User's Guide

Version 0.12

Gerd Neugebau

This document describes ε_{χ}TEX. It explains how to get ε_{χ}TEX up and running and which features ε_{χ}TEX offers to you. Since ε_{χ}TEX provides a testbed for experimentation the focus has been put on the default configurations. The intended audience for this document are end users of the typesetting engine who want to use ε_{χ}TEX on the command line or as plug-in replacement of TEX.

Gerd Neugebauer
Im Lerchelsböhl 5
64521 Groß-Gerau (Germany)
gene@gerd-neugebauer.de

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1. Introduction

ε_{χ}TEX aims at providing a high-quality typesetting system. The development of ε_{χ}TEX has been inspired by the experiences with TEX. The focus lies on an open design and a high degree of configurability. Thus ε_{χ}TEX should be a good base for further development.

On the other hand we have to take care not to leave the current user base of TEX behind. pdfTEX has taught us that a migration path from TEX has a positive value in it. In the mean time the majority of TEX users applies in fact pdfTEX.

To provide a backward compatibility of ε_{χ}TEX with TEX one special configuration is provided. Thus backward compatibility is just a matter of configuration.

1.1. This Document

This document is meant to be a reference document. It should contain all information neccesary to know. It is not meant ot be a tutorial. Thus do not expect tutorial type material in this document.

1.2. Web Site

There is a web site devoted to ε_{χ}TEX. This web site can be reached via the URL

http://www.extex.org

1.3. Mailing Lists

If you are ready to try ε_{χ}TEX you might as well want to join a mailing list to get in contact with the community.

http://www.dante.de/listman/extex

1.4. Reporting Bugs

If you find any bugs in ε_{χ}TEX you can submit them either via a HTML form or via email. You can find the HTML form at

http://www.extex.org/bugs

Emails containing the description can be sent to

extex-bugs@dante.de

Please include in your description

- the source of a *minimal* example showing the problem
- the log file resulting from running this example
- a description why you think that something went wrong and what the expected result would be
- a description of the environment you are using (host architecture, operating system, Java version)

2. Getting Started

In this chapter we describe the steps you can take to get $\varepsilon\chi$TEX up and running. We try to use as few as possible premises. Thus it should be not too hard to get started.

2.1. Prerequisites

2.1.1. Java

You need to have Java 1.4.2 or later installed on your system. You can get Java for a several systems directly from java.sun.com. Download and install it according to the installation instructions for your environment.

To check that you have an appropriate Java on your path you can use the command `java` with the argument `-version`. This can be seen in the following listing:

```
# java -version
java version "1.4.2_06"
Java(TM) 2 Runtime Environment, Standard Edition (build 1.4.2_06-b03)
Java HotSpot(TM) Client VM (build 1.4.2_06-b03, mixed mode)
#
```

2.1.2. TEXMF

If you want to use more than the pure $\varepsilon\chi$TEX engine, fonts and macros can be inherited from a texmf tree. $\varepsilon\chi$TEX itself does not contain a full texmf tree. It comes just with some rudimentray files necessary for testing. Thus you should have installed a texmf tree, e.g. from a TEXLive installation. This can be found on the Comprehensive TEX Archive Network (CTAN).

There is no need to install the texmf tree in a special place. You have to tell $\varepsilon\chi$TEX anyhow where it can be found. It is even possible to work with several texmf trees.

One requirement for the texmf trees is that they have a file database (`ls-R`). $\varepsilon\chi$TEX can be configured to work without it, but then $\varepsilon\chi$TEX is deadly slow. Thus you do not really want to try this alternative.

2.2. Getting ε_{χ}TEX

2.2.1. Getting the Installer

The simplest way to get ε_{χ}TEX up and running is to use the ε_{χ}TEX installer. This installer is distribted as one file `ExTeX-setup.jar`. You can download it from

http://www.extex.org/download/

To be completed.

2.2.2. Getting the Sources

The sources of ε_{χ}TEX are stored in a CVS repository. To access this repository you need access to the internet and CVS installed in some way.

The coordinates of the repository are:

Connection type:	`pserver`
User:	`anonymous`
Host:	`cvs.extex.berlios.de`
Location:	`/cvsroot/extex`
Module:	`ExTeX`

We assume here that you have access to CVS on the command line. This can be either a shell on a Unix-like system or somethng like cygwin on Windows. We also assume that you have direct connection to the internet.

First we create a directory where the sources are stored:

```
# mkdir ExTeX
```

Next we change the current directory to this base directory:

```
# cd ExTeX
```

Now we log into the CVS repository. This login uses an anonymous account. This enables us to download the sources but not to commit any changes. The committing is restricted to members of the ε_{χ}TEX team.

```
# cvs -d:pserver:anonymous@cvs.extex.berlios.de/cvsroot/extex login
```

Finally we can check out the sources:

```
# cvs -d:pserver:anonymous@cvs.extex.berlios.de/cvsroot/extex co ExTeX
```

This command shows a lot of output. At the end the current directory is filled with a lot of files and directories.

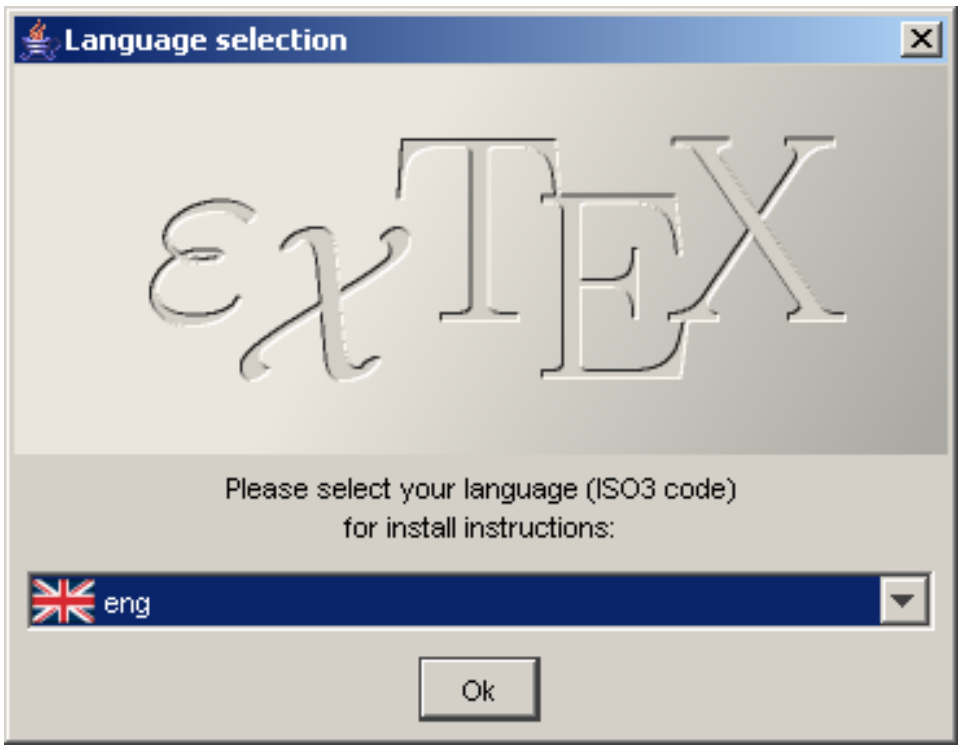

Figure 2.1.: The Language Selection in the Installer

2.3. Installing εχTEX

There are several ways to install εχTEX. Some of them are described in this section.

2.3.1. Installing εχTEX with the Installer

The easiest installation of εχTEX works with the εχTEX installer. This installer is named `ExTeX-setup.jar`. You can start the installer with the following command line:

```
# java -jar ExTeX-setup.jar
```

On Windows with a properly installed Java you can also start the installer by double-clicking `ExTeX-setup.jar` in the Explorer.

The installer provides a graphical user interface with a wizard guiding you through the installation process. The first dialog is shown in figure 2.1. As you can see you can select one of several languages for the installation process. Currently the languages English and German are supported. There might be some more at the time you are performing the installation.

Note that the internationalization covers the installer only. εχTEX can be run under different language environments as well. This is controlled by a setting at run-time. Currently only an English language binding for εχTEX is provided.

Finally you have to make sure that the executables `extex` or `extex.bat` is on your path for executables.

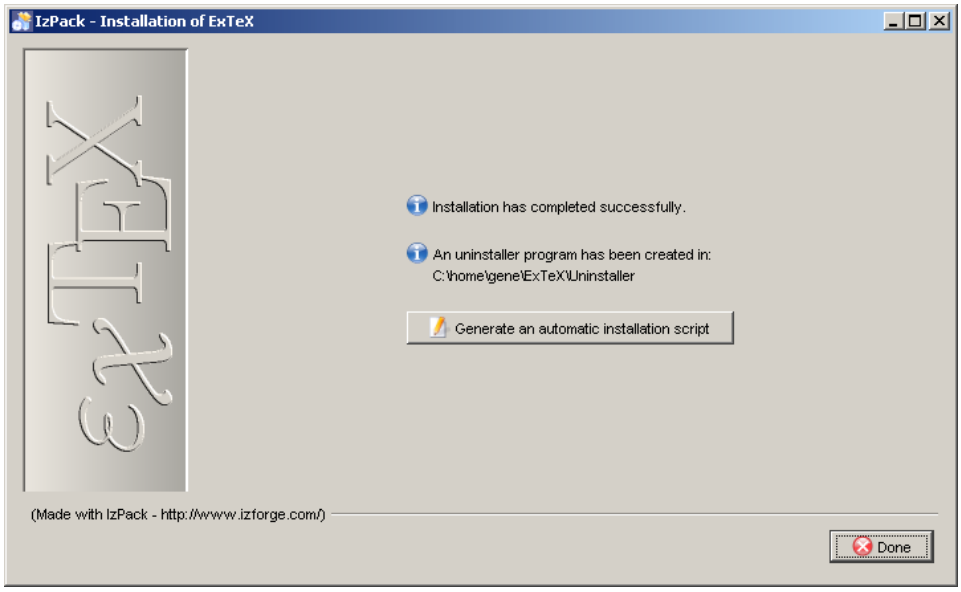

Figure 2.2.: Generating a Auto-Configuration for the Installer

2.3.2. Replaying an Installation

Sometimes it is desirable to perform an installation on several similar machines. This means that the answers to the questions in the installer are the same. This process can be automated.

In figure 2.2 you can see the last screen of the installer. Here you have the possibility to select the button "Generate an automatic installation script". This produces an XML file which can be passed to the installer to avoid the dialogs.

Suppose you have named the file `replay.xml` in the file selector which pops up when the button has been pressed. Then you can replay the installation with the following command invocation:

```
# java -jar ExTeX-setup.jar replay.xml
```

This supposes that the two files `ExTeX-setup.jar` and `replay.xml` are in the current directory.

Finally you have to make sure that the executables `extex` or `extex.bat` is on your path for executables.

2.3.3. Creating the $\varepsilon\chi$TEX Installer

You can create the installer of $\varepsilon\chi$TEX from the sources. All you need for this step is contained in the source distribution. Suppose you are in the base directory of the distribution. Then the following command creates the installer:

```
# build installer
```

As a result the file `ExTeX-setup.jar` is created in the directory `target`. This file is a self-contained installer. You can immediately start the installer with the following command line:

```
# java -jar target/ExTeX-setup.jar
```

In addition the installer file can be moved to any other place – even other machines – and run the installation there (see also section 2.3.1).

2.3.4. Installing εχTEX from the Sources on the Command Line

To install you can use the build script provided in the εχTEX base directory.

```
# build -Dinstall.dir=/usr/local/share/ExTeX install
```

Additionally you have to copy the file `.extex` from the base directory of the εχTEX to your home directory and adapted to your installation. Most probably the value of the property `extex.texinputs` needs adaption to point to your texmf trees.

Finally you have to make sure that the executables `extex` or `extex.bat` is on your path for executables.

Now you can forget the source directory. It is not needed any more unless you are debugging or developing εχTEX extensions.

2.4. Configuring εχTEX

The behaviour of εχTEX can be influenced via command line arguments and configuration files. Most of the times the startup files will be enough for the casual user.

2.4.1. Startup Files

Whenever εχTEX starts it looks for startup files named `.extex`. This file is sought in the user's home directory in the current directory. The settings in the current directoy overwrite the settings from the user's home directory. Those in turn overwrite the built-in settings.

εχTEX user properties files contain setting of properties. This is done in a line-based way. Lines containing only whitespace characters are ignored. If the first character is a hash sign (`#`) then the line is treated as a comment and ignored.

The first appearance of a equal sign (`=`) or the colon (`:`) separates the name of the property from the value. Leading and trailing whitespace is ignored both for the name and the value of the property.

Some characters have a special meaning. The backslash (\) acts as an escape character. The sequence `\n` is replaced by the newline character. If the last character in a line is a backslash then the line is continued in the next line. To produce a single backslash it has to be doubled.

You can set any property name you like to a legal value. ε_{χ}TEX will not complain about unknown properties but ignore them silently. The following properties are used by ε_{χ}TEX:

`extex.code`
: This parameter contains ε_{χ}TEX code to be executed directly. The execution is performed after any code specified in an input file.

  Example:

```
extex.code = \\relax
```

`extex.config`
: This parameter contains the name of the configuration resource to use. This configuration resource is sought on the classpath.

  Example:

```
extex.config = tex.xml
```

`extex.encoding`
: This parameter contains the name of the property for the standard encoding to use.

  Example:

```
extex.encoding = ISO-8859-1
```

`extex.error.handler`
: This parameter contains the logical name of the error handler.

  Example:

```
extex.error.handler = TeX
```

`extex.fonts`
: This parameter contains the property indicating where to find font files. The value is a path similar to `extex.texinputs`.

  Example:

```
extex.fonts = /usr/local/share/fonts
```

`extex.halt.on.error`
: This boolean parameter contains the property indicating whether the processing should stop after the first error. Allowed values are `true` and `false`.

  Example:

```
extex.halt.on.error = false
```

`extex.file`
: This parameter contains the file to read from. It has no default. If this property is not set or set to the empty string then no attempt is made to read a file. Maybe the user is asked to provide one.

  Example:

```
extex.file = abc.tex
```

`extex.fmt`
: This parameter contains the name of the format to read. An empty string denotes that no format should be read. This is the default. In this case ε_{χ}TEX acts with no macros or fonts preloaded.

  Example:

```
extex.fmt = plain
```

`extex.ini`
: If set to `true` then act as iniTEX. This command line option is defined for compatibility to TEX only. In ε_{χ}TEX it has no effect at all. Allowed values are `true` and `false`.

  Example:

```
extex.ini = true
```

`extex.interaction`
: This parameter contains the interaction mode. Possible values are the numbers 0...3 and the symbolic names `batchmode` (0), `nonstopmode` (1), `scrollmode` (2), and `errorstopmode` (3).

  Example:

```
extex.interaction = scrollmode
```

`extex.jobname`
: This parameter contains the name of the job. It is overwritten if a file is given to read from. In this case the basename of the input file is used instead. If no file is read in then the default value `texput` is used.

  Example:

```
extex.jobname = texput
```

`extex.jobname.master`
: This parameter contains the name of the job to be used with high priority.

  Example:

```
extex.jobname.master = texput
```

`extex.lang`
: This parameter contains the name of the locale to be used for the messages. The value is a two letter ISO language code. $\varepsilon\chi$TEX can be internationalized just by providing some files with the translated strings. Currently only the language English (`en`) is supported.

  Example:

```
extex.lang = en
```

`extex.nobanner`
: This parameter contains a boolean indicating that the banner should be suppressed. Allowed values are `true` and `false`.

  Example:

```
extex.nobanner = false
```

`extex.output`
: This parameter contains the output format. This logical name is resolved via the configuration.

  Example:

```
extex.output = pdf
```

`extex.outputdir`
: This parameter contains the directory where output files should be created. The period is interpreted as the current directory. The default is the current directory.

  Example:

```
extex.outputdir = .
```

`extex.outputdir.fallback`
: This parameter contains the property for the fallback if the output directory (`extex.outputdir`) fails to be writable. The period is interpreted as the current directory.

  The default is the current directory. Thus you can reset `extex.outputdir` and if this directory happens not to be writable then the current directory is used to create the log file and output files in.

  Example:

```
extex.outputdir.fallback = .
```

`extex.progname`
: This parameter can be used to overrule the name of the program shown in the banner and the version information.

  Example:

```
extex.progname = iniExTeX
```

`extex.stacktrace.on.internal.error`
: This parameter can be used to force a stacktrace on stdout if an internal error is encountered. This is handy for development. Allowed values are `true` and `false`.

  Example:

```
extex.stacktrace.on.internal.error = true
```

`extex.texinputs`
: This parameter contains the additional directories for searching εχTEX input files. The directories are separated by the system-dependant separator. This separator is a colon (`:`) on Unix and the semicolon (`;`) on Windows.

  Example:

```
extex.texinputs = /home/gene/lib/tex
```

`extex.trace.input.files`
: This boolean parameter contains the indicator whether or not to trace the search for input files. Allowed values are `true` and `false`.

  Example:

```
extex.trace.input.files = false
```

`extex.trace.font.files`
: This boolean parameter contains the indicator whether or not to trace the search for font files. Allowed values are `true` and `false`.

  Example:

```
extex.trace.font.files = false
```

`extex.trace.macros`
: This boolean parameter contains the indicator whether or not to trace the execution of macros. Allowed values are `true` and `false`.

  Example:

```
extex.trace.macros = false
```

`extex.trace.tokenizer`
: This boolean parameter contains the indicator whether or not to trace the work of the tokenizer. Allowed values are `true` and `false`.

  Example:

```
extex.trace.tokenizer = false
```

`extex.typesetter`
: This parameter contains the name of the typesetter to use. If it is not set then the default from the configuration file is used.

  Example:

```
extex.typesetter = default
```

2.4.2. Configuration Files

Configuration files of another kind contain the assembly instructions for ε_{χ}TEX. Those files can be used to provide additional features in ε_{χ}TEX.

To be completed.

2.4.3. Predefined Configurations

The Configuration `extex`

The configuration `extex` identifies itself as "TeX compatibility mode". The configuration contains the primitive sets `tex`, `etex`, and `omega`. The configuration allows extended register names.

The Configuration `extex-jx`

The configuration `extex-jx` identifies itself as "Java extensions". The configuration contains the primitive sets `tex`, `etex`, and `jx`. The configuration allows extended register names.

The Configuration `extex-native`

The configuration `extex-native` identifies itself as "Native extensions". The configuration contains the primitive sets `tex`, `etex`, and `native`. The configuration allows extended register names.

The Configuration `nextex`

The configuration `nextex` identifies itself as "Namespace extension". The configuration contains the primitive sets `tex`, `etex`, and `namespace`. The configuration allows extended register names.

The Configuration `omega`

The configuration `omega` identifies itself as "Omega compatibility mode". The configuration contains the primitive sets `tex`, `etex`, and `omega`.

The Configuration `tex`

The configuration `tex` identifies itself as "TeX compatibility mode". The configuration contains the primitive set `tex`.

2.4.4. Primitive Sets

The Primitive Set `etex`

The primitive set `etex` defines the following primitives:

```
\beginL \beginR \botmarks \clubpenalties \currentgrouplevel
\currentgrouptype \currentifbranch \currentiflevel \currentiftype
\detokenize \dimenexpr \displaywidowpenalties \endL \endR \eTeXrevision
\eTeXversion \everyeof \firstmarks \fontchardp \fontcharht
\fontcharic \fontcharwd \glueexpr \glueshrink \glueshrinkorder
\gluestretch \gluestretchorder \ifcsname \ifdefined \interactionmode
\interlinepenalties \lastlinefit \lastnodetype \marks \middle \muexpr
\numexpr \pagediscarts \parshapedimen \parshapeindent \parshapelength
\predisplaydirection \protected \readline \savinghyphcodes
\savingvdiscarts \scantokens \showgroups \showtokens \splitbotmarks
\splitdiscarts \splitfirstmarks \TeXXeTstate \topmarks \tracingassigns
\tracingcommands \tracinggroups \tracingifs \tracingnesting
\tracingscantokens \unexpanded \unless \widowpenalties
```

The Primitive Set `jx`

The primitive set `jx` defines the following primitives:

```
\javadef \javaload
```

The Primitive Set `namespace`

The primitive set `namespace` defines the following primitives:

```
\export \import \namespace
```

The Primitive Set native

The primitive set native defines the following primitives:

\nativedef \nativeload

The Primitive Set omega

The primitive set omega defines the following primitives:

\addafterocplist \addbeforeocplist \clearocplists \DefaultInputMode
\DefaultInputTranslation \DefaultOutputMode \DefaultOutputTranslation
\hfi \InputMode \InputTranslation \localbrokenpenalty
\localinterlinepenalty \localleftbox \localrightbox \mathdir
\naturaldir \noDefaultInputMode \noDefaultInputTranslation
\noDefaultOutputMode \noDefaultOutputTranslation \nullocplist \ocp
\ocplist \odelmiter \omathaccent \omathchar \omathchardef \omathcode
\omathdelcode \oradical \OutputMode \OutputTranslation \pagedir
\pagedirHL \pagedirHR \popocplist \pushocplist \removebeforeocplist
\textdir \unnaturaldir \vfi

The Primitive Set tex

The primitive set tex defines the following primitives:

\␣ \/ \\ \above \abovedisplayshortskip \abovedisplayskip
\abovewithdelims \accent \adjdemerits \advance \afterassignment
\aftergroup \atop \atopwithdelims \badness \baselineskip \batchmode
\begingroup \belowdisplayshortskip \belowdisplayskip \binoppenalty
\botmark \box \boxmaxdepth \brokenpenalty \catcode \char \chardef
\cleaders \closein \closeout \clubpenalty \copy \count \countdef \cr
\crcr \csname \day \deadcycles \def \defaulthyphenchar \defaultskewchar
\delcode \delimiter \delimiterfactor \delimitershortfall \dimen
\dimendef \discretionary \displayindent \displaylimits \displaystyle
\displaywidowpenalty \displaywidth \divide \doublehyphendemerits
\dp \dump \edef \else \emergencystretch \end \endcsname \endgroup
\endinput \endlinechar \eqno \errhelp \errmessage \errorcontextlines
\errorstopmode \escapechar \everycr \everydisplay \everyhbox \everyjob
\everymath \everypar \everyvbox \exhyphenpenalty \expandafter \fam \fi
\finalhyphendemerits \firstmark \floatingpenalty \font \fontdimen
\fontname \futurelet \gdef \global \globaldefs \halign \hangafter
\hangindent \hbadness \hbox \hfil \hfill \hfilneg \hfuzz \hoffset
\holdinginserts \hrule \hsize \hskip \hss \ht \hyphenation \hyphenchar
\hyphenpenalty \if \ifcase \ifcat \ifdim \ifeof \iffalse \ifhbox
\ifhmode \ifinner \ifmmode \ifnum \ifodd \iftrue \ifvbox \ifvmode
\ifvoid \ifx \ignorespaces \immediate \indent \input \inputlineno
\insert \insertpenalties \interlinepenalty \jobname \kern \language
\lastbox \lastkern \lastpenalty \lastskip \lccode \leaders \left

```
\lefthyphenmin \leftskip \leqno \let \limits \linepenalty \lineskip
\lineskiplimit \long \looseness \lower \lowercase \mag \mark
\mathaccent \mathbin \mathchar \mathchardef \mathchoice \mathclose
\mathcode \mathinner \mathop \mathopen \mathord \mathpunct \mathrel
\mathsurround \maxdeadcycles \maxdepth \meaning \medmuskip \message
\mkern \month \moveleft \moveright \mskip \multiply \muskip \muskipdef
\newlinechar \noalign \noboundary \noexpand \noindent \nolimits
\nonscript \nonstopmode \nulldelimiterspace \nullfont \number
\omit \openin \openout \or \outer \output \outputpenalty \over
\overfullrule \overline \overwithdelims \pagedepth \pagefilllstretch
\pagefillstretch \pagefilstretch \pagegoal \pageshrink \pagestretch
\pagetotal \par \parfillskip \parindent \parshape \parskip
\patterns \pausing \penalty \postdisplaypenalty \predisplaypenalty
\predisplaysize \pretolerance \prevdepth \prevgraf \radical
\raise \read \relax \relpenalty \right \righthyphenmin \rightskip
\romannumeral \scriptfont \scriptscriptfont \scriptscriptstyle
\scriptspace \scriptstyle \scrollmode \setbox \setlanguage \sfcode
\shipout \show \showbox \showboxbreadth \showboxdepth \showlists
\showthe \skewchar \skip \skipdef \spacefactor \spaceskip \span
\special \splitbotmark \splitfirstmark \splitmaxdepth \splittopskip
\string \tabskip \textfont \textstyle \the \thickmuskip \thinmuskip
\time \toks \toksdef \tolerance \topmark \topskip \tracingcommands
\tracinglostchars \tracingmacros \tracingonline \tracingoutput
\tracingpages \tracingparagraphs \tracingrestores \tracingstats
\uccode \uchyph \underline \unhbox \unhcopy \unkern \unpenalty \unskip
\unvbox \unvcopy \uppercase \vadjust \valign \vbadness \vbox \vcenter
\vfil \vfill \vfilneg \vfuzz \voffset \vrule \vsize \vskip \vsplit \vss
\vtop \wd \widowpenalty \write \xdef \xleaders \xspaceskip \year
```

2.5. Running ε_{χ}TEX

Currently ε_{χ}TEX can be run from the command line. In this respect it is more or less identical to TEX and can be used as a plug-in replacement.

The following sample show a simple invocation of ε_{χ}TEX without any command line arguments.

```
# extex
This is ExTeX, Version 0.0 (TeX compatibility mode)
**\relax

*\end

No pages of output.
Transcript written on ./texput.log.
```

In this case ε_{χ}TEX enters interaction with the user and asks for an input file. This

is indicated by the two asterists. We have entered `\relax` here to indicate that we are not willing to pass in a file name. The $\varepsilon_{\mathcal{X}}$TEX system asks us to enter some command – indicted by the single asterisk. Here we have entered `\end` to indicate that we want to finish the processing. Thus $\varepsilon_{\mathcal{X}}$TEX terminates normally.

To be completed.

```
# extex plain
This is ExTeX, Version 0.0 (TeX compatibility mode)
(plain Preloading the plain format: codes, registers, parameters, fonts,
more fonts, macros, math definitions, output routines, hyphenation(hyphen))
*\dump
Beginning to dump on file plain.fmt

*\end

No pages of output.
Transcript written on ./plain.log.
```

2.5.1. Command Line Parameters

The invocation of the executable `extex` can be controlled by large number of command line arguments. Those command line arguments are described in the following list:

⟨*code*⟩
: This parameter contains $\varepsilon_{\mathcal{X}}$TEX code to be executed directly. The execution is performed after any code specified in an input file. On the command line the code has to start with a backslash. This restriction does not hold for the property settings.

  This commad line argument sets the property `extex.code`

⟨*file*⟩
: This parameter contains the file to read from. A file name may not start with a backslash or an ampercent. It has no default.

  This command line argument sets the property `extex.file`.

\- ⟨*file*⟩
: This parameter terminates the normal processing of arguments. The next argument – if present – is interpreted as input file. With this construction it is possible to process an input file which starts with one of the special characters `\` or `&`.

  This command line argument sets the property `extex.file` if a file argument is present.

`-configuration` ⟨*resource*⟩
: This parameter contains the name of the configuration resource to use. This configuration resource is sought on the class path.

  This command line argument sets the property `extex.config`.

`-copyright`
: This command line option produces a copyright notice on the standard output stream and terminates the program afterwards.

`&`⟨*format*⟩

`-fmt` ⟨*format*⟩
: This parameter contains the name of the format to read. An empty string denotes that no format should be read. This is the default.

  This command line argument sets the property `extex.fmt`.

`-debug` ⟨*spec*⟩
: This command line parameter can be used to instruct the program to produce debugging output of several kinds. The debug output is written to the log file. The specification ⟨*spec*⟩ is interpreted left to right. Each character is interpreted according to the following table:

Spec	*Description*	*See*
F	This specifier contains the indicator whether or not to trace the searching for input files.	`extex.trace.input.files`
f	This specifier contains the indicator whether or not to trace the searching for font files.	`extex.trace.font.files`
M	This specifier contains the indicator whether or not to trace the execution of macros.	`extex.trace.macros`
T	This specifier contains the indicator whether or not to trace the work of the tokenizer.	`extex.trace.tokenizer`

  The following example shows a possible invocation with this parameter:

```
# extex -debug FfMT abc.tex
This is ExTeX, Version 0.0 (TeX compatibilty mode)
...
```

`-halt-on-error`
: This parameter contains the indicator whether the processing should halt after the first error which has been encountered.

  This command line argument sets the property `extex.halt.on.error`.

`-help`
: This command line option produces a short usage description on the standard output stream and terminates the program afterwards.

`-ini`
: If set to true then act as iniTEX. This command line option is defined for compatibility to TEX only. In $\varepsilon\chi$TEX it has no effect at all.

  This command line argument sets the property `extex.ini`.

  The following example shows a possible invocation with this parameter:

```
# extex -ini abc.tex
This is ExTeX, Version 0.0 (TeX compatibilty mode)
...
```

`-interaction` ⟨*mode*⟩
: This parameter contains the interaction mode. possible values are the numbers 0...3 and the symbolic names `batchmode` (0), `nonstopmode` (1), `scrollmode` (2), and `errorstopmode` (3).

  This command line argument sets the property `extex.interaction`.

  The following example shows a possible invocation with this parameter:

```
# extex -interaction batchmode abc.tex
This is ExTeX, Version 0.0 (TeX compatibilty mode)
...
```

`-job-name` ⟨*name*⟩
: This parameter contains the name of the job. It is overwritten if a file is given to read from. In this case the base name of the input file is used instead.

  This command line argument sets the property `extex.jobname`.

`-language` ⟨*language*⟩
: This parameter contains the name of the locale to be used for the messages.

  This command line argument sets the property `extex.lang`.

`-output` ⟨*format*⟩
: This parameter contains the output format. This logical name is resolved via the configuration.

  This command line argument sets the property `extex.output`.

  The following example shows a possible invocation with this parameter:

```
# extex -output pdf abc.tex
This is ExTeX, Version 0.0 (TeX compatibilty mode)
```

`-progname` ⟨*name*⟩
: This parameter can be used to overrule the name of the program shown in the banner and the version information. The following example shows a possible invocation and the resulting output:

```
# extex -progname XeTxE -version
This is XeTxE, Version 0.0 (1.4.2_06)
#
```

This command line argument sets the property `extex.progname`.

`-texinputs` ⟨*path*⟩
: This parameter contains the additional directories for searching εχTEX input files. The directories are separated by the system-dependant separator. This separator is a colon (`:`) on Unix and the semicolon (`;`) on Windows.

This command line argument sets the property `extex.texinputs`.

`-texmfoutputs` ⟨*dir*⟩
: This parameter contains the name of the property for the fallback if the output directory fails to be writable.

This command line argument sets the property `extex.outputdir.fallback`.

`-texoutputs` ⟨*dir*⟩
: This parameter contain the directory where output files should be created.

This command line argument sets the property `extex.outputdir`.

`-version`
: This command line parameter forces that the version information is written to standard output and the program is terminated. The version of εχTEX is shown and the version of the Java engine in parentheses. The following example shows a possible invocation and the resulting output:

```
# extex -version
This is ExTeX, Version 0.0 (1.4.2_06)
#
```

Command line parameters can be abbreviated up to a unique prefix – and sometimes even more. Thus the following invocations are equivalent:

```
extex -v
extex -ve
extex -ver
extex -vers
extex -versi
extex -versio
extex -version
```

2.5.2. Creating Formats

To be completed.

3. Troubleshooting $\varepsilon_{\mathcal{X}}$TEX

This chapter contains some hints in the case of trouble.

3.1. Why are my files not found?

$\varepsilon_{\mathcal{X}}$TEX has a configurable search for external resources. This search is controlled by several parameters.

To be completed.

3.2. Why are is the log file different from TEX's?

$\varepsilon_{\mathcal{X}}$TEX has the goal to produce a visual result comparable to the one of TEX. It has been decided explicitly that the contents of the log file is not considered for compatibility.

The log file is meant for a human reader who should not have any trouble with the differences. The log file is not meant to be a means for communicating with another program.

4. The Macro Langauge of $\varepsilon_{\mathcal{X}}$TEX

4.1. Primitives of $\varepsilon_{\mathcal{X}}$TEX

$\varepsilon_{\mathcal{X}}$TEX defines a lot of primitives. Those primitives are described below.

The Primitive \␣

This primitive inserts an explicite space into the current list. This has an effect in horizontal or restricted horizontal modes only. In other modes it has no effect.

The formal description of this primitive is the following:

⟨*space primitive*⟩
→ \␣

Examples:

```
123\ 456
```

```
123\ \ 456
```

The primitive \␣ is defined in the set `tex`.

The Primitive \/

The formal description of this primitive is the following:

⟨*italic correction*⟩
→ \/

Examples:

```
123\/456
```

The primitive \/ is defined in the set `tex`.

The Primitive \

The formal description of this primitive is the following:

⟨*newline*⟩
→ \\

Examples:

```
\\
```

The primitive \
is defined in the set `tex`.

The Primitive `\above`

The formal description of this primitive is the following:

⟨*above*⟩
→ `\above`

Examples:

```
{a \above b}
```

The primitive `\above` is defined in the set `tex`.

The Primitive `\abovedisplayshortskip`

`\abovedisplayshortskip` is a skip register. The primitive `\abovedisplayshortskip` is defined in the set `tex`.

The Primitive `\abovedisplayskip`

`\abovedisplayskip` is a skip register. The primitive `\abovedisplayskip` is defined in the set `tex`.

The Primitive `\abovewithdelims`

The formal description of this primitive is the following:

⟨*abovewithdelims*⟩
→ `\abovewithdelims`

Examples:

```
\abovewithdelims
```

The primitive `\abovewithdelims` is defined in the set `tex`.

The Primitive \accent

The formal description of this primitive is the following:

⟨*accent*⟩
→ `\accent` ...

Examples:

```
\accent 13 a
```

The primitive `\accent` is defined in the set `tex`.

The Primitive \addafterocplist

`\addafterocplist` is not implemented yet.
The primitive `\addafterocplist` is defined in the set `omega`.

The Primitive \addbeforeocplist

`\addbeforeocplist` is not implemented yet.
The primitive `\addbeforeocplist` is defined in the set `omega`.

The Primitive \adjdemerits

`\adjdemerits` is a count register. The primitive `\adjdemerits` is defined in the set `tex`.

The Primitive \advance

This primitive implements an assignment. The variable given as next tokens is incremented by the quantity given after the optional `by`.
The formal description of this primitive is the following:

⟨*advance*⟩
→ ⟨*optional prefix*⟩ `\advance` ⟨*advancable*⟩
⟨*optional prefix*⟩
→
| `\global` ⟨*optional prefix*⟩
⟨*advancable*⟩
→ ⟨*integer variable*⟩ ⟨*optional* `by`⟩ ⟨*number*⟩
| ⟨*dimen variable*⟩ ⟨*optional* `by`⟩ ⟨*dimen*⟩
| ⟨*glue variable*⟩ ⟨*optional* `by`⟩ ⟨*glue*⟩
| ⟨*muglue variable*⟩ ⟨*optional* `by`⟩ ⟨*muglue*⟩
⟨*optional* `by`⟩

→ [by]
| ⟨*optional spaces*⟩

Examples:

```
\advance\count12 345
```

```
\advance\count12 by -345
```

The primitive `\advance` is defined in the set `tex`.

The Primitive `\afterassignment`

The primitive `\afterassignment` registers the token to be inserted after the next assignment. Note that there is at most one token to be inserted after the next assignment. Thus the primitive may overwrite any previously registered token.

The formal description of this primitive is the following:

⟨*afterassignment*⟩
→ `\afterassignment` ⟨*token*⟩

Examples:

```
\afterassignment\abc
```

```
\afterassignment X
```

```
\afterassignment \~
```

The primitive `\afterassignment` is defined in the set `tex`.

The Primitive `\aftergroup`

This primitive takes the next token and saves it. The saved token will be inserted after the current group has been closed. If several tokens are saved then they will be inserted in the same sequence as they are saved.

The formal description of this primitive is the following:

⟨*aftergroup*⟩
→ `\aftergroup` ⟨*token*⟩

Examples:

```
{\aftergroup\~ xyz}
```

```
{\aftergroup\a\aftergroup\b xyz}
```

The primitive `\aftergroup` is defined in the set `tex`.

The Primitive \atop

The formal description of this primitive is the following:

⟨*atop*⟩
→ `\atop`

Examples:

```
\atop
```

The primitive `\atop` is defined in the set `tex`.

The Primitive \atopwithdelims

The formal description of this primitive is the following:

⟨*atopwithdelims*⟩
→ `\atopwithdelims`

Examples:

```
\atopwithdelims
```

The primitive `\atopwithdelims` is defined in the set `tex`.

The Primitive \badness

Examples:

```
\count1=\badness
```

The primitive `\badness` is defined in the set `tex`.

The Primitive \baselineskip

`\baselineskip` is a skip register. The primitive `\baselineskip` is defined in the set `tex`.

The Primitive \batchmode

This primitive is an assignment. The interaction mode is set to batch mode. In batch mode the processing is terminated if the program needs input from the terminal.

The formal description of this primitive is the following:

⟨*batchmode*⟩
→ `\batchmode`

Examples:

```
\batchmode
```

The primitive `\batchmode` is defined in the set `tex`.

The Primitive `\begingroup`

The formal description of this primitive is the following:

⟨*begingroup*⟩
→ `\begingroup`

Examples:

```
\begingroup 123 \endgroup
```

The primitive `\begingroup` is defined in the set `tex`.

The Primitive `\beginL`

`\beginL` is not implemented yet.
The primitive `\beginL` is defined in the set `etex`.

The Primitive `\beginR`

`\beginR` is not implemented yet.
The primitive `\beginR` is defined in the set `etex`.

The Primitive `\belowdisplayshortskip`

`\belowdisplayshortskip` is a skip register. The primitive `\belowdisplayshortskip` is defined in the set `tex`.

The Primitive `\belowdisplayskip`

`\belowdisplayskip` is a skip register. The primitive `\belowdisplayskip` is defined in the set `tex`.

The Primitive `\binoppenalty`

`\binoppenalty` is a count register. The primitive `\binoppenalty` is defined in the set `tex`.

The Primitive \botmark

The formal description of this primitive is the following:

\botmark ...

Examples:

```
\botmark ...
```

The primitive \botmark is defined in the set tex.

The Primitive \botmarks

\botmarks is not implemented yet.
The primitive \botmarks is defined in the set etex.

The Primitive \box

The formal description of this primitive is the following:

⟨*box*⟩
→ \box ⟨*8-bit number*⟩

Examples:

```
\box42
```

The primitive \box is defined in the set tex.

The Primitive \boxmaxdepth

\boxmaxdepth is a dimen register. The primitive \boxmaxdepth is defined in the set tex.

The Primitive \brokenpenalty

\brokenpenalty is a count register. The primitive \brokenpenalty is defined in the set tex.

The Primitive \catcode

The assignment is controlled by the modifier \global and the count parameter \globaldefs. Usually the assignment is acting on the current group only. if the integer parameter \globaldefs is not 0 or the modifier \global is given then the assignment is applied to all groups.
The formal description of this primitive is the following:

⟨*catcode*⟩
→ `\catcode` ⟨*8-bit number*⟩ ⟨*equals*⟩ ⟨*4-bit number*⟩

Examples:

```
\catcode ...
```

The primitive `\catcode` is defined in the set `tex`.

The Primitive `\char`

The primitive `\char` provides access to any character in the current font. The argument is the numeric value of the character. This value can be any expanded expression resulting in a number of the proper range.

If no proper argument is found then an error is raised.

The formal description of this primitive is the following:

⟨*char*⟩
→ `\char` ⟨*number*⟩

Examples:

```
\char42
\char\count1
```

The primitive `\char` is defined in the set `tex`.

The Primitive `\chardef`

The formal description of this primitive is the following:

⟨*chardef*⟩
→ `\chardef` ⟨*control sequence*⟩ ⟨*equals*⟩ ⟨*8-bit number*⟩

Examples:

```
\chardef\abc=45
```

```
\chardef\abc 33
```

The primitive `\chardef` is defined in the set `tex`.

The Primitive \cleaders

The formal description of this primitive is the following:

⟨*cleaders*⟩
→ `\cleaders` ...

Examples:

```
\cleaders\hrul\hfill
```

The primitive `\cleaders` is defined in the set `tex`.

The Primitive \clearocplists

`\clearocplists` is not implemented yet.
The primitive `\clearocplists` is defined in the set `omega`.

The Primitive \closein

The primitive takes one expanded integer argument. This argument denotes a read register which will be closed if it is currently assigned to a file.
The formal description of this primitive is the following:

⟨*closein*⟩
→ `\closein` ⟨*number*⟩

Examples:

```
\closein5
```

```
\closein\count120
```

The primitive `\closein` is defined in the set `tex`.

The Primitive \closeout

The formal description of this primitive is the following:

⟨*closeout*⟩
→ `\closeout` ⟨*number*⟩

Examples:

```
\closeout5
```

```
\closeout\count120
```

The primitive `\closeout` is defined in the set `tex`.

The Primitive \clubpenalties

\clubpenalties is not implemented yet.

The primitive \clubpenalties is defined in the set etex.

The Primitive \clubpenalty

\clubpenalty is a count register. The primitive \clubpenalty is defined in the set tex.

The Primitive \copy

The formal description of this primitive is the following:

⟨*copy*⟩
→ \copy ⟨*8-bit number*⟩

Examples:

```
\copy42
```

The primitive \copy is defined in the set tex.

The Primitive \count

The formal description of this primitive is the following:

⟨*count*⟩
→ \count ⟨*8-bit number*⟩ ⟨*equals*⟩ ⟨*number*⟩

Examples:

```
\count23=-456
```

The primitive \count is defined in the set tex.

The Primitive \countdef

The formal description of this primitive is the following:

⟨*countdef*⟩
→ \countdef ⟨*control sequence*⟩ ⟨*equals*⟩ ⟨*8-bit number*⟩

Examples:

```
\countdef\abc=45
```

```
\countdef\abc 33
```

The primitive \countdef is defined in the set tex.

The Primitive \cr

The formal description of this primitive is the following:

⟨*cr*⟩
→ \cr

Examples:

```
\cr
```

The primitive \cr is defined in the set tex.

The Primitive \crcr

The formal description of this primitive is the following:

⟨*crcr*⟩
→ \crcr

Examples:

```
\crcr
```

The primitive \crcr is defined in the set tex.

The Primitive \csname

When TEX expands \csname it reads to the matching \endcsname, expanding tokens as it goes; only character tokens should remain after this expansion has taken place. Then the "expansion" of the entire \csname...\endcsname text will be a single control sequence token, defined to be like \relax if its meaning is currently undefined.

The formal description of this primitive is the following:

⟨*csname*⟩
→ \csname ⟨...⟩ \endcsname

Examples:

```
\csname abc\endcsname
```

The primitive \csname is defined in the set tex.

The Primitive \currentgrouplevel

...

The formal description of this primitive is the following:

⟨*currentgrouplevel*⟩
→ \currentgrouplevel

Examples:

```
\the\currentgrouplevel
```

The primitive \currentgrouplevel is defined in the set etex.

The Primitive \currentgrouptype

\currentgrouptype is not implemented yet.

The primitive \currentgrouptype is defined in the set etex.

The Primitive \currentifbranch

\currentifbranch is not implemented yet.

The primitive \currentifbranch is defined in the set etex.

The Primitive \currentiflevel

\currentiflevel is not implemented yet.

The primitive \currentiflevel is defined in the set etex.

The Primitive \currentiftype

\currentiftype is not implemented yet.

The primitive \currentiftype is defined in the set etex.

The Primitive \day

\day is a count register. The primitive \day is defined in the set tex.

The Primitive \deadcycles

\deadcycles is a count register. The primitive \deadcycles is defined in the set tex.

The Primitive \def

The formal description of this primitive is the following:

⟨*def*⟩
→ ⟨*prefix*⟩ `\def` ⟨*control sequence*⟩ ⟨*parameter text*⟩ `{` ⟨*replacement text*⟩ `}`
⟨*prefix*⟩
→
| `\global` ⟨*prefix*⟩
| `\long` ⟨*prefix*⟩
| `\outer` ⟨*prefix*⟩

Examples:

```
\def#1{--#1--}
```

The primitive `\def` is defined in the set `tex`.

The Primitive \defaulthyphenchar

`\defaulthyphenchar` is a count register. The primitive `\defaulthyphenchar` is defined in the set `tex`.

The Primitive \DefaultInputMode

`\DefaultInputMode` is not implemented yet.
The primitive `\DefaultInputMode` is defined in the set `omega`.

The Primitive \DefaultInputTranslation

`\DefaultInputTranslation` is not implemented yet.
The primitive `\DefaultInputTranslation` is defined in the set `omega`.

The Primitive \DefaultOutputMode

`\DefaultOutputMode` is not implemented yet.
The primitive `\DefaultOutputMode` is defined in the set `omega`.

The Primitive \DefaultOutputTranslation

`\DefaultOutputTranslation` is not implemented yet.
The primitive `\DefaultOutputTranslation` is defined in the set `omega`.

The Primitive \defaultskewchar

\defaultskewchar is a count register. The primitive \defaultskewchar is defined in the set tex.

The Primitive \delcode

The TEX encoding interprets the number as 27 bit hex number: "csyylxx. Here the digits have the following meaning:

c the math class of this delimiter. It has a range from 0 to 7.

l the family for the large character. It has a range from 0 to 15.

xx the character code of the large character.

s the family for the small character. It has a range from 0 to 15.

yy the character code of the small character.

The formal description of this primitive is the following:

⟨*delcode*⟩
→ \delcode ⟨*8-bit number*⟩ ⟨*equals*⟩ ⟨*8-bit number*⟩

Examples:

```
\delcode`x="123456
```

The primitive \delcode is defined in the set tex.

The Primitive \delimiter

The formal description of this primitive is the following:

⟨*delimiter*⟩
→ \delimiter

Examples:

```
\delimiter "426830A
```

The primitive \delimiter is defined in the set tex.

The Primitive \delimiterfactor

\delimiterfactor is a count register. The primitive \delimiterfactor is defined in the set tex.

The Primitive \delimitershortfall

\delimitershortfall is a dimen register. The primitive \delimitershortfall is defined in the set tex.

The Primitive \detokenize

\detokenize is not implemented yet.

The primitive \detokenize is defined in the set etex.

The Primitive \dimen

The primitive \dimen is defined in the set tex.

The Primitive \dimendef

The formal description of this primitive is the following:

⟨*dimendef*⟩
→ \dimendef ⟨*control sequence*⟩ ⟨*equals*⟩ ⟨*8-bit number*⟩

Examples:

```
\dimendef\abc=45
```

```
\dimendef\abc 33
```

The primitive \dimendef is defined in the set tex.

The Primitive \dimenexpr

\dimenexpr is not implemented yet.

The primitive \dimenexpr is defined in the set etex.

The Primitive \discretionary

The formal description of this primitive is the following:

⟨*discretionary*⟩
→ \discretionary ...

Examples:

```
\discretionary{f-}{fi}{ffi}
\discretionary{-}{}{}
```

The primitive \discretionary is defined in the set tex.

The Primitive \displayindent

\displayindent is a dimen register. The primitive \displayindent is defined in the set tex.

The Primitive \displaylimits

The formal description of this primitive is the following:

⟨*displaylimits*⟩
→ \displaylimits

Examples:

```
\displaylimits
```

The primitive \displaylimits is defined in the set tex.

The Primitive \displaystyle

The formal description of this primitive is the following:

⟨*displaystyle*⟩
→ \displaystyle

Examples:

```
\displaystyle
```

The primitive \displaystyle is defined in the set tex.

The Primitive \displaywidowpenalties

\displaywidowpenalties is not implemented yet.
The primitive \displaywidowpenalties is defined in the set etex.

The Primitive \displaywidowpenalty

\displaywidowpenalty is a count register. The primitive \displaywidowpenalty is defined in the set tex.

The Primitive \displaywidth

\displaywidth is a dimen register. The primitive \displaywidth is defined in the set tex.

The Primitive \divide

This primitive implements an assignment. The variable given as next tokens is divided by the quantity given after the optional by.

The formal description of this primitive is the following:

⟨*divide*⟩
→ \divide ⟨*dividable*⟩
⟨*dividable*⟩
→ ⟨*integer variable*⟩ ⟨*optional* by⟩ ⟨*8-bit number*⟩
| ⟨*dimen variable*⟩ ⟨*optional* by⟩ ⟨*8-bit number*⟩
| ⟨*glue variable*⟩ ⟨*optional* by⟩ ⟨*8-bit number*⟩
| ⟨*muglue variable*⟩ ⟨*optional* by⟩ ⟨*8-bit number*⟩
⟨*optional* by⟩
→ [by]
| ⟨*optional spaces*⟩

Examples:

```
\divide\count12 345
```

```
\divide\count12 by -345
```

The primitive \divide is defined in the set tex.

The Primitive \doublehyphendemerits

\doublehyphendemerits is a count register. The primitive \doublehyphendemerits is defined in the set tex.

The Primitive \dp

The primitive \dp refers to the depth of a box register. It can be used in various contexts.

Execution of the Primitive

If the primitive is used in a context it initiated an assignment to the actual depth of the box register. This has an effect only in the case that the box register is not void.

The formal description of this primitive is the following:

⟨*dp*⟩
→ ⟨*optional prefix*⟩ \dp ⟨*8-bit number*⟩ ⟨*equals*⟩ ⟨*dimen*⟩
⟨*optional prefix*⟩
→
| \global ⟨*optional prefix*⟩

Examples:

```
\dp42 = 12mm
```

```
\dp42 = \dimen3
```

Expansion of the Primitive

In an expansion context the primitive results in the the currentr depth of the given box register. In case that the box register is empty the result is 0 pt.

The formal description of this primitive is the following:

`\dp` ⟨*8-bit number*⟩

Examples:

```
\dimen0 = \dp42
```

Conversion to a Count

Interaction with `\the`

The primitive `\dp` is defined in the set `tex`.

The Primitive `\dump`

The primitive writes out the current state of the interpreter to an format file. This format file can be read back in to restore the saved state.

The primitive can be used outside of any group only.

The formal description of this primitive is the following:

⟨*dump*⟩
→ `\dump`

Examples:

```
\dump
```

The primitive `\dump` is defined in the set `tex`.

The Primitive \edef

The formal description of this primitive is the following:

⟨*edef*⟩
→ ⟨*prefix*⟩ `\edef` ⟨*control sequence*⟩ ⟨*parameter text*⟩ `{` ⟨*replacement text*⟩ `}`
⟨*prefix*⟩
→
| `\global` ⟨*prefix*⟩
| `\long` ⟨*prefix*⟩
| `\outer` ⟨*prefix*⟩

Examples:

```
\edef#1{--#1--}
```

The primitive `\edef` is defined in the set `tex`.

The Primitive \else

The formal description of this primitive is the following:

⟨*else*⟩
→ `\else` ⟨...⟩

Examples:

```
\ifnum 1<2\else no\fi
```

The primitive `\else` is defined in the set `tex`.

The Primitive \emergencystretch

`\emergencystretch` is a dimen register. The primitive `\emergencystretch` is defined in the set `tex`.

The Primitive \end

The formal description of this primitive is the following:

⟨*end*⟩
→ `\end`

Examples:

```
\end
```

The primitive `\end` is defined in the set `tex`.

The Primitive \endcsname

The macro \endcsname is used in combination with the macro \csname only. Whenever a \endcsname is seen alone it must be an error. Thus thus primitive produces an error message ikn any case.

The formal description of this primitive is the following:

⟨*endcsname*⟩
→ \endscsname

Examples:

```
\csname abc\endcsname
```

The primitive \endcsname is defined in the set tex.

The Primitive \endgroup

The formal description of this primitive is the following:

⟨*endgroup*⟩
→ \endgroup

Examples:

```
\begingroup 123 \endgroup
```

The primitive \endgroup is defined in the set tex.

The Primitive \endinput

The primitive \endinput closes the topmost file input stream. All tokens collected for this input stream and the ones above are discarted. This means that you can place arbitray text behind this primitive in a file. This text is ignored immediately.

The formal description of this primitive is the following:

⟨*endinput*⟩
→ \endinput

Examples:

```
\endinput
```

The primitive \endinput is defined in the set tex.

The Primitive \endL

\endL is not implemented yet.
The primitive \endL is defined in the set etex.

The Primitive \endlinechar

\endlinechar is a count register. The primitive \endlinechar is defined in the set tex.

The Primitive \endR

\endR is not implemented yet.
The primitive \endR is defined in the set etex.

The Primitive \eqno

The formal description of this primitive is the following:

⟨*eqno*⟩
→ \eqno

Examples:

```
\eqno
```

The primitive \eqno is defined in the set tex.

The Primitive \errhelp

\errhelp is a toks register. The primitive \errhelp is defined in the set tex.

The Primitive \errmessage

The primitive \errmessage takes one argument. This argument is an expanded list of tokens. Those tokens are presented as error message
The formal description of this primitive is the following:

⟨*eqno*⟩
→ \errmessage ⟨*tokens*⟩

Examples:

```
\errmessage{}
```

The primitive \errmessage is defined in the set tex.

The Primitive \errorcontextlines

\errorcontextlines is a count register. The primitive \errorcontextlines is defined in the set tex.

The Primitive \errorstopmode

The formal description of this primitive is the following:

⟨*errorstopmode*⟩
→ \errorstopmode

Examples:

```
\errorstopmode
```

The primitive \errorstopmode is defined in the set tex.

The Primitive \escapechar

\escapechar is a count register. The primitive \escapechar is defined in the set tex.

The Primitive \eTeXrevision

\eTeXrevision is a toks register. The primitive \eTeXrevision is defined in the set etex.

The Primitive \eTeXversion

\eTeXversion is a count register. The primitive \eTeXversion is defined in the set etex.

The Primitive \everycr

\everycr is a toks register. The primitive \everycr is defined in the set tex.

The Primitive \everydisplay

\everydisplay is a toks register. The primitive \everydisplay is defined in the set tex.

The Primitive \everyeof

\everyeof is a toks register. The primitive \everyeof is defined in the set etex.

The Primitive \everyhbox

\everyhbox is a toks register. The primitive \everyhbox is defined in the set tex.

The Primitive \everyjob

\everyjob is a toks register. The primitive \everyjob is defined in the set tex.

The Primitive \everymath

\everymath is a toks register. The primitive \everymath is defined in the set tex.

The Primitive \everypar

\everypar is a toks register. The primitive \everypar is defined in the set tex.

The Primitive \everyvbox

\everyvbox is a toks register. The primitive \everyvbox is defined in the set tex.

The Primitive \exhyphenpenalty

\exhyphenpenalty is a count register. The primitive \exhyphenpenalty is defined in the set tex.

The Primitive \expandafter

TEX first reads the token that comes immediately after \expandafter, without expanding it; let's call this token *t*. Then TEX reads the token that comes after *t* (and possibly more tokens, if that token has an argument), replacing it by its expansion. Finally TEX puts *t* back in front of that expansion.

The formal description of this primitive is the following:

⟨*expandafter*⟩
→ \expandafter ⟨*control sequence*⟩ ...

Examples:

```
\expandafter ...
```

The primitive \expandafter is defined in the set tex.

The Primitive \export

The primitive \export takes a list of tokens and saves them away for an associated \import. The tokens in the list are either control sequence tokens or active characters. All other tokens are ignored.

The formal description of this primitive is the following:

⟨*export*⟩
→ \export ⟨*replacement text*⟩

Examples:

```
\export{\a\b}
```

The primitive \export is defined in the set namespace.

The Primitive \fam

\fam is a count register. The primitive \fam is defined in the set tex.

The Primitive \fi

This primitive indicates the end of an conditional. As such it can not appear alone but only in combination with a preceeding \if*.

The formal description of this primitive is the following:

⟨*fi*⟩
→ \fi

Examples:

```
\fi
```

The primitive \fi is defined in the set tex.

The Primitive \finalhyphendemerits

\finalhyphendemerits is a count register. The primitive \finalhyphendemerits is defined in the set tex.

The Primitive \firstmark

The formal description of this primitive is the following:

\firstmark ...

Examples:

```
\firstmark ...
```

The primitive `\firstmark` is defined in the set `tex`.

The Primitive `\firstmarks`

`\firstmarks` is not implemented yet.

The primitive `\firstmarks` is defined in the set `etex`.

The Primitive `\floatingpenalty`

`\floatingpenalty` is a count register. The primitive `\floatingpenalty` is defined in the set `tex`.

The Primitive `\font`

The primitive `\font` can be used to load a font with some specified properties and assign it to a control sequence. The primary option is the specification of a size for the font. If no size is given then the font is loaded at its design size.

An exact size can be specified with the `at` keyword. The dimension following this keyword determines the size of the font.

The design size can be multiplied by a scale factor. This scale fator is given as number after the keyword `scaled`. The value given is 1000 times the scale factor to be used.

This primitive is an assignment.

The formal description of this primitive is the following:

⟨*font*⟩
→ `\font` ⟨*control sequence*⟩ ⟨*equals*⟩ ⟨*font name*⟩ ⟨*options*⟩
⟨*options*⟩
→ ⟨*option*⟩
| ⟨*option*⟩ ⟨*options*⟩
⟨*option*⟩
→ [`scaled`] ⟨*number*⟩
| [`at`] ⟨*size...*⟩
| [`noligatures`]
| [`nokerning`]
| [`letterspaced`]

Examples

In the following example the font cmr12 is loaded at its design size. The macro `\myfont` is bound to this font.

```
\font\myfont=cmr12
```

In the following example the font cmr12 is loaded at the size 15pt. The macro `\myfont` is bound to this font.

```
\font\myfont=cmr12 at 15pt
```

In the following example the font cmr12 is loaded at the double design size. The scale factor 2000 is divided by 1000 to get the effective scaling factor. The macro `\myfont` is bound to this font.

```
\font\magnifiedfiverm=cmr5 scaled 2000
```

In the following example the font cmr10 is loaded at the size of 12 true pt. The macro `\myfont` is bound to this font.

```
\font\second=cmr10 at 12truept
```

The primitive `\font` is defined in the set `tex`.

The Primitive `\fontchardp`

The formal description of this primitive is the following:

`\fontchardp`

Examples:

```
\fontchardp\tenrm ‘a
```

The primitive `\fontchardp` is defined in the set `etex`.

The Primitive `\fontcharht`

The formal description of this primitive is the following:

`\fontcharht`

Examples:

```
\fontcharht\tenrm ‘a
```

The primitive `\fontcharht` is defined in the set `etex`.

The Primitive \fontcharic

The formal description of this primitive is the following:

\fontcharic

Examples:

```
\fontcharic\tenrm ‘a
```

The primitive \fontcharic is defined in the set etex.

The Primitive \fontcharwd

The formal description of this primitive is the following:

\fontcharwd

Examples:

```
\fontcharwd\tenrm ‘a
```

The primitive \fontcharwd is defined in the set etex.

The Primitive \fontdimen

The primitive \fontdimen can be used to set a font dimension value. Each font has an arbitrary number of dimen values which are addressed by an numerical index in TEX. In ε_{χ}TEX this has been extended to arbitrary strings.

The primitive expands to the value in a right hand context.

The formal description of this primitive is the following:

\fontdimen ⟨*8-bit number*⟩ ⟨*equals*⟩ ⟨*dimen*⟩

Examples:

```
\fontdimen13\ff=5pt
```

```
\the\fontdimen13\ff
```

```
\the\fontdimen{em}\ff=8pt
```

The primitive \fontdimen is defined in the set tex.

The Primitive \fontname

The primitive \fontname can be used to retrieve the name of a font. It takes a font specification as argument. It expands to the name of the font. If this font is not loaded at its design size then the actual size is appended after the tokens at . All tokens produced this way are *other* tokens except of the spaces. Ths means that even the letters are of category *other*.

The primitive \fontname is defined in the set tex.

The Primitive \futurelet

The formal description of this primitive is the following:

⟨*futurelet*⟩
→ \futurelet ⟨*control sequence*⟩ ⟨*token*⟩ ...

Examples:

```
\futurelet ...
```

The primitive \futurelet is defined in the set tex.

The Primitive \gdef

The formal description of this primitive is the following:

⟨*gdef*⟩
→ ⟨*prefix*⟩ \gdef ⟨*control sequence*⟩ ⟨*parameter text*⟩ { ⟨*replacement text*⟩ }
⟨*prefix*⟩
→
| \global ⟨*prefix*⟩
| \long ⟨*prefix*⟩
| \outer ⟨*prefix*⟩

Examples:

```
\gdef#1{--#1--}
```

The primitive \gdef is defined in the set tex.

The Primitive \global

The primitive \global is a prefix macro. It does not do anything by its own but works in combination with a following primitive token only. If the following token constitutes an assignment then the assignment is not restricted to the current group but acts globallay in all groups.

If the following command token does not happen to be an operation for which the global modifier is applicable then a warning might be raised.

The formal description of this primitive is the following:

⟨*global*⟩
→ `\global` ⟨*...*⟩

Examples

The following example shows that two macros defined in a group. The first macro falls back to its previous binding when the group is closed. The second macro has the same binding in all groups. defined.

```
\begingroup
  \def\a{123}
  \global\def\b{123}
\endgroup
```

The following example shows that two count registers are set in a group. The first count register keeps its value untile the group is closed and falls back to the value it had when the group has been entered. The second count register keeps its value even when the group is closed.

```
\begingroup
  \count1=123
  \global\count2=45
\endgroup
```

The primitive `\global` is defined in the set `tex`.

The Primitive `\globaldefs`

`\globaldefs` is a count register. The primitive `\globaldefs` is defined in the set `tex`.

The Primitive `\glueexpr`

`\glueexpr` is not implemented yet.

The primitive `\glueexpr` is defined in the set `etex`.

The Primitive `\glueshrink`

`\glueshrink` is not implemented yet.

The primitive `\glueshrink` is defined in the set `etex`.

The Primitive \glueshrinkorder

\glueshrinkorder is not implemented yet.
The primitive \glueshrinkorder is defined in the set etex.

The Primitive \gluestretch

\gluestretch is not implemented yet.
The primitive \gluestretch is defined in the set etex.

The Primitive \gluestretchorder

\gluestretchorder is not implemented yet.
The primitive \gluestretchorder is defined in the set etex.

The Primitive \halign

The formal description of this primitive is the following:

⟨*halign*⟩
→ `\halign` ⟨*box specification*⟩ `{` ⟨*preamble*⟩ `\cr` ⟨*rows*⟩ `}`
⟨*box specification*⟩
→
| `to` ⟨*rule dimension*⟩
| `spread` ⟨*rule dimension*⟩
⟨*rows*⟩
→
| ⟨*row*⟩ ⟨*rows*⟩
⟨*preamble*⟩
→ ...

Examples:

```
\halign
```

The primitive \halign is defined in the set tex.

The Primitive \hangafter

\hangafter is a count register. The primitive \hangafter is defined in the set tex.

The Primitive \hangindent

\hangindent is a dimen register. The primitive \hangindent is defined in the set tex.

The Primitive \hbadness

\hbadness is a count register. The primitive \hbadness is defined in the set tex.

The Primitive \hbox

The contents of the toks register \everyhbox is inserted at the beginning of the horizontal material of the box.

The formal description of this primitive is the following:

⟨*hbox*⟩
→ \hbox ⟨*box specification*⟩ { ⟨*horizontal material*⟩ }
⟨*box specification*⟩
→
| to ⟨*rule dimension*⟩
| spread ⟨*rule dimension*⟩

Examples:

```
\hbox{abc}
```

```
\hbox to 120pt{abc}
```

```
\hbox spread 12pt{abc}
```

The tokens parameter is used in /hbox. The tokens contained are inserted at the beginnig of the horizontal material of the hbox.

The primitive \hbox is defined in the set tex.

The Primitive \hfi

The formal description of this primitive is the following:

⟨*hfi*⟩
→ \hfi

Examples:

```
\hfi
```

The primitive \hfi is defined in the set omega.

The Primitive \hfil

The formal description of this primitive is the following:

⟨*hfil*⟩
→ `\hfil`

Examples:

```
\hfil
```

The primitive `\hfil` is defined in the set `tex`.

The Primitive \hfill

The formal description of this primitive is the following:

⟨*hfill*⟩
→ `\hfill`

Examples:

```
\hfill
```

The primitive `\hfill` is defined in the set `tex`.

The Primitive \hfilneg

The formal description of this primitive is the following:

⟨*hfilneg*⟩
→ `\hfilneg`

Examples:

```
\hfilneg
```

The primitive `\hfilneg` is defined in the set `tex`.

The Primitive \hfuzz

`\hfuzz` is a dimen register. The primitive `\hfuzz` is defined in the set `tex`.

The Primitive \hoffset

`\hoffset` is a dimen register. The primitive `\hoffset` is defined in the set `tex`.

The Primitive \holdinginserts

\holdinginserts is a count register. The primitive \holdinserts is defined in the set tex.

The Primitive \hrule

This primitive produces a horizontal rule. This is a rectangular area of specified dimensions. If not overwritten the width and depth are 0pt and the height is 0.4 pt (26214 sp).

The formal description of this primitive is the following:

⟨*hrule*⟩
→ \hrule ⟨*rule specification*⟩
⟨*rule specification*⟩
→ ⟨*optional spaces*⟩
| ⟨*rule dimension*⟩ ⟨*rule specification*⟩
⟨*rule dimension*⟩
→ width ⟨*dimen*⟩
| height ⟨*dimen*⟩
| depth ⟨*dimen*⟩

The color from the typographic context is taken as foreground color for the rule. The default color is black.

Examples:

```
\hrule
```

```
\hrule width 2pt
```

```
\hrule width 2pt depth 3mm height \dimen4
```

The primitive \hrule is defined in the set tex.

The Primitive \hsize

\hsize is a dimen register. The primitive \hsize is defined in the set tex.

The Primitive \hskip

The formal description of this primitive is the following:

⟨*hskip*⟩
→ \hskip ⟨*Glue*⟩

Examples:

```
\hskip 1em plus 1pt minus 1pt
```

The primitive \hskip is defined in the set tex.

The Primitive \hss

The formal description of this primitive is the following:

⟨*hss*⟩
→ \hss

Examples:

```
\hss
```

The primitive \hss is defined in the set tex.

The Primitive \ht

The formal description of this primitive is the following:

⟨*ht*⟩
→ \ht ⟨*8-bit number*⟩ ⟨*equals*⟩ ⟨*dimen*⟩

Examples:

```
\ht42
```

The primitive \ht is defined in the set tex.

The Primitive \hyphenation

The primitive \hyphenation is defined in the set tex.

The Primitive \hyphenchar

The formal description of this primitive is the following:

\hyphenchar ⟨*font*⟩ ⟨*equals*⟩ ⟨*8-bit number*⟩

Examples:

```
\hyphenchar\font=132
```

Incompatibility

The TeXbook gives no indication ow the primitive should react for negative values – except -1. The implementation of TEX allows to store and retrieve arbirary negative values. This behaviour of TEX is not preserved in ε_{χ}TEX.

The primitive `\hyphenchar` is defined in the set `tex`.

The Primitive `\hyphenpenalty`

`\hyphenpenalty` is a count register. The primitive `\hyphenpenalty` is defined in the set `tex`.

The Primitive `\if`

The primitive expands the tokens following it until two unexpandable tokens are found. The conditional is true iff the character codes of the two tokens agree.

The formal description of this primitive is the following:

⟨*if*⟩
→ `\if` ⟨*token*$_1$⟩ ⟨*token*$_2$⟩ ⟨*true text*⟩ `\fi`
| `\if` ⟨*token*$_1$⟩ ⟨*token*$_2$⟩ ⟨*true text*⟩ `\else` ⟨*false text*⟩ `\fi`

Examples:

```
\if\a\x ok \fi
```

The primitive `\if` is defined in the set `tex`.

The Primitive `\ifcase`

⟨*ifcase*⟩
→ `\ifcase` ...

The primitive `\ifcase` is defined in the set `tex`.

The Primitive `\ifcat`

⟨*ifcat*⟩
→ `\ifcat` ...

The primitive `\ifcat` is defined in the set `tex`.

The Primitive \ifcsname

\ifcsname is not implemented yet.

The primitive \ifcsname is defined in the set etex.

The Primitive \ifdefined

Copied of the eTeX reference.

similar in effect to \unless \ifx \undefined, but does not require \undefined to actually be undefined, since no explicit comparison is made with any particular control sequence.

The formal description of this primitive is the following:

Examples:

```
\ifdefined\TESTNAME\else not\fi defined
```

The primitive \ifdefined is defined in the set etex.

The Primitive \ifdim

The formal description of this primitive is the following:

⟨*ifdim*⟩
→ \ifdim ⟨*dimen*⟩ ⟨*op*⟩ ⟨*dimen*⟩ ⟨*true text*⟩ \fi
| \ifdim ⟨*dimen*⟩ ⟨*op*⟩ ⟨*dimen*⟩ ⟨*true text*⟩ \else ⟨*false text*⟩ \fi
⟨*op*⟩
→ [<]
| [=]
| [>]

The primitive \ifdim is defined in the set tex.

The Primitive \ifeof

This primitive tests for end of file on the given read register. The read register is specified as a (expanded) number.

The formal description of this primitive is the following:

⟨*ifeof*⟩
→ \ifeof ⟨*number*⟩ ⟨*true text*⟩ \fi
| \ifeof ⟨*number*⟩ ⟨*true text*⟩ \else ⟨*false text*⟩ \fi

Examples:

```
\ifeof 3 -E-O-F- \else ready \fi
```

The primitive \ifeof is defined in the set tex.

The Primitive \iffalse

The primitive does not take any further arguments. The conditional is always false. Thus only the else branch is expanded.

The formal description of this primitive is the following:

⟨*iffalse*⟩
→ `\iffalse` ⟨*true text*⟩ `\fi`
| `\iffalse` ⟨*true text*⟩ `\else` ⟨*false text*⟩ `\fi`

Examples:

```
\iffalse abc \fi
```

The primitive `\iffalse` is defined in the set `tex`.

The Primitive \ifhbox

The primitive takes one expanded integer argument. The conditional is true iff the box denoted by the argument is a horizontal box.

The formal description of this primitive is the following:

⟨*ifhbox*⟩
→ `\ifhbox` ⟨*number*⟩ ⟨*true text*⟩ `\fi`
| `\ifhbox` ⟨*number*⟩ ⟨*true text*⟩ `\else` ⟨*false text*⟩ `\fi`

Examples:

```
\ifhbox255 abc \fi
```

```
\ifhbox\count120 abc \fi
```

The primitive `\ifhbox` is defined in the set `tex`.

The Primitive \ifhmode

The primitive does not take any further arguments. The conditional is true iff the typesetter is in a horizontal mode. This is either the restricted horizontal vertical mode or the horizontal mode.

The formal description of this primitive is the following:

⟨*ifhmode*⟩
→ `\ifhmode` ⟨*true text*⟩ `\fi`
| `\ifhmode` ⟨*true text*⟩ `\else` ⟨*false text*⟩ `\fi`

Examples:

```
\ifhmode abc \fi
```

The primitive `\ifhmode` is defined in the set `tex`.

The Primitive `\ifinner`

The primitive does not take any further arguments. The conditional is true iff the typesetter is in an internal mode. This is either the internal vertical mode, the restricted horizontal mode, or the math mode (non-display).

The formal description of this primitive is the following:

⟨*ifinner*⟩
→ `\ifinner` ⟨*true text*⟩ `\fi`
| `\ifinner` ⟨*true text*⟩ `\else` ⟨*false text*⟩ `\fi`

Examples:

```
\ifinner abc \fi
```

The primitive `\ifinner` is defined in the set `tex`.

The Primitive `\ifmmode`

The primitive does not take any further arguments. The conditional is true iff the typesetter is in math mode or display math mode.

The formal description of this primitive is the following:

⟨*ifmmode*⟩
→ `\ifmmode` ⟨*true text*⟩ `\fi`
| `\ifmmode` ⟨*true text*⟩ `\else` ⟨*false text*⟩ `\fi`

Examples:

```
\ifmmode abc \fi
```

The primitive `\ifmmode` is defined in the set `tex`.

The Primitive `\ifnum`

The formal description of this primitive is the following:

⟨*ifnum*⟩
→ `\ifnum` ⟨*number*⟩ ⟨*op*⟩ ⟨*number*⟩ ⟨*true text*⟩ `\fi`
| `\ifodd` ⟨*number*⟩ ⟨*op*⟩ ⟨*number*⟩ ⟨*true text*⟩ `\else` ⟨*false text*⟩ `\fi`

⟨*op*⟩
→ [<]
| [=]
| [>]

Examples:

```
\ifodd\count0 abc \fi
```

The primitive `\ifnum` is defined in the set `tex`.

The Primitive `\ifodd`

The primitive takes one expanded integer argument. The conditional is true iff the argument is odd.

The formal description of this primitive is the following:

⟨*ifodd*⟩
→ `\ifodd` ⟨*number*⟩ ⟨*true text*⟩ `\fi`
| `\ifodd` ⟨*number*⟩ ⟨*true text*⟩ `\else` ⟨*false text*⟩ `\fi`

Examples:

```
\ifodd\count0 abc \fi
```

The primitive `\ifodd` is defined in the set `tex`.

The Primitive `\iftrue`

The primitive does not take any further arguments. The conditional is always true. Thus only the then branch is expanded.

The formal description of this primitive is the following:

⟨*iftrue*⟩
→ `\iftrue` ⟨*true text*⟩ `\fi`
| `\ifture` ⟨*true text*⟩ `\else` ⟨*false text*⟩ `\fi`

Examples:

```
\iftrue abc \fi
```

The primitive `\iftrue` is defined in the set `tex`.

The Primitive \ifvbox

The primitive takes one expanded integer argument. The conditional is true iff the box denoted by the argument is a vertical box.

The formal description of this primitive is the following:

⟨*ifvbox*⟩
→ `\ifvbox` ⟨*number*⟩ ⟨*true text*⟩ `\fi`
| `\ifvbox` ⟨*number*⟩ ⟨*true text*⟩ `\else` ⟨*false text*⟩ `\fi`

Examples:

```
\ifvbox255 abc \fi
```

```
\ifvbox\count120 abc \fi
```

The primitive `\ifvbox` is defined in the set `tex`.

The Primitive \ifvmode

The primitive does not take any further arguments. The conditional is true iff the typesetter is in a vertical mode. This is either the internal vertical mode or the vertical mode.

The formal description of this primitive is the following:

⟨*ifvmode*⟩
→ `\ifvmode` ⟨*true text*⟩ `\fi`
| `\ifvmode` ⟨*true text*⟩ `\else` ⟨*false text*⟩ `\fi`

Examples:

```
\ifvmode abc \fi
```

The primitive `\ifvmode` is defined in the set `tex`.

The Primitive \ifvoid

The primitive takes one expanded integer argument. The conditional is true iff the box denoted by the argument is void.

The formal description of this primitive is the following:

⟨*ifvoid*⟩
→ `\ifvoid` ⟨*number*⟩ ⟨*true text*⟩ `\fi`
| `\ifvoid` ⟨*number*⟩ ⟨*true text*⟩ `\else` ⟨*false text*⟩ `\fi`

Examples:

```
\ifvoid255 abc \fi
```

```
\ifvoid\count120 abc \fi
```

The primitive `\ifvoid` is defined in the set `tex`.

The Primitive `\ifx`

The formal description of this primitive is the following:

⟨*ifx*⟩
→ `\ifx` ⟨*token*$_1$⟩ ⟨*token*$_2$⟩; ⟨*true text*⟩ `\fi`
| `\ifx` ⟨*token*$_1$⟩ ⟨*token*$_2$⟩ ⟨*true text*⟩ `\else` ⟨*false text*⟩ `\fi`

Examples:

```
\ifx\a\x ok \fi
```

The primitive `\ifx` is defined in the set `tex`.

The Primitive `\ignorespaces`

The formal description of this primitive is the following:

⟨*ignorespaces*⟩
→ `\ignorespaces`

Examples:

```
\ignorespaces
```

The primitive `\ignorespaces` is defined in the set `tex`.

The Primitive `\immediate`

The formal description of this primitive is the following:

⟨*immediate*⟩
→ `\immediate ...`

Examples:

```
\immediate\write1{abc}
```

The primitive `\immediate` is defined in the set `tex`.

The Primitive \import

The formal description of this primitive is the following:

⟨*import*⟩
→ `\import` ⟨*replacement text*⟩

Examples:

```
\import{de.dante.dtk}
```

The primitive `\import` is defined in the set `namespace`.

The Primitive \indent

The formal description of this primitive is the following:

⟨*indent*⟩
→ `\indent`

Examples:

```

```

The primitive `\indent` is defined in the set `tex`.

The Primitive \input

The formal description of this primitive is the following:

⟨*input*⟩
→ `\input` ⟨*filename*⟩

Examples: The traditional version of the file name parsing allows the following syntax:

```
\input file.name
```

If the parsing is not configured to be strict then the following syntax is allowed as well:

```
\input{file.name}
```

The primitive `\input` is defined in the set `tex`.

The Primitive \inputlineno

Examples:

```
\count1=\inputlineno
```

The primitive `\inputlineno` is defined in the set `tex`.

The Primitive \InputMode

\InputMode is not implemented yet.
The primitive \InputMode is defined in the set omega.

The Primitive \InputTranslation

\InputTranslation is not implemented yet.
The primitive \InputTranslation is defined in the set omega.

The Primitive \insert

The formal description of this primitive is the following:

⟨*insert*⟩
→ \insert

Examples:

```
\insert42{abc}
```

The primitive \insert is defined in the set tex.

The Primitive \insertpenalties

\insertpenalties is a count register. The primitive \insertpenalties is defined in the set tex.

The Primitive \interactionmode

The formal description of this primitive is the following:

⟨*interactionmode*⟩
→ \interactionmode

Examples:

```
\interactionmode
```

The primitive \interactionmode is defined in the set etex.

The Primitive \interlinepenalties

\interlinepenalties is not implemented yet.
The primitive \interlinepenalties is defined in the set etex.

The Primitive \interlinepenalty

\interlinepenalty is a count register. The primitive \interlinepenalty is defined in the set tex.

The Primitive \javadef

The primitive \javadef attaches a definition to a macro or active character. This is done in a similar way as \def works. The difference is that the definition has to be provided in form of a Java class.

The general form of this primitive is

⟨*javadef*⟩
→ \javadef ⟨*control sequence*⟩ ⟨*tokens*⟩

The ⟨*control sequence*⟩ is any macro or active character. If this token is missing or of the wrong type then an error is raised.

The ⟨*tokens*⟩ is any specification of a list of tokens like a constant list enclosed in braces or a toks register. The value of these tokens are taken and interpreted as the name of a Java class. This class is loaded if needed and instantiated. The instance is bound as code to the ⟨*control sequence*⟩.

The following example illustrates the use of this primitive:

```
\javadef\abc{de.dante.extex.interpreter.primitive.Relax}
```

The primitive \javadef is local to the enclosing group as is \def. And similar to \def the modifier \global can be used to make the definition in all groups instead of the current group only. This is shown in the following example:

```
\global\javadef\abc{de.dante.extex.interpreter.primitive.Relax}
```

Now we come to the Java side of the definition. The class given as ⟨*tokens*⟩ must implement the interface Code. The easiest way to achieve this is by declaring a class derived from AbstractCode.

```
package my.package;

import de.dante.extex.interpreter.AbstractCode;
import de.dante.extex.interpreter.contect.Context;
import de.dante.extex.interpreter.Flags;
import de.dante.extex.interpreter.TokenSource;
import de.dante.extex.typesetter.Typesetter;
import de.dante.util.GeneralException;

class MyPrimitive extends AbstractCode {

  public MyPrimitive(final String name) {
```

```
    super(name);
    // initialization code --if required
  }

  public boolean execute(final Flags prefix,
                         final Context context,
                         final TokenSource source,
                         final Typesetter typesetter
                        ) {
    // implement the execution behaviour here
    return true;
  }
}
```

There is more to say about primitives like how to write expandable primitives or ifs. Those details can be found in section Primitives.

The primitive `\javadef` is defined in the set `jx`.

The Primitive `\javaload`

The primitive `\javaload` loads a java class and invokes its `init()` method. With this method it is possible to load larger extensions of εχTEX in one junk. There is no need to declare each single macro with `\javadef`.

The general form of this primitive is

⟨*javaload*⟩
→ `\javaload` ⟨*tokens*⟩

The ⟨*tokens*⟩ is any specification of a list of tokens like a constant list enclosed in braces or a toks register. The value of these tokens are taken and interpreted as the name of a Java class. This class is loaded if needed, instantiated, and its method de.dante.extex.interpreter.context.Context, de.dante.extex.typesetter.Typesetter) init() is invoked. The instantiation requires the empty contructor to be visible.

The following example illustrates the use of this primitive:

```
\javaload{de.dante.extex.extensions.Basic}
```

For the loading of the Java class it is necessary that this Java class implements the interface Loadable.

```
package my.package;

import de.dante.extex.interpreter.contect.Context;
import de.dante.extex.interpreter.primitives.dynamic.java.Loadable;
import de.dante.extex.typesetter.Typesetter;
import de.dante.util.GeneralException;
```

```
class MyModule implements Loadable {

  public MyModule() {
    super();
    // initialization code --if required
  }

  public void init(final Context context,
                   final Typesetter typesetter
                  ) throws GeneralException {
    // implement the initialization code here
  }
}
```

The primitive `\javaload` is defined in the set `jx`.

The Primitive `\jobname`

The primitive `\jobname` expands to the name of the job currently processed. The job name is usually the name of the first input file. If this can not be determined –e.g. because the input is not coming from a file –then the fallback `texput` is usd as default value.

The formal description of this primitive is the following:

⟨*jobname*⟩
→ `\jobname`

Examples:

```
\jobname
```

The primitive `\jobname` is defined in the set `tex`.

The Primitive `\kern`

This primitive produces a horizontal or vertical kerning. This is a (minor) adjustment of the position. The meaning depends on the current mode of the typesetter. In vertical modes it means a vertival adjustment. Otherwise it means a horizontal adjustment.

The formal description of this primitive is the following:

⟨*kern*⟩
→ `\kern` ⟨*dimen*⟩

Examples:

```
\kern 12pt
```

```
\kern -3mm
```

```
\kern -\dimen123
```

The primitive `\kern` is defined in the set `tex`.

The Primitive `\language`

`\language` is a count register. The primitive `\language` is defined in the set `tex`.

The Primitive `\lastbox`

The formal description of this primitive is the following:

⟨*lastbox*⟩
→ `\lastbox`

Examples:

```
\lastbox
```

```
\box1=\lastbox
```

The primitive `\lastbox` is defined in the set `tex`.

The Primitive `\lastkern`

Examples:

```
\dimen1=\lastkern
```

The primitive `\lastkern` is defined in the set `tex`.

The Primitive `\lastlinefit`

`\lastlinefit` is not implemented yet.
The primitive `\lastlinefit` is defined in the set `etex`.

The Primitive `\lastnodetype`

Examples:

```
Test\the\lastnodetype
```

The primitive `\lastnodetype` is defined in the set `etex`.

The Primitive \lastpenalty

Examples:

```
\count1=\lastpenalty
```

The primitive \lastpenalty is defined in the set tex.

The Primitive \lastskip

\lastskip is a skip register. The primitive \lastskip is defined in the set tex.

The Primitive \lccode

The formal description of this primitive is the following:

⟨*lccode*⟩
→ \lccode ⟨...⟩

Examples:

```
\lccode ...
```

The primitive \lccode is defined in the set tex.

The Primitive \leaders

The formal description of this primitive is the following:

⟨*leaders*⟩
→ \leaders ...

Examples:

```
\leaders\hrul\hfill
```

The primitive \leaders is defined in the set tex.

The Primitive \left

The formal description of this primitive is the following:

⟨*left*⟩
→ \left

Examples:

```
\left
```

The primitive \left is defined in the set tex.

The Primitive \lefthyphenmin

The primitive \lefthyphenmin is defined in the set tex.

The Primitive \leftskip

\leftskip is a skip register. The primitive \leftskip is defined in the set tex.

The Primitive \leqno

The formal description of this primitive is the following:

⟨*span*⟩
→ \leqno

Examples:

```
\leqno
```

The primitive \leqno is defined in the set tex.

The Primitive \let

The formal description of this primitive is the following:

⟨*let*⟩
→ \let ⟨*control sequence*⟩ ⟨*equals*⟩ ⟨*token*⟩

Examples:

```
\let\a=\b
```

The primitive \let is defined in the set tex.

The Primitive \limits

The formal description of this primitive is the following:

⟨*limits*⟩
→ \limits

Examples:

```
\limits
```

The primitive \limits is defined in the set tex.

The Primitive \linepenalty

\linepenalty is a count register. The primitive \linepenalty is defined in the set tex.

The Primitive \lineskip

\lineskip is a skip register. The primitive \lineskip is defined in the set tex.

The Primitive \lineskiplimit

\lineskiplimit is a dimen register. The primitive \lineskiplimit is defined in the set tex.

The Primitive \localbrokenpenalty

\localbrokenpenalty is a count register. The primitive \localbrokenpenalty is defined in the set omega.

The Primitive \localinterlinepenalty

\localinterlinepenalty is a count register. The primitive \localinterlinepenalty is defined in the set omega.

The Primitive \localleftbox

\localleftbox is not implemented yet.

The primitive \localleftbox is defined in the set omega.

The Primitive \localrightbox

\localrightbox is not implemented yet.

The primitive \localrightbox is defined in the set omega.

The Primitive \long

The formal description of this primitive is the following:

⟨*long*⟩
→ \long ...

Examples:

```
\long\def#1{--#1--}
```

The primitive \long is defined in the set tex.

The Primitive \looseness

\looseness is a count register. The primitive \looseness is defined in the set tex.

The Primitive \lower

The formal description of this primitive is the following:

⟨*lower*⟩
→ \lower ⟨*dimen*⟩ ⟨*box*⟩

Examples:

```
\lower 2em \hbox{abc}
```

```
\lower -1pt \hbox to 120pt {abc}
```

```
\lower 2mm \hbox spread 12pt {abc}
```

The primitive \lower is defined in the set tex.

The Primitive \lowercase

The formal description of this primitive is the following:

⟨*lowercase*⟩
→ \lowercase ⟨*...*⟩

Examples:

```
\lowercase ...
```

The primitive \lowercase is defined in the set tex.

The Primitive \mag

The formal description of this primitive is the following:

⟨*mag*⟩
→ \mag

Examples:

```
\count23=-456
```

The primitive \mag is defined in the set tex.

The Primitive \mark

The formal description of this primitive is the following:

\mark ...

Examples:

```
\mark{abc}
```

The primitive \mark is defined in the set tex.

The Primitive \marks

The formal description of this primitive is the following:

\marks ...

Examples:

```
\marks123{abc}
```

The primitive \marks is defined in the set etex.

The Primitive \mathaccent

The formal description of this primitive is the following:

⟨*mathaccent*⟩
→ \mathaccent

Examples:

```
\mathaccent
```

The primitive \mathaccent is defined in the set tex.

The Primitive \mathbin

The formal description of this primitive is the following:

⟨*mathbin*⟩
→ \mathbin

Examples:

```
\mathbin
```

The primitive \mathbin is defined in the set tex.

The Primitive \mathchar

The primitive \mathchar inserts a mathematical character consisting of a math class and a character code inti the current math list. This is supposed to work in math mode only.

The formal description of this primitive is the following:

\mathchar ...

Examples:

```
\mathchar"041
```

```
\mathchar{ordinary}0 ‘A
```

The primitive \mathchar is defined in the set tex.

The Primitive \mathchardef

The formal description of this primitive is the following:

\mathchardef ...

Examples:

```
\mathchardef\alpha ...
```

The primitive \mathchardef is defined in the set tex.

The Primitive \mathchoice

The formal description of this primitive is the following:

⟨*mathchoice*⟩
→ \mathchoice

Examples:

```
\mathchoice{d}{t}{s}{ss}
```

The primitive \mathchoice is defined in the set tex.

The Primitive \mathclose

The formal description of this primitive is the following:

⟨*mathclose*⟩
→ `\mathclose`

Examples:

```
\mathclose
```

The primitive `\mathclose` is defined in the set `tex`.

The Primitive \mathcode

The formal description of this primitive is the following:

`\mathcode ...`

Examples:

```
\mathcode ...
```

The primitive `\mathcode` is defined in the set `tex`.

The Primitive \mathdir

`\mathdir` is not implemented yet.
The primitive `\mathdir` is defined in the set `omega`.

The Primitive \mathinner

The formal description of this primitive is the following:

⟨*mathinner*⟩
→ `\mathinner` ⟨*math block*⟩

Examples:

```
\mathinner{a^b}
```

The primitive `\mathinner` is defined in the set `tex`.

The Primitive \mathop

The formal description of this primitive is the following:

⟨*mathop*⟩
→ \mathop

Examples:

```
\mathop
```

The primitive \mathop is defined in the set tex.

The Primitive \mathopen

The formal description of this primitive is the following:

⟨*mathopen*⟩
→ \mathopen

Examples:

```
\mathopen
```

The primitive \mathopen is defined in the set tex.

The Primitive \mathord

The formal description of this primitive is the following:

⟨*mathord*⟩
→ \mathord

Examples:

```
\mathord
```

The primitive \mathord is defined in the set tex.

The Primitive \mathpunct

The formal description of this primitive is the following:

⟨*mathpunct*⟩
→ \mathpunct

Examples:

```
\mathpunct
```

The primitive \mathpunct is defined in the set tex.

The Primitive \mathrel

The formal description of this primitive is the following:

⟨*mathrel*⟩
→ `\mathrel`

Examples:

```
\mathrel
```

The primitive `\mathrel` is defined in the set `tex`.

The Primitive \mathsurround

`\mathsurround` is a dimen register. The primitive `\mathsurround` is defined in the set `tex`.

The Primitive \maxdeadcycles

`\maxdeadcycles` is a count register. The primitive `\maxdeadcycles` is defined in the set `tex`.

The Primitive \maxdepth

`\maxdepth` is a dimen register. The primitive `\maxdepth` is defined in the set `tex`.

The Primitive \meaning

The formal description of this primitive is the following:

⟨*meaning*⟩
→ `\meaning` ⟨*token*⟩

Examples:

```
\meaning a
```

The primitive `\meaning` is defined in the set `tex`.

The Primitive \medmuskip

The primitive `\medmuskip` is defined in the set `tex`.

The Primitive \message

The primitive `\message` is defined in the set `tex`.

The Primitive \middle

The formal description of this primitive is the following:

⟨*span*⟩
→ `\middle`

Examples:

```
\middle
```

The primitive `\middle` is defined in the set `etex`.

The Primitive \mkern

The formal description of this primitive is the following:

⟨*mkern*⟩
→ `\mkern`

Examples:

```
\mkern
```

The primitive `\mkern` is defined in the set `tex`.

The Primitive \month

`\month` is a count register. The primitive `\month` is defined in the set `tex`.

The Primitive \moveleft

The formal description of this primitive is the following:

⟨*moveleft*⟩
→ `\moveleft` ⟨*dimen*⟩ ⟨*box*⟩

Examples:

```
\moveleft 2em \hbox{abc}
```

```
\moveleft -1pt \hbox to 120pt {abc}
```

```
\moveleft 2mm \hbox spread 12pt {abc}
```

The primitive `\moveleft` is defined in the set `tex`.

The Primitive \moveright

The formal description of this primitive is the following:

⟨*moveright*⟩
→ `\moveright` ⟨*dimen*⟩ ⟨*box*⟩

The color from the typographic context is taken as foregroud color for the rule. The default color is black.

Examples:

```
\moveright 2em \hbox{abc}
```

```
\moveright -1pt \hbox to 120pt {abc}
```

```
\moveright 2mm \hbox spread 12pt {abc}
```

The primitive `\moveright` is defined in the set `tex`.

The Primitive \mskip

The formal description of this primitive is the following:

⟨*mskip*⟩
→ `\mskip`

Examples:

```
\mskip 12mu plus 3mu minus 4 mu
```

The primitive `\mskip` is defined in the set `tex`.

The Primitive \muexpr

`\muexpr` is not implemented yet.

The primitive `\muexpr` is defined in the set `etex`.

The Primitive \multiply

This primitive implements an assignment. The variable given as next tokens is multiplied by the quantity given after the optional `by`.

The formal description of this primitive is the following:

⟨*multiply*⟩
→ `\multiply` ⟨*multiplyable*⟩
⟨*multiplyable*⟩
→ ⟨*integer variable*⟩ ⟨*optional* `by`⟩ ⟨*8-bit number*⟩
| ⟨*dimen variable*⟩ ⟨*optional* `by`⟩ ⟨*8-bit number*⟩
| ⟨*glue variable*⟩ ⟨*optional* `by`⟩ ⟨*8-bit number*⟩
| ⟨*muglue variable*⟩ ⟨*optional* `by`⟩ ⟨*8-bit number*⟩
⟨*optional* `by`⟩
→ [by]
| ⟨*optional spaces*⟩

Examples:

```
\multiply\count12 345
```

```
\multiply\count12 by -345
```

The primitive `\multiply` is defined in the set `tex`.

The Primitive `\muskip`

The primitive `\muskip` is defined in the set `tex`.

The Primitive `\muskipdef`

The formal description of this primitive is the following:

`\muskipdef` ⟨*control sequence*⟩ ⟨*equals*⟩ ⟨*8-bit number*⟩

Examples:

```
\muskipdef\abc=45
```

```
\muskipdef\abc 33
```

The primitive `\muskipdef` is defined in the set `tex`.

The Primitive `\namespace`

The formal description of this primitive is the following:

⟨*namespace*⟩
→ `\namespace` ⟨*replacement text*⟩

Examples:

```
\namespace{org.dante.dtk}
```

The primitive `\namespace` is defined in the set `namespace`.

The Primitive `\nativedef`

The primitive `\nativedef` attaches a definition to a macro or active character. This is done in a similar way as `\def` works. The difference is that the definition has to be provided in form of a Java class which glues in native code.

The general form of this primitive is

⟨*nativedef*⟩
→ `\nativedef` ⟨*control sequence*⟩ ⟨*name*⟩

The ⟨*control sequence*⟩ is any macro or active character. If this token is missing or of the wrong type then an error is raised.

The ⟨*name*⟩ is any specification of a list of tokens like a constant list enclosed in braces or a toks register. The value of these tokens are taken and resolved via the configuration. This appropriate class is loaded if needed and instantiated. The instance is bound as code to the ⟨*control sequence*⟩.

The primitive `\javadef` is local to the enclosing group as is `\def`. And similar to `\def` the modifier `\global` can be used to make the definition in all groups instead of the current group only.

The primitive `\nativedef` is defined in the set `native`.

The Primitive `\nativeload`

The general form of this primitive is

⟨*nativeload*⟩
→ `\nativeload` ⟨*type*⟩ ⟨*tokens*⟩

The primitive `\nativeload` is defined in the set `native`.

The Primitive `\naturaldir`

`\naturaldir` is not implemented yet.

The primitive `\naturaldir` is defined in the set `omega`.

The Primitive `\newlinechar`

`\newlinechar` is a count register. The primitive `\newlinechar` is defined in the set `tex`.

The Primitive \noalign

The formal description of this primitive is the following:

⟨*noalign*⟩
→ \noalign

Examples:

```
\cr\noalign
```

The primitive \noalign is defined in the set tex.

The Primitive \noboundary

The formal description of this primitive is the following:

⟨*noboundary*⟩
→ \\

Examples:

```
\\
```

The primitive \noboundary is defined in the set tex.

The Primitive \noDefaultInputMode

\noDefaultInputMode is not implemented yet.
The primitive \noDefaultInputMode is defined in the set omega.

The Primitive \noDefaultInputTranslation

\noDefaultInputTranslation is not implemented yet.
The primitive \noDefaultInputTranslation is defined in the set omega.

The Primitive \noDefaultOutputMode

\noDefaultOutputMode is not implemented yet.
The primitive \noDefaultOutputMode is defined in the set omega.

The Primitive \noDefaultOutputTranslation

\noDefaultOutputTranslation is not implemented yet.
The primitive \noDefaultOutputTranslation is defined in the set omega.

The Primitive \noexpand

The formal description of this primitive is the following:

⟨*noexpand*⟩
→ `\noexpand`

Examples:

```
\noexpand
```

The primitive `\noexpand` is defined in the set `tex`.

The Primitive \noindent

The formal description of this primitive is the following:

⟨*noindent*⟩
→ `\noindent`

Examples:

```
\noindent
```

The primitive `\noindent` is defined in the set `tex`.

The Primitive \nolimits

The formal description of this primitive is the following:

⟨*nolimits*⟩
→ `\nolimits`

Examples:

```
\nolimits
```

The primitive `\nolimits` is defined in the set `tex`.

The Primitive \nonscript

The primitive can be used in math modes only. It cancels following glue if the current style is script style or scriptscript style.

The formal description of this primitive is the following:

⟨*nonscript*⟩
→ `\nonscript`

Examples:

```
\nonscript
```

The primitive `\nonscript` is defined in the set `tex`.

The Primitive `\nonstopmode`

The formal description of this primitive is the following:

⟨*nonstopmode*⟩
→ `\nonstopmode`

Examples:

```
\nonstopmode
```

The primitive `\nonstopmode` is defined in the set `tex`.

The Primitive `\nulldelimiterspace`

`\nulldelimiterspace` is a dimen register. The primitive `\nulldelimiterspace` is defined in the set `tex`.

The Primitive `\nullfont`

The formal description of this primitive is the following:

`\nullfont`

Examples:

```
\font123=\nullfont
```

The primitive `\nullfont` is defined in the set `tex`.

The Primitive `\nullocplist`

`\nullocplist` is not implemented yet.

The primitive `\nullocplist` is defined in the set `omega`.

The Primitive \number

The formal description of this primitive is the following:

⟨*number*⟩
→ \number ⟨...⟩

Examples:

```
\number ...
```

The primitive \number is defined in the set tex.

The Primitive \numexpr

\numexpr is not implemented yet.
The primitive \numexpr is defined in the set etex.

The Primitive \ocp

\ocp is not implemented yet.
The primitive \ocp is defined in the set omega.

The Primitive \ocplist

\ocplist is not implemented yet.
The primitive \ocplist is defined in the set omega.

The Primitive \odelmiter

\odelmiter is not implemented yet.
The primitive \odelmiter is defined in the set omega.

The Primitive \omathaccent

\omathaccent is not implemented yet.
The primitive \omathaccent is defined in the set omega.

The Primitive \omathchar

\omathchar is not implemented yet.
The primitive \omathchar is defined in the set omega.

The Primitive \omathchardef

\omathchardef is not implemented yet.
The primitive \omathchardef is defined in the set omega.

The Primitive \omathcode

\omathcode is not implemented yet.
The primitive \omathcode is defined in the set omega.

The Primitive \omathdelcode

\omathdelcode is not implemented yet.
The primitive \omathdelcode is defined in the set omega.

The Primitive \omit

The formal description of this primitive is the following:

⟨*omit*⟩
→ \omit

Examples:

```
\omit 1
```

The primitive \omit is defined in the set tex.

The Primitive \openin

The primitive \openin is defined in the set tex.

The Primitive \openout

The primitive \openout is defined in the set tex.

The Primitive \or

⟨*or*⟩
→ \ifcase ... \or ... \fi

The primitive \or is defined in the set tex.

The Primitive \oradical

\oradical is not implemented yet.
The primitive \oradical is defined in the set omega.

The Primitive \outer

The formal description of this primitive is the following:

⟨*outer*⟩
→ \outer ...

Examples:

```
\outer\def#1{--#1--}
```

The primitive \outer is defined in the set tex.

The Primitive \output

\output is a toks register. The primitive \output is defined in the set tex.

The Primitive \OutputMode

\OutputMode is not implemented yet.
The primitive \OutputMode is defined in the set omega.

The Primitive \outputpenalty

\outputpenalty is a count register. The primitive \outputpenalty is defined in the set tex.

The Primitive \OutputTranslation

\OutputTranslation is not implemented yet.
The primitive \OutputTranslation is defined in the set omega.

The Primitive \over

The formal description of this primitive is the following:

⟨*over*⟩
→ \over

Examples:

```
a \over b
```

The primitive \over is defined in the set tex.

The Primitive \overfullrule

\overfullrule is a dimen register. The primitive \overfullrule is defined in the set tex.

The Primitive \overline

The formal description of this primitive is the following:

⟨*span*⟩
→ \overline

Examples:

```
\overline
```

The primitive \overline is defined in the set tex.

The Primitive \overwithdelims

The formal description of this primitive is the following:

⟨*overwithdelims*⟩
→ \overwithdelims

Examples:

```
\overwithdelims
```

The primitive \overwithdelims is defined in the set tex.

The Primitive \pagedepth

\pagedepth is a dimen register. The primitive \pagedepth is defined in the set tex.

The Primitive \pagedir

\pagedir is not implemented yet.
The primitive \pagedir is defined in the set omega.

The Primitive \pagedirHL

\pagedirHL is not implemented yet.
The primitive \pagedirHL is defined in the set omega.

The Primitive \pagedirHR

\pagedirHR is not implemented yet.
The primitive \pagedirHR is defined in the set omega.

The Primitive \pagediscarts

\pagediscarts is not implemented yet.
The primitive \pagediscarts is defined in the set etex.

The Primitive \pagefilllstretch

\pagefilllstretch is a dimen register. The primitive \pagefilllstretch is defined in the set tex.

The Primitive \pagefillstretch

\pagefillstretch is a dimen register. The primitive \pagefillstretch is defined in the set tex.

The Primitive \pagefilstretch

\pagefilstretch is a dimen register. The primitive \pagefilstretch is defined in the set tex.

The Primitive \pagegoal

\pagegoal is a dimen register. The primitive \pagegoal is defined in the set tex.

The Primitive \pageshrink

\pageshrink is a dimen register. The primitive \pageshrink is defined in the set tex.

The Primitive \pagestretch

\pagestretch is a dimen register. The primitive \pagestretch is defined in the set tex.

The Primitive \pagetotal

\pagetotal is a dimen register. The primitive \pagetotal is defined in the set tex.

The Primitive \par

The formal description of this primitive is the following:

⟨*par*⟩
→ \par

Examples:

The primitive \par is defined in the set tex.

The Primitive \parfillskip

\parfillskip is a skip register. The primitive \parfillskip is defined in the set tex.

The Primitive \parindent

\parindent is a dimen register. The primitive \parindent is defined in the set tex.

The Primitive \parshape

The primitive \parshape is a declaration of the shape of the paragraph. With its help it is possible to control the left and right margin of the current paragraph.

The formal description of this primitive is the following:

⟨*parshape*⟩
→ \parshape ⟨*8-bit number*⟩ ...

Examples:

```
\parshape 3 20pt \linewidth
          20pt \linewidth
          0pt \linewidth
```

```
\parshape 0
```

\parshape acts as special register which can be queried. It returns the size of the current parshape specification or 0 if none is present.

The primitive \parshape is defined in the set tex.

The Primitive \parshapedimen

\parshapedimen is not implemented yet.

The primitive \parshapedimen is defined in the set etex.

The Primitive \parshapeindent

\parshapeindent is not implemented yet.

The primitive \parshapeindent is defined in the set etex.

The Primitive \parshapelength

\parshapelength is not implemented yet.

The primitive \parshapelength is defined in the set etex.

The Primitive \parskip

\parskip is a skip register. The primitive \parskip is defined in the set tex.

The Primitive \patterns

The formal description of this primitive is the following:

⟨*patterns*⟩
→ \patterns ⟨*patterns*⟩

Examples:

```
\patterns{.ach4 .ad4der .af1t}
```

The primitive \patterns is defined in the set tex.

The Primitive \pausing

\pausing is a count register. The primitive \pausing is defined in the set tex.

The Primitive \penalty

This primitive inserts penalty into the current node list. In vertical mode the page builder is also invoked.

A penalty of 10000 or more will inhibit a break at this position. A penalty of -10000 or less will force a break at this position.

The formal description of this primitive is the following:

⟨*penalty*⟩
→ `\penalty` ⟨*8-bit number*⟩

Examples:

```
\penalty 123
```

```
\penalty -456
```

```
\penalty -\count254
```

The primitive `\penalty` is defined in the set `tex`.

The Primitive `\popocplist`

`\popocplist` is not implemented yet.
The primitive `\popocplist` is defined in the set `omega`.

The Primitive `\postdisplaypenalty`

`\postdisplaypenalty` is a count register. The primitive `\postdisplaypenalty` is defined in the set `tex`.

The Primitive `\predisplaydirection`

`\predisplaydirection` is not implemented yet.
The primitive `\predisplaydirection` is defined in the set `etex`.

The Primitive `\predisplaypenalty`

`\predisplaypenalty` is a count register. The primitive `\predisplaypenalty` is defined in the set `tex`.

The Primitive `\predisplaysize`

`\predisplaysize` is a dimen register. The primitive `\predisplaysize` is defined in the set `tex`.

The Primitive `\pretolerance`

`\pretolerance` is a count register. The primitive `\pretolerance` is defined in the set `tex`.

The Primitive \prevdepth

The formal description of this primitive is the following:

⟨*prevdepth*⟩
→ `\prevdepth ...`

Examples:

```
\prevdepth ...
```

The primitive `\prevdepth` is defined in the set `tex`.

The Primitive \prevgraf

The formal description of this primitive is the following:

⟨*prevgraf*⟩
→ `\prevgraf`

Examples:

```
\prevgraf
```

The primitive `\prevgraf` is defined in the set `tex`.

The Primitive \protected

The formal description of this primitive is the following:

⟨*protected*⟩
→ `\protected`

Examples:

```
\protected\def\abc{123}
```

The primitive `\protected` is defined in the set `etex`.

The Primitive \pushocplist

`\pushocplist` is not implemented yet.
The primitive `\pushocplist` is defined in the set `omega`.

The Primitive \radical

The formal description of this primitive is the following:

⟨*radical*⟩
→ `\radical`

Examples:

```
\radical
```

The primitive `\radical` is defined in the set `tex`.

The Primitive \raise

The formal description of this primitive is the following:

⟨*raise*⟩
→ `\raise` ⟨*dimen*⟩ ⟨*box*⟩

Examples:

```
\raise 2em \hbox{abc}
```

```
\raise -1pt \hbox to 120pt {abc}
```

```
\raise 2mm \hbox spread 12pt {abc}
```

The primitive `\raise` is defined in the set `tex`.

The Primitive \read

The formal description of this primitive is the following:

⟨*read*⟩
→ `\read` ⟨*read*⟩ `to` ⟨*control sequence*⟩

The primitive `\read` is defined in the set `tex`.

The Primitive \readline

`\readline` is not implemented yet.
The primitive `\readline` is defined in the set `etex`.

The Primitive \relax

This primitive simply does nothing. It acts as a no-op for the TEX macro language.

The formal description of this primitive is the following:

⟨*relax*⟩
→ `\relax`

Examples:

```
\relax
```

```
\the\count123\relax456
```

The primitive `\relax` is defined in the set `tex`.

The Primitive \relpenalty

`\relpenalty` is a count register. The primitive `\relpenalty` is defined in the set `tex`.

The Primitive \removebeforeocplist

`\removebeforeocplist` is not implemented yet.

The primitive `\removebeforeocplist` is defined in the set `omega`.

The Primitive \right

The formal description of this primitive is the following:

⟨*span*⟩
→ `\right`

Examples:

```
\right
```

The primitive `\right` is defined in the set `tex`.

The Primitive \righthyphenmin

The primitive `\righthyphenmin` is defined in the set `tex`.

The Primitive \rightskip

`\rightskip` is a skip register. The primitive `\rightskip` is defined in the set `tex`.

The Primitive \romannumeral

The formal description of this primitive is the following:

⟨*romannumeral*⟩
→ `\romannumeral` ⟨*number*⟩

Examples:

```
\romannumeral\count1
```

```
\romannumeral 2004
```

The primitive `\romannumeral` is defined in the set `tex`.

The Primitive \savinghyphcodes

`\savinghyphcodes` is not implemented yet.
The primitive `\savinghyphcodes` is defined in the set `etex`.

The Primitive \savingvdiscarts

`\savingvdiscarts` is not implemented yet.
The primitive `\savingvdiscarts` is defined in the set `etex`.

The Primitive \scantokens

`\scantokens` is not implemented yet.
The primitive `\scantokens` is defined in the set `etex`.

The Primitive \scriptfont

The primitive `\scriptfont` is defined in the set `tex`.

The Primitive \scriptscriptfont

The primitive `\scriptscriptfont` is defined in the set `tex`.

The Primitive \scriptscriptstyle

The formal description of this primitive is the following:

⟨*scriptscriptstyle*⟩
→ `\scriptscriptstyle`

Examples:

```
\scriptscriptstyle
```

The primitive `\scriptscriptstyle` is defined in the set `tex`.

The Primitive `\scriptspace`

`\scriptspace` is a dimen register. The primitive `\scriptspace` is defined in the set `tex`.

The Primitive `\scriptstyle`

The formal description of this primitive is the following:

⟨*scriptstyle*⟩
→ `\scriptstyle`

Examples:

```
\scriptstyle
```

The primitive `\scriptstyle` is defined in the set `tex`.

The Primitive `\scrollmode`

The formal description of this primitive is the following:

⟨*scrollmode*⟩
→ `\scrollmode`

Examples:

```
\scrollmode
```

The primitive `\scrollmode` is defined in the set `tex`.

The Primitive `\setbox`

The formal description of this primitive is the following:

⟨*setbox*⟩
→ `\setbox` ⟨*8-bit number*⟩...

Examples:

```
\setbox0\hbox{abc}
```

The primitive `\setbox` is defined in the set `tex`.

The Primitive \setlanguage

The formal description of this primitive is the following:

⟨*setlanguage*⟩
→ `\setlanguage` ⟨*number*⟩

Examples:

```
\setlanguage2
```

The primitive `\setlanguage` is defined in the set `tex`.

The Primitive \sfcode

The formal description of this primitive is the following:

⟨*sfcode*⟩
→ `\sfcode ...`

Examples:

```
\sfcode ...
```

The primitive `\sfcode` is defined in the set `tex`.

The Primitive \shipout

The primitive `\shipout` takes a box and send the contents of the box to the document writer.

In addition the count register `\deadcyles` is reset to 0. This count register is used to break out of infinite loops when no material is shipped out in the output routine.

The formal description of this primitive is the following:

⟨*shipout*⟩
→ `\shipout` ⟨*box*⟩

Examples:

```
\shipout\box255
```

The primitive `\shipout` is defined in the set `tex`.

The Primitive \show

The formal description of this primitive is the following:

⟨*show*⟩
→ \show ⟨*token*⟩

Examples:

```
\show\abc
```

The primitive \show is defined in the set tex.

The Primitive \showbox

The formal description of this primitive is the following:

⟨*showbox*⟩
→ \showbox ⟨*8-bit number*⟩

Examples:

```
\showbox 1
```

The primitive \showbox is defined in the set tex.

The Primitive \showboxbreadth

\showboxbreadth is a count register. The primitive \showboxbreadth is defined in the set tex.

The Primitive \showboxdepth

\showboxdepth is a count register. The primitive \showboxdepth is defined in the set tex.

The Primitive \showgroups

\showgroups is not implemented yet.
The primitive \showgroups is defined in the set etex.

The Primitive \showlists

The formal description of this primitive is the following:

⟨*showlists*⟩
→ \showlists

Examples:

```
\showlists 1
```

The primitive \showlists is defined in the set tex.

The Primitive \showthe

The primitive \showthe is defined in the set tex.

The Primitive \showtokens

\showtokens is not implemented yet.
The primitive \showtokens is defined in the set etex.

The Primitive \skewchar

The formal description of this primitive is the following:

\skewchar ⟨*font*⟩ ⟨*equals*⟩ ⟨*8-bit number*⟩

Examples:

```
\skewchar\font=123
```

Incompatibility

The TeXbook gives no indication ow the primitive should react for negative values – except -1. The implementation of TEX allows to store and retrieve arbirary negative values. This behaviour of TEX is not preserved in ε_{χ}TEX.
The primitive \skewchar is defined in the set tex.

The Primitive \skip

The primitive \skip is defined in the set tex.

The Primitive \skipdef

The formal description of this primitive is the following:

\skipdef ⟨*control sequence*⟩ ⟨*equals*⟩ ⟨*8-bit number*⟩

Examples:

```
\skipdef\abc=45
```

```
\skipdef\abc 33
```

The primitive \skipdef is defined in the set tex.

The Primitive \spacefactor

The formal description of this primitive is the following:

⟨*spacefactor*⟩
→ \spacefactor ...

Examples:

```
\spacefactor ...
```

The primitive \spacefactor is defined in the set tex.

The Primitive \spaceskip

\spaceskip is a skip register. The primitive \spaceskip is defined in the set tex.

The Primitive \span

The formal description of this primitive is the following:

⟨*span*⟩
→ \span

Examples:

```
\span 1
```

The primitive \span is defined in the set tex.

The Primitive \special

This primitive sends a string to the backend driver. The argument is a balanced block of text which is expanded and translated into a string. The string is given in a SpecialNode to the typesetter for passing it down.

The formal description of this primitive is the following:

⟨*special*⟩
→ `\special` ⟨*general text*⟩

Examples:

```
\special{hello world}
```

```
\special{ps: \abc}
```

For several backend drivers for TEX a quasi-standard has emerged which uses a prefix ended by a colon to indicate the backend driver the special is targeted at.

The primitive `\special` is defined in the set `tex`.

The Primitive \splitbotmark

The formal description of this primitive is the following:

`\splitbotmark ...`

Examples:

```
\splitbotmark ...
```

The primitive `\splitbotmark` is defined in the set `tex`.

The Primitive \splitbotmarks

`\splitbotmarks` is not implemented yet.

The primitive `\splitbotmarks` is defined in the set `etex`.

The Primitive \splitdiscarts

`\splitdiscarts` is not implemented yet.

The primitive `\splitdiscarts` is defined in the set `etex`.

The Primitive \splitfirstmark

The formal description of this primitive is the following:

\splitfirstmark ...

Examples:

```
\splitfirstmark ...
```

The primitive \splitfirstmark is defined in the set tex.

The Primitive \splitfirstmarks

\splitfirstmarks is not implemented yet.
The primitive \splitfirstmarks is defined in the set etex.

The Primitive \splitmaxdepth

\splitmaxdepth is a dimen register. The primitive \splitmaxdepth is defined in the set tex.

The Primitive \splittopskip

\splittopskip is a skip register. The primitive \splittopskip is defined in the set tex.

The Primitive \string

This primitive takes the next unexpanded token. If this token is a control sequence –and no active character –then the value of escapechar followed by the characters from the name of the control sequence. Otherwise it is a single character token containing the character code of the token.

The formal description of this primitive is the following:

⟨*string*⟩
→ \string ⟨*token*⟩

Examples:

```
\string ...
```

The primitive \string is defined in the set tex.

The Primitive \tabskip

\tabskip is a skip register. The primitive \tabskip is defined in the set tex.

The Primitive \textdir

\textdir is not implemented yet.

The primitive \textdir is defined in the set omega.

The Primitive \textfont

The primitive \textfont is defined in the set tex.

The Primitive \textstyle

The formal description of this primitive is the following:

⟨*textstyle*⟩
→ \textstyle

Examples:

```
\textstyle
```

The primitive \textstyle is defined in the set tex.

The Primitive \TeXXeTstate

\TeXXeTstate is a count register. The primitive \TeXXeTstate is defined in the set etex.

The Primitive \the

The formal description of this primitive is the following:

⟨*the*⟩
→ \the ⟨*internal quantity*⟩

Examples:

```
\the\count123
```

The primitive \the is defined in the set tex.

The Primitive \thickmuskip

The primitive \thickmuskip is defined in the set tex.

The Primitive \thinmuskip

The primitive \thinmuskip is defined in the set tex.

The Primitive \time

\time is a count register. The primitive \time is defined in the set tex.

The Primitive \toks

The primitive \toks is defined in the set tex.

The Primitive \toksdef

The formal description of this primitive is the following:

\toksdef ⟨*control sequence*⟩ ⟨*equals*⟩ ⟨*8-bit number*⟩

Examples:

```
\toksdef\abc=45
```

```
\toksdef\abc 33
```

The primitive \toksdef is defined in the set tex.

The Primitive \tolerance

\tolerance is a count register. The primitive \tolerance is defined in the set tex.

The Primitive \topmark

The formal description of this primitive is the following:

\topmark ...

Examples:

```
\topmark ...
```

The primitive \topmark is defined in the set tex.

The Primitive \topmarks

\topmarks is not implemented yet.
The primitive \topmarks is defined in the set etex.

The Primitive \topskip

\topskip is a skip register. The primitive \topskip is defined in the set tex.

The Primitive \tracingassigns

\tracingassigns is a count register. The primitive \tracingassigns is defined in the set etex.

The Primitive \tracingcommands

\tracingcommands is a count register. The primitive \tracingcommands is defined in the set tex.

The Primitive \tracinggroups

\tracinggroups is a count register. The primitive \tracinggroups is defined in the set etex.

The Primitive \tracingifs

\tracingifs is a count register. The primitive \tracingifs is defined in the set etex.

The Primitive \tracinglostchars

\tracinglostchars is a count register. The primitive \tracinglostchars is defined in the set tex.

The Primitive \tracingmacros

\tracingmacros is a count register. The primitive \tracingmacros is defined in the set tex.

The Primitive \tracingnesting

\tracingnesting is a count register. The primitive \tracingnesting is defined in the set etex.

The Primitive \tracingonline

\tracingonline is a count register. The primitive \tracingonline is defined in the set tex.

The Primitive \tracingoutput

\tracingoutput is a count register. The primitive \tracingoutput is defined in the set tex.

The Primitive \tracingpages

\tracingpages is a count register. The primitive \tracingpages is defined in the set tex.

The Primitive \tracingparagraphs

\tracingparagraphs is a count register. The primitive \tracingparagraphs is defined in the set tex.

The Primitive \tracingrestores

\tracingrestores is a count register. The primitive \tracingrestores is defined in the set tex.

The Primitive \tracingscantokens

\tracingscantokens is a count register. The primitive \tracingscantokens is defined in the set etex.

The Primitive \tracingstats

\tracingstats is a count register. The primitive \tracingstats is defined in the set tex.

The Primitive \uccode

The formal description of this primitive is the following:

⟨*uccode*⟩
→ \uccode ⟨...⟩

Examples:

```
\uccode ...
```

The primitive \uccode is defined in the set tex.

The Primitive \uchyph

\uchyph is a count register. The primitive \uchyph is defined in the set tex.

The Primitive \underline

The formal description of this primitive is the following:

⟨*span*⟩
→ `\underline`

Examples:

```
\underline
```

The primitive `\underline` is defined in the set `tex`.

The Primitive \unexpanded

`\unexpanded` is not implemented yet.
The primitive `\unexpanded` is defined in the set `etex`.

The Primitive \unhbox

The formal description of this primitive is the following:

⟨*unhbox*⟩
→ `\unhbox` ⟨*8-bit number*⟩

Examples:

```
\unhbox42
```

The primitive `\unhbox` is defined in the set `tex`.

The Primitive \unhcopy

The formal description of this primitive is the following:

⟨*unhcopy*⟩
→ `\unhcopy` ⟨*8-bit number*⟩

Examples:

```
\unhcopy42
```

The primitive `\unhcopy` is defined in the set `tex`.

The Primitive \unkern

The formal description of this primitive is the following:

⟨*unkern*⟩
→ `\unkern`

Examples:

```
\unkern
```

The primitive `\unkern` is defined in the set `tex`.

The Primitive \unless

Copied of the ε-TEX reference.

TEX has, by design, a rather sparse set of conditional primitives: `\ifeof`, `\ifodd`, `\ifvoid`, etc., have no complementary counterparts. Whilst this normally poses no problems since each accepts both a `\then` (implicit) and an `\else` (explicit) part, they fall down when used as the final `\if`... of a `\loop` ... `\if` ... `\repeat` construct, since no `\else` is allowed after the final `\if`.... `\unless` allows the sense of all Boolean conditionals to be inverted, and thus (for example) `\unless \ifeof` yields true iff end-of-file has not yet been reached.

The formal description of this primitive is the following:

Examples:

```
\unless\if\x\y not ok \fi
```

The primitive `\unless` is defined in the set `etex`.

The Primitive \unnaturaldir

`\unnaturaldir` is not implemented yet.

The primitive `\unnaturaldir` is defined in the set `omega`.

The Primitive \unpenalty

The formal description of this primitive is the following:

⟨*unpenalty*⟩
→ `\unpenalty`

Examples:

```
\unpenalty
```

The primitive `\unpenalty` is defined in the set `tex`.

The Primitive \unskip

The formal description of this primitive is the following:

⟨*unskip*⟩
→ `\unskip`

Examples:

```
\unskip
```

The primitive `\unskip` is defined in the set `tex`.

The Primitive \unvbox

The formal description of this primitive is the following:

⟨*unvbox*⟩
→ `\unvbox` ⟨*8-bit number*⟩

Examples:

```
\unvbox42
```

The primitive `\unvbox` is defined in the set `tex`.

The Primitive \unvcopy

The formal description of this primitive is the following:

⟨*unvcopy*⟩
→ `\unvcopy` ⟨*8-bit number*⟩

Examples:

```
\unvcopy42
```

The primitive `\unvcopy` is defined in the set `tex`.

The Primitive \uppercase

The formal description of this primitive is the following:

⟨*uppercase*⟩
→ `\uppercase` ⟨*...*⟩

Examples:

```
\uppercase ...
```

The primitive `\uppercase` is defined in the set `tex`.

The Primitive \vadjust

The formal description of this primitive is the following:

⟨*vadjust*⟩
→ `\vadjust` ...

Examples:

```
\vadjust{\kern2pt}
```

The primitive `\vadjust` is defined in the set `tex`.

The Primitive \valign

The formal description of this primitive is the following:

⟨*span*⟩
→ `\valign`

Examples:

```
\valign
```

The primitive `\valign` is defined in the set `tex`.

The Primitive \vbadness

`\vbadness` is a count register. The primitive `\vbadness` is defined in the set `tex`.

The Primitive \vbox

The contents of the toks register `\everyvbox` is inserted at the beginning of the vertical material of the box.

The formal description of this primitive is the following:

⟨*vbox*⟩
→ `\vbox` ⟨*box specification*⟩ `{` ⟨*vertical material*⟩ `{`
⟨*box specification*⟩
→
| `to` ⟨*rule dimension*⟩
| `spread` ⟨*rule dimension*⟩

Examples:

```
\vbox{abc}
```

```
\vbox to 120pt{abc}
```

```
\vbox spread 12pt{abc}
```

The tokens parameter is used in /vbox. The tokens contained are inserted at the beginnig of the vertical material of the vbox.

The primitive \vbox is defined in the set tex.

The Primitive \vcenter

The formal description of this primitive is the following:

⟨*vcenter*⟩
→ \\

Examples:

```
\\
```

The primitive \vcenter is defined in the set tex.

The Primitive \vfi

The formal description of this primitive is the following:

⟨*vfi*⟩
→ \vfi

Examples:

```
\vfi
```

The primitive \vfi is defined in the set omega.

The Primitive \vfil

The formal description of this primitive is the following:

⟨*vfil*⟩
→ \vfil

Examples:

```
\vfil
```

The primitive \vfil is defined in the set tex.

The Primitive \vfill

The formal description of this primitive is the following:

⟨*vfill*⟩
→ `\vfill`

Examples:

```
\vfill
```

The primitive `\vfill` is defined in the set `tex`.

The Primitive \vfilneg

The formal description of this primitive is the following:

⟨*vfilneg*⟩
→ `\vfilneg`

Examples:

```
\vfilneg
```

The primitive `\vfilneg` is defined in the set `tex`.

The Primitive \vfuzz

`\vfuzz` is a dimen register. The primitive `\vfuzz` is defined in the set `tex`.

The Primitive \voffset

`\voffset` is a dimen register. The primitive `\voffset` is defined in the set `tex`.

The Primitive \vrule

This primitive produces a vertical rule. This is a rectangular area of specified dimensions. If not overwritten the height and depth are 0pt and the width is 0.4 pt (26214 sp).

The formal description of this primitive is the following:

⟨*vrule*⟩
→ `\vrule`⟨*rule specification*⟩
⟨*rule specification*⟩
→ ⟨*optional spaces*⟩
| ⟨*rule dimension*⟩ ⟨*rule specification*⟩

⟨*rule dimension*⟩
→ `width` ⟨*dimen*⟩
| `height` ⟨*dimen*⟩
| `depth` ⟨*dimen*⟩

The color from the typographic context is taken as foregroud color for the rule. The default color is black.

Examples:

```
\vrule
```

```
\vrule height 2pt
```

```
\vrule width 2pt depth 3mm height \dimen4
```

The primitive `\vrule` is defined in the set `tex`.

The Primitive `\vsize`

`\vsize` is a dimen register. The primitive `\vsize` is defined in the set `tex`.

The Primitive `\vskip`

The formal description of this primitive is the following:

⟨*vskip*⟩
→ `\vskip` ⟨*Glue*⟩

Examples:

```
\vskip 1em plus 1pt minus 1pt
```

The primitive `\vskip` is defined in the set `tex`.

The Primitive `\vsplit`

The formal description of this primitive is the following:

⟨*vsplit*⟩
→ `\vsplit`

Examples:

```
\vsplit ...
```

The primitive `\vsplit` is defined in the set `tex`.

The Primitive \vss

The formal description of this primitive is the following:

⟨*vss*⟩
→ `\vss`

Examples:

```
\vss
```

The primitive `\vss` is defined in the set `tex`.

The Primitive \vtop

The contents of the toks register `\everyvbox` is inserted at the beginning of the vertical material of the box.

The formal description of this primitive is the following:

⟨*vtop*⟩
→ `\vtop` ⟨*box specification*⟩ `{` ⟨*vertical material*⟩ `{`
⟨*box specification*⟩
→
| `to` ⟨*rule dimension*⟩
| `spread` ⟨*rule dimension*⟩

Examples:

```
\vtop{abc}
```

```
\vtop to 120pt{abc}
```

```
\vtop spread 12pt{abc}
```

The primitive `\vtop` is defined in the set `tex`.

The Primitive \wd

The formal description of this primitive is the following:

⟨*wd*⟩
→ `\wd` ⟨*8-bit number*⟩ ⟨*equals*⟩ ⟨*dimen*⟩

Examples:

```
\wd42
```

The primitive `\wd` is defined in the set `tex`.

The Primitive \widowpenalties

\widowpenalties is not implemented yet.

The primitive \widowpenalties is defined in the set etex.

The Primitive \widowpenalty

\widowpenalty is a count register. The primitive \widowpenalty is defined in the set tex.

The Primitive \write

The primitive \write is defined in the set tex.

The Primitive \xdef

The formal description of this primitive is the following:

⟨*xdef*⟩
→ ⟨*prefix*⟩ \xdef ⟨*control sequence*⟩ ⟨*parameter text*⟩ { ⟨*replacement text*⟩ }
⟨*prefix*⟩
→
| \global ⟨*prefix*⟩
| \long ⟨*prefix*⟩
| \outer ⟨*prefix*⟩

Examples:

```
\xdef#1{--#1--}
```

The primitive \xdef is defined in the set tex.

The Primitive \xleaders

The formal description of this primitive is the following:

⟨*xleaders*⟩
→ \xleaders ...

Examples:

```
\xleaders\hrul\hfill
```

The primitive \xleaders is defined in the set tex.

The Primitive \xspaceskip

\xspaceskip is a skip register. The primitive \xspaceskip is defined in the set tex.

The Primitive \year

\year is a count register. The primitive \year is defined in the set tex.

4.2. Basic Syntactic Entities of $\varepsilon_{\mathcal{X}}$TEX

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