions called by Texinfo::Convert::TexinfoMarkup.

The Texinfo Markup Language elements and attributes are not documented, but the Texinfo XML output by the Texinfo::Convert::TexinfoXML subclass (Section 18.1 [Texinfo::Convert::TexinfoXML], page 69) is a straightforward formatting as XML, and is described by the texinfo DTD. Therefore the texinfo DTD can be used as a description of the structure of both Texinfo XML and of the more abstract Texinfo Markup Language.

17.5 Texinfo::Convert::TexinfoMarkup METHODS
17.5.1 Markup formatting methods defined by subclasses

The following methods should be implemented by the modules inheriting from Texinfo::Convert::TexinfoMarkup:

- `$result = $converter->txi_markup_atom($atom)`
  Format the `$atom` symbol string in a simpler way than with an element. For example in XML the formatting of the symbol is achieved with an entity.

- `$result = $converter->txi_markup_comment($comment_string)`
  Format `$comment_string` as a comment.

- `$result = $converter->txi_markup_convert_text($element)`
  Called to format the Texinfo tree `$element` text, which is a reference on a hash. The `$element` text is in the `text` key. The `type` key value may also be set to distinguish the type of text (Section 3.6.2.2 [Texinfo::Parser Types for text elements], page 17). Texinfo tree elements are described in details in Section 3.6 [Texinfo::Parser TEXINFO TREE], page 15.

- `$result = $converter->txi_markup_element($format_element, $attributes)`
- `$result = $converter->txi_markup_open_element($format_element, $attributes)`
- `$result = $converter->txi_markup_close_element($format_element, $attributes)`

`txi_markup_element` is called for the formatting of empty elements. Otherwise, `txi_markup_open_element` is called when an element is opened, and `txi_markup_close_element` is called when an element is closed. `$format_element` is the element name, `$attributes` is a reference on an array containing references on arrays of pairs, one pair for each attribute, with the attribute name as the first item of the pair and the attribute text as the second item of the pair.

- `$result = $converter->txi_markup_header()`
  Called to format a header at the beginning of output files.

- `$result = $converter->txi_markup_protect_text($string)`
  Protect special character in text for text fragments out of text texinfo tree elements. For example, for spaces at end of line that are ignorable in most output formats, for @set or @macro arguments.

17.5.2 Formatting state information

A method is available for subclasses to gather information on the formatting state:

- `$converter->in_monospace()`
  Return 1 if in a context where spacing should be kept and --- or ’ ’ left as is, for example in @code, @example.

17.6 Texinfo::Convert::TexinfoMarkup AUTHOR

Patrice Dumas, <pertusus@free.fr>

17.7 Texinfo::Convert::TexinfoMarkup SEE ALSO

Section 13.1 [Texinfo::Convert::Converter], page 53. Section 18.1 [Texinfo::Convert::TexinfoXML], page 69. The Texinfo::Convert::TexinfoSXML is another subclass, which outputs SXML. It is not much documented.
17.8 Texinfo::Convert::TexinfoMarkup COPYRIGHT AND LICENSE

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18 Texinfo::Convert::TexinfoXML

18.1 Texinfo::Convert::TexinfoXML NAME
Texinfo::Convert::TexinfoXML - Convert Texinfo tree to TexinfoXML

18.2 Texinfo::Convert::TexinfoXML SYNOPSIS
my $converter = Texinfo::Convert::TexinfoXML->converter({'parser' => $parser});

$converter->output($tree);
$converter->convert($tree);
$converter->convert_tree($tree);

18.3 Texinfo::Convert::TexinfoXML NOTES
The Texinfo Perl module main purpose is to be used in texi2any to convert Texinfo to
other formats. There is no promise of API stability.

18.4 Texinfo::Convert::TexinfoXML DESCRIPTION
Texinfo::Convert::TexinfoXML converts a Texinfo tree to TexinfoXML.

18.5 Texinfo::Convert::TexinfoXML METHODS
$converter = Texinfo::Convert::TexinfoXML->converter($options)
Initialize converter from Texinfo to TexinfoXML.

The $options hash reference holds options for the converter. In this option
hash reference a Section 3.1 [parser object], page 10, may be associated with
the parser key. The other options are Texinfo customization options and a few
other options that can be passed to the converter. Most of the customization
options are described in the Texinfo manual. Those customization options, when
appropriate, override the document content. The parser should not be available
directly anymore after getting the associated information.
See Section 13.1 [Texinfo::Convert::Converter], page 53, for more information.

$converter->output($tree)
Convert a Texinfo tree $tree and output the result in files as described in the
Texinfo manual.

$result = $converter->convert($tree)
Convert a Texinfo tree $tree and return the resulting output.

$result = $converter->convert_tree($tree)
Convert a Texinfo tree portion $tree and return the resulting output. This
function does not try to output a full document but only portions. For a full
document use convert.
18.6 Texinfo::Convert::TexinfoXML AUTHOR
Patrice Dumas, <pertusus@free.fr>

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19 Texinfo::Convert::Plaintext

19.1 Texinfo::Convert::Plaintext NAME
Texinfo::Convert::Plaintext - Convert Texinfo tree to Plaintext

19.2 Texinfo::Convert::Plaintext SYNOPSIS

my $converter = Texinfo::Convert::Plaintext->converter({'parser' => $parser});

$converter->output($tree);
$converter->convert($tree);
$converter->convert_tree($tree);

19.3 Texinfo::Convert::Plaintext NOTES
The Texinfo Perl module main purpose is to be used in texi2any to convert Texinfo to other formats. There is no promise of API stability.

19.4 Texinfo::Convert::Plaintext DESCRIPTION
Texinfo::Convert::Plaintext converts a Texinfo tree to Plaintext.

19.5 Texinfo::Convert::Plaintext METHODS

$converter = Texinfo::Convert::Plaintext->converter($options)
Initialize converter from Texinfo to Plaintext.

The $options hash reference holds options for the converter. In this option
hash reference a Section 3.1 [parser object], page 10, may be associated with
the parser key. The other options are Texinfo customization options and a few
other options that can be passed to the converter. Most of the customization
options are described in the Texinfo manual. Those customization options, when
appropriate, override the document content. The parser should not be available
directly anymore after getting the associated information.

See Section 13.1 [Texinfo::Convert::Converter], page 53, for more information.

$converter->output($tree)
Convert a Texinfo tree $tree and output the result in files as described in the
Texinfo manual.

$result = $converter->convert($tree)
Convert a Texinfo tree $tree and return the resulting output.

$result = $converter->convert_tree($tree)
Convert a Texinfo tree portion $tree and return the resulting output. This
function does not try to output a full document but only portions. For a full
document use convert.
19.6 Texinfo::Convert::Plaintext AUTHOR
Patrice Dumas, <pertusus@free.fr>

19.7 Texinfo::Convert::Plaintext COPYRIGHT AND LICENSE

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