

stex.sty: \TeX 2.0*

Michael Kohlhase, Dennis Müller
FAU Erlangen-Nürnberg
<http://kwarc.info/>

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Abstract

TODO

1 Introduction

TODO

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2 Manual

2.1 Modules

`{module}`, `{@module}`

2.2 Semantic Macros and Notations

Semantic macros invoke a formally declared symbol.

To declare a symbol (in a module), we use `\symdecl`, which takes as argument the name of the corresponding semantic macro, e.g. `\symdecl{foo}` introduces the macro `\foo`. Additionally, `\symdecl` takes several options, the most important one being its arity. `foo` as declared above yields a *constant* symbol. To introduce an *operator* which takes arguments, we have to specify which arguments it takes.

For example, to introduce binary multiplication, we can do `\symdecl[args=2]{mult}`. We can then supply the semantic macro with arbitrarily many notations, such as `\notation{mult}{#1 #2}`.

Example 1

```
\symdecl[args=2]{mult}
\notation{mult}{#1 #2}
 $\mult{a}{b}$ 
```

ab

.

Since usually, a freshly introduced symbol also comes with a notation from the start, the `\symdef` command combines `\symdecl` and `\notation`. So instead of the above, we could have also written

```
\symdef[args=2]{mult}{#1 #2}
```

Adding more notations like `\notation[cdot]{mult}{#1 \comp{\cdot} #2}` or `\notation[times]{mult}{#1 \comp{\times} #2}` allows us to write $\mult[cdot]{a}{b}$ and $\mult[times]{a}{b}$:

Example 2

```
\notation[cdot]{mult}{#1 \comp{\cdot} #2}
\notation[times]{mult}{#1 \comp{\times} #2}
 $\mult[cdot]{a}{b}$  and  $\mult[times]{a}{b}$ 
```

$a \cdot b$ and $a \times b$

.

Not using an explicit option with a semantic macro yields the first declared notation, unless changed¹.

¹EdNOTE: TODO

Outside of math mode, or by using the starred variant `\foo*`, allows to provide a custom notation, where notational (or textual) components can be given explicitly in square brackets.

Example 3

```
$\mult*{a}[\comp{\ast}]{b}$ is the
\mult[\comp{product of}]{a$}[\comp{and}]{b$}
```

$a*b$ is the *product of a* and b

In custom mode, prefixing an argument with a star will not print that argument, but still export it to OMDoc:

Example 4

```
\mult[\comp{Multiplying}]*{$\mult{a}{b}$} again by {b$} yields...
```

Multiplying again by b yields...

The syntax `*[int]` allows switching the order of arguments. For example, given a 2-ary semantic macro `\forevery` with exemplary notation `\forall #1. #2`, we can write

Example 5

```
\symdecl[args=2]{forevery}
\forevery*[2]{The proposition $P$}[\comp{holds for every}]*[1]{x\in A}
```

The proposition P holds for every $x \in A$

When using `*[n]`, after reading the provided (*n*th) argument, the “argument counter” automatically continues where we left off, so the `*[1]` in the above example can be omitted.

For a macro with arity > 0 , we can refer to the operator *itself* semantically by suffixing the semantic macro with an exclamation point `!` in either text or math mode.

Example 6

```
\mult![\comp{Multiplication}] (denoted by $\mult![\comp{cdot}]$) is defined by...
```

Multiplication (denoted by \cdot) is defined by...

The macro `\comp` as used everywhere above is responsible for highlighting, linking, and tooltips, and should be wrapped around the notation (or text) components that should be treated accordingly. While it is attractive to just wrap a whole notation, this would also wrap around e.g. the arguments themselves, so instead, the user is tasked with marking the notation components themselves.

The precise behaviour of `\comp` is governed by the macro `\@comp`, which takes two arguments: The tex code of the text (unexpanded) to highlight, and the URI of the current symbol. `\@comp` can be safely redefined to customize the behaviour.

The starred variant `\symdecl*{foo}` does not introduce a semantic macro, but still declares a corresponding symbol. `foo` (like any other symbol, for that matter) can then be accessed via `\STEXsymbol{foo}` or (if `foo` was declared in a module `Foo`) via `\STEXModule{Foo}?{foo}`.

both `\STEXsymbol` and `\STEXModule` take any arbitrary ending segment of a full URI to determine which symbol or module is meant. e.g. `\STEXsymbol{Foo?foo}` is also valid, as are e.g. `\STEXModule{path?Foo}?{foo}` or `\STEXsymbol{path?Foo?foo}`

There's also a convient shortcut `\symref{?foo}{some text}` for `\STEXsymbol{?foo}![some text]`

2.2.1 Other Argument Types

So far, we have stated the arity of a semantic macro directly. This works if we only have “normal” (or more precisely: *i*-type) arguments. To make use of other argument types, instead of providing the arity numerically, we can provide it as a sequence of characters representing the argument types – e.g. instead of writing `args=2`, we can equivalently write `args=ii`, indicating that the macro takes two *i*-type arguments.

Besides *i*-type arguments, \TeX has two other types, which we will discuss now.

The first are *binding* (*b*-type) arguments, representing variables that are *bound* by the operator. This is the case for example in the above `\forevery`-macro: The first argument is not actually an argument that the `forevery` “function” is “applied” to; rather, the first argument is a new variable (e.g. x) that is *bound* in the subsequent argument. More accurately, the macro should therefore have been implemented thusly:

```
\symdef[args=bi]{forevery}{\forall #1.\; #2}
```

b-type arguments are indistinguishable from *i*-type arguments within \TeX , but are treated very differently in OMDoc and by MMT. More interesting *within* \TeX are *a*-type arguments, which represent (associative) arguments of flexible arity, which are provided as comma-separated lists. This allows e.g. better representing the `\mult`-macro above:

Example 7

```
\symdef[ args=a]{mult}{#1}{#1 \comp \cdot #2}
 $\mult{a,b,c,{d^e},f}$ 
```

$$a \cdot b \cdot c \cdot d^e \cdot f$$

As the example above shows, notations get a little more complicated for associative arguments. For every *a*-type argument, the `\notation`-macro takes an additional argument that declares how individual entries in an *a*-type argument list are aggregated. The

first notation argument then describes how the aggregated expression is combined into the full representation.

For a more interesting example, consider a flexary operator for ordered sequences in ordered set, that taking arguments $\{a, b, c\}$ and \mathbb{R} prints $a \leq b \leq c \in \mathbb{R}$. This operator takes two arguments (an a-type argument and an i-type argument), aggregates the individuals of the associative argument using \leq , and combines the result with \in and the second argument thusly:

Example 8

```
\symdef[ args=ai]{numseq}{#1 \comp\in #2}{#1 \comp\leq #2}
 $\numseq{a,b,c}{\mathbb{R}}$ 
```

$$a \leq b \leq c \in \mathbb{R}$$

Finally, B-type arguments combine the functionalities of a and b, i.e. they represent flexary binding operator arguments.

2.2.2 Precedences

Every notation has an (upwards) *operator precedence* and for each argument a (downwards) *argument precedence* used for automated bracketing. For example, a notation for a binary operator `\foo` could be declared like this:

```
\notation[prec=200;500x600]{foo}{#1 \comp{+} #2}
```

assigning an operator precedence of 200, an argument precedence of 500 for the first argument, and an argument precedence of 600 for the second argument.

TeX insert brackets thusly: Upon encountering a semantic macro (such as `\foo`), its operator precedence (e.g. 200) is compared to the current downwards precedence (initially `\neginfprec`). If the operator precedence is *smaller* than the current downwards precedence, parentheses are inserted around the semantic macro.

Notations for symbols of arity 0 have a default precedence of `\infprec`, i.e. by default, parentheses are never inserted around constants. Notations for symbols with arity > 0 have a default operator precedence of 0. If no argument precedences are explicitly provided, then by default they are equal to the operator precedence.

Consequently, if some operator A should bind stronger than some operator B , then A s operator precedence should be larger than B s argument precedences.

For example:

Example 9

```
\notation[prec=50]{plus}{#1 \comp{+} #2}
\notation[prec=100]{times}{#1 \comp{\cdot} #2}
 $\plus{a}{\times{b}{c}}$  and  $\times{a}{\plus{b}{c}}$ 
```

$$a + b \cdot c \text{ and } a \cdot (b + c)$$

²EdNOTE: what about e.g. $\int \int \int f \, dx \, dy \, dz$?

³EdNOTE: “decompose” a-type arguments into fixed-arity operators?

2.3 Archives and Imports

2.3.1 Namespaces

Ideally, \S\TeX would use arbitrary URIs for modules, with no forced relationships between the *logical* namespace of a module and the *physical* location of the file declaring the module – like MMT does things.

Unfortunately, \TeX only provides very restricted access to the file system, so we are forced to generate namespaces systematically in such a way that they reflect the physical location of the associated files, so that \S\TeX can resolve them accordingly. Largely, users need not concern themselves with namespaces at all, but for completeness sake, we describe how they are constructed:

- If $\text{\begin{module}\{Foo\}}$ occurs in a file `/path/to/file/Foo[.<lang>].tex` which does not belong to an archive, the namespace is `file://path/to/file`.
- If the same statement occurs in a file `/path/to/file/bar[.<lang>].tex`, the namespace is `file://path/to/file/bar`.

In other words: outside of archives, the namespace corresponds to the file URI with the filename dropped iff it is equal to the module name, and ignoring the (optional) language suffix¹.

If the current file is in an archive, the procedure is the same except that the initial segment of the file path up to the archive’s `source`-folder is replaced by the archive’s namespace URI.

2.3.2 Paths in Import-Statements

Conversely, here is how namespaces/URIs and file paths are computed in import statements, exemplary \importmodule :

- $\text{\importmodule}\{Foo\}$ outside of an archive refers to module `Foo` in the current namespace. Consequently, `Foo` must have been declared earlier in the same document or, if not, in a file `Foo[.<lang>].tex` in the same directory.
- The same statement *within* an archive refers to either the module `Foo` declared earlier in the same document, or otherwise to the module `Foo` in the archive’s top-level namespace. In the latter case, it has to be declared in a file `Foo[.<lang>].tex` directly in the archive’s `source`-folder.
- Similarly, in $\text{\importmodule}\{some/path?Foo\}$ the path `some/path` refers to either the sub-directory and relative namespace path of the current directory and namespace outside of an archive, or relative to the current archive’s top-level namespace and `source`-folder, respectively.

The module `Foo` must either be declared in the file `<top-directory>/some/path/Foo[.<lang>].tex`, or in `<top-directory>/some/path[.<lang>].tex` (which are checked in that order).

- Similarly, $\text{\importmodule}[Some/Archive]\{some/path?Foo\}$ is resolved like the previous cases, but relative to the archive `Some/Archive` in the mathhub-directory.

¹which is internally attached to the module name instead, but a user need not worry about that.

- Finally, `\importmodule{full://uri?Foo}` naturally refers to the module `Foo` in the namespace `full://uri`. Since the file this module is declared in can not be determined directly from the URI, the module must be in memory already, e.g. by being referenced earlier in the same document.

Since this is less compatible with a modular development, using full URIs directly is discouraged.

3 Documentation

3.1 Utils

<code>\sTeX</code>	both print this sTeX logo.
<code>\stex</code>	

<code>\stex_debug:n</code>	<code>\stex_debug:n {⟨message⟩}</code>
----------------------------	--

Logs `⟨message⟩`, if the package option `debug` is used.

<code>\stex_kpsewhich:n</code>	<code>\stex_kpsewhich:n</code> executes <code>kpsewhich</code> and stores the return in <code>\l_stex_kpsewhich_return_str</code> . This does not require shell escaping.
--------------------------------	---

<code>\stex_addtosms:n</code>	Adds the provided code to the <code>.sms</code> -file of the document.
-------------------------------	--

3.1.1 S_{CA}TeX, L_{AT}EXML and H_TML Annotations

<code>\if@latexml</code>	L _{AT} E _X 2e and L _{AT} E _X 3 conditionals for L _{AT} EXML.
<code>\latexml_if_p:</code>	
<code>\latexml_if:T</code>	
<code>\latexml_if:F</code>	
<code>\latexml_if:TF</code>	

We have four macros for annotating generated HTML (via L_{AT}EXML or S_{CA}TeX) with attributes:

<code>\stex_annotate:nnn</code>	<code>\stex_annotate:nnn {⟨property⟩} {⟨resource⟩} {⟨content⟩}</code>
<code>\stex_annotate_invisible:nnn</code>	
<code>\stex_annotate_invisible:n</code>	

Annotates the HTML generated by `⟨content⟩` with

`property="stex:⟨property⟩", resource="⟨resource⟩".`

`\stex_annotate_invisible:n` adds the attributes

`stex:visible="false", style="display:none".`

`\stex_annotate_invisible:nnn` combines the functionality of both.

<code>stex_annotate_env</code>	$\begin{array}{l} \backslash\text{begin}\{\text{stex_annotate_env}\}\{\langle\text{property}\rangle\}\{\langle\text{resource}\rangle\} \\ \langle\text{content}\rangle \\ \backslash\text{end}\{\text{stex_annotate_env}\} \end{array}$ behaves like <code>\stex_annotate:nnn</code> $\{\langle\text{property}\rangle\} \{\langle\text{resource}\rangle\} \{\langle\text{content}\rangle\}$.
--------------------------------	---

3.1.2 Languages

<code>\c_stex_languages_prop</code>
<code>\c_stex_language_abbrevs_prop</code>

Map language abbreviations to their full babel names and vice versa. e.g. `\c_stex_languages_prop{en}` yields `english`, and `\c_stex_language_abbrevs_prop{english}` yields `en`.

3.2 Files, Paths, URIs

<code>\stex_path_from_string:Nn</code>	<code>\stex_path_from_string:Nn</code> $\langle\text{path-variable}\rangle \{\langle\text{string}\rangle\}$
<code>\stex_path_from_string:(NV cn cV)</code>	

turns the $\langle\text{string}\rangle$ into a path by splitting it at `/`-characters and stores the result in $\langle\text{path-variable}\rangle$. Also applies `\stex_path_canonicalize:N`.

<code>\stex_path_to_string:NN</code>
<code>\stex_path_to_string:N</code>

The inverse; turns a path into a string and stores it in the second argument variable, or leaves it in the input stream.

<code>\stex_path_canonicalize:N</code>
--

Canonicalizes the path provided; in particular, resolves `.` and `..` path segments.

<code>\stex_path_if_absolute_p:N</code> *
<code>\stex_path_if_absolute:NTF</code> *

Checks whether the path provided is *absolute*, i.e. starts with an empty segment

<code>\c_stex_pwd_seq</code>
<code>\c_stex_pwd_str</code>
<code>\c_stex_mainfile_seq</code>

Store the current working directory as path-sequence and string, respectively, and the (heuristically guessed) full path to the main file, based on the PWD and `\jobname`.

<code>\g_stex_currentfile_seq</code>

The file being currently processed (respecting `\input` etc.)

Test 1

```
\ExplSyntaxOn
\def\cpath@print#1{
\stex_path_from_string:Nn \l_tmpb_seq { #1 }
\stex_path_to_string:NN \l_tmpb_seq \l_tmpa_str
\str_use:N \l_tmpa_str
}
\ExplSyntaxOff
\begin{center}
\begin{tabular}{|l|l|l|}\hline
path & canonicalized path & expected\\\hline
aaa & \cpath@print{aaa} & aaa \\
../.. / aaa & \cpath@print{../.. / aaa} & ../.. / aaa \\
aaa/bbb & \cpath@print{aaa/bbb} & aaa/bbb \\
aaa/.. & \cpath@print{aaa/..} & \\
../.. / aaa/bbb & \cpath@print{../.. / aaa/bbb} & ../.. / aaa/bbb \\
../aaa /.. / bbb & \cpath@print{../aaa /.. / bbb} & ../ bbb \\
../aaa/bbb & \cpath@print{../aaa/bbb} & ../aaa/bbb \\
aaa/bbb /.. / ddd & \cpath@print{aaa/bbb /.. / ddd} & aaa/ddd \\
aaa/bbb /.. / ddd & \cpath@print{aaa/bbb /.. / ddd} & aaa/bbb/ddd \\
./ & \cpath@print{./} & \\
aaa/bbb /.. /.. & \cpath@print{aaa/bbb /.. /..} & \\
\end{tabular}
\end{center}
```

path	canonicalized path	expected
aaa	aaa	aaa
../.. / aaa	../.. / aaa	../.. / aaa
aaa/bbb	aaa/bbb	aaa/bbb
aaa/..		
../.. / aaa/bbb	../.. / aaa/bbb	../.. / aaa/bbb
../aaa /.. / bbb	../ bbb	../ bbb
../aaa/bbb	../aaa/bbb	../aaa/bbb
aaa/bbb /.. / ddd	aaa/ddd	aaa/ddd
aaa/bbb /.. / ddd	aaa/bbb/ddd	aaa/bbb/ddd
./		
aaa/bbb /.. /..		

3.3 MathHub Archives

`\mathhub`
`\c_stex_mathhub_seq`
`\c_stex_mathhub_str`

We determine the path to the local MathHub folder via one of three means, in order of precedence:

1. The `mathhub` package option, or
2. the `\mathhub`-macro, if it has been defined before the `\usepackage{stex}`-statement, or
3. the `MATHHUB` system variable.

In all three cases, `\c_stex_mathhub_seq` and `\c_stex_mathhub_str` are set accordingly.

`\l_stex_current_repository_prop`

Always points to the *current* MathHub repository (if we currently are in one). Has the fields `id`, `ns` (namespace), `narr` (narrative namespace; currently not in use) and `deps` (dependencies; currently not in use).

`\stex_set_current_repository:n`

Sets the current repository to the one with the provided ID. calls `__stex_mathhub_do_manifest:n`, so works whether this repository's MANIFEST.MF-file has already been read or not.

`\stex_require_repository:n`

Calls `__stex_mathhub_do_manifest:n` iff the corresponding archive property list does not already exist, and adds a corresponding definition to the `.sms`-file.

`\libinput`

`\libinput{<filename>}`

Inputs `<filename>.tex` from the `lib` folders in the current archive and the `meta-inf`-archive of the current archive group (if existent). Throws an error if no file by that name exists in either folder, includes both if both exist.

Test 2

```
\ExplSyntaxOn
\stex_require_repository:n { Foo/Bar }
id:-\prop_item:cn {c_stex_mathhub_Foo/Bar_manifest_prop} {id}\ \
narr:-\prop_item:cn {c_stex_mathhub_Foo/Bar_manifest_prop} {narr}\ \
ns:-\prop_item:cn {c_stex_mathhub_Foo/Bar_manifest_prop} {ns}\ \
deps:-\prop_item:cn {c_stex_mathhub_Foo/Bar_manifest_prop} {deps}\ \
\stex_require_repository:n { Bar/Foo }
\ExplSyntaxOff
```

```
id: Foo/Bar
narr:
ns: http://mathhub.info/tests/Foo/Bar
deps:
```

3.4 The Module System

`\l_stex_current_module_prop`

All information of a module is stored as a property list. `\l_stex_current_module_prop` always points to the current module (if existent).

Most importantly, the `content`-field stores all the code to execute on activation; i.e. when this module is being included.

Additionally, it stores:

- The *name* in field `name`,
- the *namespace* in field `ns`,
- this module's *language* in field `lang`,
- if a language module that translates some other modules, the *original* module in field `sig` (for signature),
- the *metatheory* in field `meta`,
- the URIs of all *imported modules* in field `imports`,
- the names of all *declarations* in field `constants`,
- the *file* this module was declared in in field `file`,

`\stex_if_in_module_p: *` Conditional for whether we are currently in a module
`\stex_if_in_module:TF *`

`\stex_if_module_exists_p:n *`
`\stex_if_module_exists:nTF *`

Conditional for whether a module with the provided URI is already known.

`\stex_add_to_current_module:n`
`\STEXexport`

Adds the provided tokens to the `content` field of the current module.

`\stex_add_constant_to_current_module:n`

Adds the declaration with the provided name to the `constants` field of the current module.

`\stex_add_import_to_current_module:n`

Adds the module with the provided full URI to the `imports` field of the current module.

<code>\stex_modules_compute_namespace:nN</code>	<code>\stex_modules_compute_namespace:nN</code> <code>{\langle namespace \rangle} {\langle path \rangle}</code>
---	--

Computes the namespace for file $\langle path \rangle$ in repository with namespace $\langle namespace \rangle$ as follows:

If the file is `.../source/sub/file.tex` and the namespace `http://some.namespace/foo`, then the namespace of is `http://some.namespace/foo/sub/file`.

<code>\stex_modules_current_namespace:</code>

Computes the current namespace

Test 3

```

\ExplSyntaxOn
\stex_modules_current_namespace:
Namespace~1:\\ \l_stex_modules_ns_str \\
Faking~a~repository:\\
\stex_set_current_repository:n{Foo/Bar}
\seq_pop_right:NN \g_stex_currentfile_seq \testtemp
\edef\testtempb{\detokenize{source}}
\exp_args:NNo \seq_put_right:Nn \g_stex_currentfile_seq { \testtempb }
\edef\testtempb{\detokenize{test}}
\exp_args:NNo \seq_put_right:Nn \g_stex_currentfile_seq { \testtempb }
\exp_args:NNo \seq_put_right:Nn \g_stex_currentfile_seq { \testtemp }
\stex_modules_current_namespace:
Namespace~2:\\ \l_stex_modules_ns_str
\ExplSyntaxOff

```

```

Namespace 1:
file://home/jazzpirate/work/Software/ext/sTeX/sty/stex-master/stextest
Faking a repository:
Namespace 2:
http://mathhub.info/tests/Foo/Bar/test/stextest

```

3.4.1 The module-environment

<code>module</code>	<code>\begin{module}[\langle options \rangle]{\langle name \rangle}</code> Opens a new module with name $\langle name \rangle$. TODO document options.
---------------------	---

<code>\stex_modules_heading:</code>	Takes care of the module header, if the <code>showmods</code> package option is true. This macro can be overridden for customization.
-------------------------------------	---

<code>@module</code>	<code>\begin{@module}[\langle options \rangle]{\langle name \rangle}</code> Core functionality of the <code>module-environment</code> without a header.
----------------------	--

Test 4

```
\ExplSyntaxOn
\stex_set_current_repository:n {Foo/Bar}
\seq_pop_right:NN \g_stex_currentfile_seq \l_tmpa_tl
\seq_put_right:Nx \g_stex_currentfile_seq { \tl_to_str:n{tests} }
\seq_put_right:Nx \g_stex_currentfile_seq { \tl_to_str:n{Foo} }
\seq_put_right:Nx \g_stex_currentfile_seq { \tl_to_str:n{Bar} }
\seq_put_right:Nx \g_stex_currentfile_seq { \tl_to_str:n{source} }
\seq_put_right:Nx \g_stex_currentfile_seq { \tl_to_str:n{Foo.tex} }
\begin{@module}{Foo}
Module-path:-
\prop_item:Nn \l_stex_current_module_prop { ns }?
\prop_item:Nn \l_stex_current_module_prop { name }\\
Language:-\prop_item:Nn \l_stex_current_module_prop { lang }\\
Signature:-\prop_item:Nn \l_stex_current_module_prop { sig }\\
Metatheory:-\prop_item:Nn \l_stex_current_module_prop { meta }\\
\end{@module}
\ExplSyntaxOff
```

```
Module path: http://mathhub.info/tests/Foo/Bar?Foo
Language:
Signature:
Metatheory:
```

Test 5

```
\ExplSyntaxOn
\stex_set_current_repository:n {Foo/Bar}
\stex_debug:n{Test:-\stex_path_to_string:N \g_stex_currentfile_seq }
\seq_pop_right:NN \g_stex_currentfile_seq \l_tmpa_tl
\seq_put_right:Nx \g_stex_currentfile_seq { \tl_to_str:n{tests} }
\seq_put_right:Nx \g_stex_currentfile_seq { \tl_to_str:n{Foo} }
\seq_put_right:Nx \g_stex_currentfile_seq { \tl_to_str:n{Bar} }
\seq_put_right:Nx \g_stex_currentfile_seq { \tl_to_str:n{source} }
\seq_put_right:Nx \g_stex_currentfile_seq { \tl_to_str:n{Foo.tex} }
\stex_debug:n{Test:-\stex_path_to_string:N \g_stex_currentfile_seq }
\begin{module}[title=Foo Bar]{Bar}
Module-path:-
\prop_item:Nn \l_stex_current_module_prop { ns }?
\prop_item:Nn \l_stex_current_module_prop { name }\\
Language:-\prop_item:Nn \l_stex_current_module_prop { lang }\\
Signature:-\prop_item:Nn \l_stex_current_module_prop { sig }\\
Metatheory:-\prop_item:Nn \l_stex_current_module_prop { meta }\\
\end{module}
\ExplSyntaxOff
```

```
Module 3.1[Bar] (FooBar)
Module path: http://mathhub.info/tests/Foo/Bar/Foo?Bar
Language:
Signature:
Metatheory:
```

\l_stex_all_modules_seq

Stores full URIs for all modules currently in scope.

\STEXModule

\STEXModule {*<fragment>*}

Attempts to find a module whose URI ends with *<fragment>* in the current scope and passes the full URI on to \stex_invoke_module:n.

`\stex_invoke_module:n`

Invoked by `\STEXModule`. Needs to be followed either by `!\langle macro \rangle` or `?{\langle symbolname \rangle}`. In the first case, it stores the full URI in `\langle macro \rangle`; in the second case, it invokes the symbol `\langle symbolname \rangle` in the selected module.

Test 6

```
\begin{module}{STEXModuleTest1}
\syndeci{foo}
\end{module}
\begin{module}{STEXModuleTest2}
\importmodule{STEXModuleTest1}
\syndeci{foo}
\end{module}
\begin{module}{STEXModuleTest3}
\importmodule{STEXModuleTest2}
\syndeci{foo}
\STEXModule{STEXModuleTest1}!\teststring
\teststring\
\STEXModule{STEXModuleTest2}!\teststring
\teststring\
\STEXModule{STEXModuleTest3}!\teststring
\teststring\
\STEXModule{STEXModuleTest1}?{foo}{\comp{foo1}}\
\STEXModule{STEXModuleTest2}?{foo}{\comp{foo2}}\
\STEXModule{STEXModuleTest3}?{foo}{\comp{foo3}}\
\end{module}
```

Module 3.2[STEXModuleTest1]

Module 3.3[STEXModuleTest2]

Module 3.4[STEXModuleTest3]
file://home/jazzpirate/work/Software/ext/sTeX/sty/stex-master/stextest?STEXModuleTest1
file://home/jazzpirate/work/Software/ext/sTeX/sty/stex-master/stextest?STEXModuleTest2
file://home/jazzpirate/work/Software/ext/sTeX/sty/stex-master/stextest?STEXModuleTest3
foo1
foo2
foo3

3.4.2 SMS Mode

“SMS Mode” is used when loading modules from external tex files. It deactivates any output and ignores all \TeX commands not explicitly allowed via the following lists:

`\g_stex_smsmode_allowedmacros_tl`

Macros that are executed as is; i.e. with the category code scheme used in SMS mode.

`\g_stex_smsmode_allowedmacros_escape_tl`

Macros that are executed with the category codes restored.

Importantly, these macros need to call `\stex_smsmode_set_codes:` after reading all arguments. Note, that `\stex_smsmode_set_codes:` takes care of checking whether we are in SMS mode in the first place, so calling this function eagerly is unproblematic.

`\g_stex_smsmode_allowedenvs_seq`

The names of environments that should be allowed in SMS mode. The corresponding `\begin`-statements are treated like the macros in `\g_stex_smsmode_allowedmacros_escape_tl`, so `\stex_smsmode_set_codes:` should be called at the end of the `\begin`-code. Since `\end`-statements take no arguments anyway, those are called with the SMS mode category code scheme active.

`\stex_if_smsmode_p: *`
`\stex_if_smsmode:TF *`

Tests whether SMS mode is currently active.

`\stex_smsmode_set_codes:`

Sets the current category code scheme to that of the SMS mode, if SMS mode is currently active and if necessary.

This method should be called at the end of every macro or `\begin` environment code that are allowed in SMS mode.

`\stex_in_smsmode:nn`

`\stex_in_smsmode:nn {<name>} {<code>}`

Executes `<code>` in SMS mode. `<name>` can be arbitrary, but should be distinct, since it allows for nesting `\stex_in_smsmode:nn` without spuriously terminating SMS mode.

Test 7

```
\immediate\openout\testfile=./tests/sometest.tex
\immediate\write\testfile{\detokenize{\this is \a test}^~J}
\immediate\write\testfile{\detokenize{this \is a \test}}
\immediate\closeout\testfile
\ExplSyntaxOn
\stex_in_smsmode:nn { foo } {
  \input{tests/sometest.tex}
}
\ExplSyntaxOff
```

3.4.3 Imports and Inheritance

`\importmodule`

`\importmodule[<archive-ID>]{<module-path>}`

Imports a module by reading it from a file and “activating” it. `\TeX` determines the module and its containing file by passing its arguments on to `\stex_import_module_path:nn`.

Test 8

```
\begin{module}{Foo}
\symdecl[name=foo, args=3]{bar}
\symdecl[ args=bai]{foobar}
Meaning:-\present\bar\
\end{module}
Meaning:-\present\bar\
\begin{module}{Importtest}
\importmodule{Foo}
Meaning:-\present\bar\
\end{module}
\begin{module}{Importtest2}
\importmodule{Importtest}
Meaning:-\present\bar\
\end{module}
```

```
Module 3.5[Foo]
Meaning: >macro:->\stex_invoke_symbol:n {file://home/jazzpirate/work/Software/ext/sTeX/sty/stex-master/stextest?Foo?foo}<
```

```
Meaning: >macro:->\protect \bar <
```

```
Module 3.6[Importtest]
Meaning: >macro:->\stex_invoke_symbol:n {file://home/jazzpirate/work/Software/ext/sTeX/sty/stex-master/stextest?Foo?foo}<
```

```
Module 3.7[Importtest2]
Meaning: >macro:->\stex_invoke_symbol:n {file://home/jazzpirate/work/Software/ext/sTeX/sty/stex-master/stextest?Foo?foo}<
```

`\usemodule` `\importmodule[⟨archive-ID⟩]{⟨module-path⟩}`

Like `\importmodule`, but does not export its contents; i.e. including the current module will not activate the used module

Test 9

```
\begin{module}{UseTest1}
\symdecl{foo}
\end{module}
\begin{module}{UseTest2}
\usemodule{UseTest1}
\symdecl{bar}
Meaning:-\present\foo\
\end{module}
\begin{module}{UseTest3}
\importmodule{UseTest2}
Meaning:-\present\foo\
Meaning:-\present\bar\

All modules: \ExplSyntaxOn
\seq_use:Nn \l_stex_all_modules_seq {,-} \
All-symbols:-
\seq_use:Nn \l_stex_all_symbols_seq {,-}
\ExplSyntaxOff
\end{module}
```

Module 3.8[UseTest1]

Module 3.9[UseTest2]
Meaning: »macro:->\stex_invoke_symbol:n {file://home/jazzpirate/work/Software/ext/sTeX/sty/stex-master/stextest?UseTest1?foo}<

Module 3.10[UseTest3]
Meaning: »undefined«
Meaning: »macro:->\stex_invoke_symbol:n {file://home/jazzpirate/work/Software/ext/sTeX/sty/stex-master/stextest?UseTest2?bar}<
All modules: file://home/jazzpirate/work/Software/ext/sTeX/sty/stex-master/stextest?UseTest3, http://mathhub.info/sTeX?Metath
file://home/jazzpirate/work/Software/ext/sTeX/sty/stex-master/stextest?UseTest2
All symbols: http://mathhub.info/sTeX?Metatheory?isa, http://mathhub.info/sTeX?Metatheory?bind, http://mathhub.info/sTeX?Metatheo
http://mathhub.info/sTeX?Metatheory?fromto, http://mathhub.info/sTeX?Metatheory?apply, http://mathhub.info/sTeX?Metatheory?collec
http://mathhub.info/sTeX?Metatheory?seqtype, http://mathhub.info/sTeX?Metatheory?sequence-index, http://mathhub.info/sTeX?Metath
http://mathhub.info/sTeX?Metatheory?letin, http://mathhub.info/sTeX?Metatheory?module-type, http://mathhub.info/sTeX?Metatheory?
structure, file://home/jazzpirate/work/Software/ext/sTeX/sty/stex-master/stextest?UseTest2?bar

Test 10

Circular dependencies:

```

\begin{module}{CircDep1}
\importmodule[Foo/Bar]{circular1?Circular1}
\importmodule[Bar/Foo]{circular2?Circular2}
\present\fooA\
\present\fooB\
\end{module}

```

Circular dependencies:

Module 3.11[CircDep1]
»macro:->\stex_invoke_symbol:n {http://mathhub.info/tests/Foo/Bar/circular1?Circular1?fooA}<
»macro:->\stex_invoke_symbol:n {http://mathhub.info/tests/Bar/Foo/circular2?Circular2?fooB}<

<hr/> <hr/>	<hr/>
<code>\stex_import_module_uri:nn</code>	<code>\stex_import_module_uri:nn {<archive-ID>} {<module-path>}</code>
	Determines the URI of a module by splitting <code><module-path></code> into <code><path>?<name></code> . If <code><module-path></code> does <i>not</i> contain a <code>?</code> -character, we consider it to be the <code><name></code> , and <code><path></code> to be empty. If <code><archive-ID></code> is empty, it is automatically set to the ID of the current archive (if one exists).
	1. If <code><archive-ID></code> is empty:
	(a) If <code><path></code> is empty, then <code><name></code> must have been declared earlier in the same file and retrievable from <code>\g_stex_modules_in_file_seq</code> , or a file with name <code><name>.<lang>.tex</code> must exist in the same folder, containing a module <code><name></code> . That module should have the same namespace as the current one.
	(b) If <code><path></code> is not empty, it must point to the relative path of the containing file as well as the namespace.
	2. Otherwise:
	(a) If <code><path></code> is empty, then <code><name></code> must have been declared earlier in the same file and retrievable from <code>\g_stex_modules_in_file_seq</code> , or a file with name <code><name>.<lang>.tex</code> must exist in the top <code>source</code> folder of the archive, containing a module <code><name></code> . That module should lie directly in the namespace of the archive.
	(b) If <code><path></code> is not empty, it must point to the path of the containing file as well as the namespace, relative to the namespace of the archive. If a module by that namespace exists, it is returned. Otherwise, we call <code>\stex_require_module:nn</code> on the <code>source</code> directory of the archive to find the file.

<code>\stex_import_require_module:nnnn</code>	<code>{<ns>} {<archive-ID>} {<path>} {<name>}</code>
---	--

Checks whether a module with URI `<ns>?<name>` already exists. If not, it looks for a plausible file that declares a module with that URI.

Finally, activates that module by executing its `content`-field.

<code>\g_stex_module_files_prop</code>	
<code>\g_stex_modules_in_file_seq</code>	

A property list mapping file paths to the lists of all modules declared therein. `\g_stex_modules_in_file_seq` always points to the current file(-stream - `\inputs` are considered the same file).

<code>\stex_activate_module:n</code>	Activate the module with the provided URI; i.e. executes all macro code of the module's <code>content</code> -field (does nothing if the module is already activated in the current context)
--------------------------------------	--

3.5 Symbols and Terms

`\symdecl` `\symdecl[⟨args⟩]{⟨macroname⟩}`

Declares a new symbol with semantic macro `\macroname`. Optional arguments are:

- **name**: An (OMDOC) name. By default equal to `⟨macroname⟩`.
- **type**: An (ideally semantic) term. Not used by $\text{\S}\text{\TeX}$, but passed on to MMT for semantic services.
- **local**: A boolean (by default false). If set, this declaration will not be added to the module content, i.e. importing the current module will not make this declaration available.
- **args**: Specifies the “signature” of the semantic macro. Can be either an integer $0 \leq n \leq 9$, or a (more precise) sequence of the following characters:
 - i a “normal” argument, e.g. `\symdecl[args=ii]{plus}` allows for `\plus{2}{2}`.
 - a an *associative* argument; i.e. a sequence of arbitrarily many arguments provided as a comma-separated list, e.g. `\symdecl[args=a]{plus}` allows for `\plus{2,2,2}`.
 - b a *variable* argument. Is treated by $\text{\S}\text{\TeX}$ like an i-argument, but an application is turned into an `OMBind` in OMDOC, binding the provided variable in the subsequent arguments of the operator; e.g. `\symdecl[args=bi]{forall}` allows for `\forall{x\in\text{\Nat}}{x\geq 0}`.

`\stex_symdecl_do:n`

Implements the core functionality of `\symdecl`, and is called by `\symdecl` and `\symdef`.

Ultimately stores the symbol `⟨URI⟩` in the property list `\g_stex_symdecl_⟨URI⟩_prop` with fields:

- **name** (string),
- **module** (string),
- **notations** (sequence of strings; initially empty),
- **local** (boolean),
- **type** (token list),
- **args** (string of is, as and bs),
- **arity** (integer string),
- **assocs** (integer string; number of associative arguments),

Test 11

```
\begin{module}{SymdeclTest}
\symdecl[name=foo, args=3]{bar}
\symdecl[name=foobar, args=iab]{bari}
\symdecl[def=\bar* abc]{bardef}
\ExplSyntaxOn
Meaning:-\present\bar\
\stex_get_symbol:n { bar }
Result:-\l_stex_get_symbol_uri_str\
Meaning:-\present\bardef\
\ExplSyntaxOff
\end{module}
```

```
Module 3.12[SymdeclTest]
Meaning: »macro:->\stex_invoke_symbol:n {file://home/jazzpirate/work/Software/ext/sTeX/sty/stex-master/stextest?SymdeclTest?foo}<
Result: file://home/jazzpirate/work/Software/ext/sTeX/sty/stex-master/stextest?SymdeclTest?foo
Meaning: »macro:->\stex_invoke_symbol:n {file://home/jazzpirate/work/Software/ext/sTeX/sty/stex-master/stextest?SymdeclTest?bardef}<
```

\l_stex_all_symbols_seq

Stores full URIs for all modules currently in scope.

\stex_get_symbol:n

Computes the full URI of a symbol from a macro argument, e.g. the macro name, the macro itself, the full URI...

\STEXsymbol

Uses `\stex_get_symbol:n` to find the symbol denoted by the first argument and passes the result on to `\stex_invoke_symbol:n`

\symref

`\symref{⟨symbol⟩}{⟨text⟩}`
shortcut for `\STEXsymbol{⟨symbol⟩}! [⟨text⟩]`

\stex_invoke_symbol:n

Executes a semantic macro. Outside of math mode or if followed by `*`, it continues to `\stex_term_custom:nn`. In math mode, it uses the default or optionally provided notation of the associated symbol.

If followed by `!`, it will invoke the symbol *itself* rather than its application (and continue to `\stex_term_custom:nn`), i.e. it allows to refer to `\plus!`[addition] as an operation, rather than `\plus`[addition of]{some}{terms}.

\notation

`\notation[⟨args⟩]{⟨symbol⟩}{⟨notations+⟩}`
Introduces a new notation for `⟨symbol⟩`, see `\stex_notation_do:nn`

`\stex_notation_do:nn`

`\stex_notation_do:nn{<URI>}{<notations+>}`

Implements the core functionality of `\notation`, and is called by `\notation` and `\symdef`.

Ultimately stores the notation in the property list `\g_stex_notation_<URI>#<variant>#<lang>_prop` with fields:

- symbol (URI string),
- language (string),
- variant (string),
- opprec (integer string),
- argprecs (sequence of integer strings)

Test 12

```
\begin{module}{NotationTest}
\importmodule{Foo}
\notation{foo, prec=500;20x20x20}{bar}{\comp\langle {#1} ^ {#2} _ {#3} \comp\rangle }
\notation{foo, prec=500;20x20x20}{foobar}{\comp\langle #1 \comp\mid [ #2 ] ^ {#3} \comp\rangle }{ {#1}_ {\comp
```

Module 3.13[NotationTest]

`\symdef`

`\symdef[<args>]{<symbol>}{<notations+>}`

Combines `\symdecl` and `\notation` by introducing a new symbol and assigning a new notation for it.

Test 13

```
\begin{module}{SymdefTest}
\symdef[ args=a, prec=50]{ plus }{ #1 }{#1 \comp+ #2}
$\plus{ a,b,c }$
\end{module}
```

Module 3.14[SymdefTest]
 $a+b+c$

`_stex_term_math_oms:nnnn`
`_stex_term_math_oma:nnnn`
`_stex_term_math_omb:nnnn`

`<URI><fragment><precedence><body>`

Annotates `<body>` as an OMDOC-term (OMID, OMA or OMBIND, respectively) with head symbol `<URI>`, generated by the specific notation `<fragment>` with (upwards) operator precedence `<precedence>`. Inserts parentheses according to the current downwards precedence and operator precedence.

<code>\stex_term_math_arg:nnn</code>	<code>\stex_term_arg:nnn⟨int⟩⟨prec⟩⟨body⟩</code>
--------------------------------------	--

Annotates $\langle body \rangle$ as the $\langle int \rangle$ th argument of the current OMA or OMBIND, with (downwards) argument precedence $\langle prec \rangle$.

<code>\stex_term_math_assoc_arg:nnnn</code>	<code>\stex_term_arg:nnn⟨int⟩⟨prec⟩⟨notation⟩⟨body⟩</code>
---	--

Annotates $\langle body \rangle$ as the $\langle int \rangle$ th (associative) *sequence* argument (as comma-separated list of terms) of the current OMA or OMBIND, with (downwards) argument precedence $\langle prec \rangle$ and associative notation $\langle notation \rangle$.

<code>\infprec</code> <code>\neginfprec</code>	Maximal and minimal notation precedences.
---	---

<code>\dobrackets</code>	<code>\dobrackets {⟨body⟩}</code>
--------------------------	-----------------------------------

Puts $\langle body \rangle$ in parentheses; scaled if in display mode unscaled otherwise. Uses the current \TeX brackets (by default (and)), which can be changed temporarily using `\withbrackets`.

<code>\withbrackets</code>	<code>\withbrackets ⟨left⟩ ⟨right⟩ {⟨body⟩}</code>
----------------------------	--

Temporarily (i.e. within $\langle body \rangle$) sets the brackets used by \TeX for automated bracketing (by default (and)) to $\langle left \rangle$ and $\langle right \rangle$.

Note that $\langle left \rangle$ and $\langle right \rangle$ need to be allowed after `\left` and `\right` in display-mode.

Test 14

```
\begin{module}{MathTest1}
\importmodule{Foo}
\notation[foo, prec=500;20x20x20]{bar}{\comp\langle {#1} ^ {#2} _ {#3} \comp\rangle }
$\bar{abc}$ and $\bar{foo} \ abc$.
\end{module}
```

```
Module 3.15[MathTest1]
 $\bar{a^b_c}$  and  $\bar{a^b_c}$ .
```

Test 15

```
\begin{module}{MathTest2}
\importmodule{Foo}
\notation[foo, prec=500;20x20x20]{foobar}{\comp\langle #1 \comp\mid [ #2 ] ^ {#3} \comp\rangle }{ {#1} _ {com} }
$\foobar a{b,c,d,e,f}g$ and $\foobar[foo] a{b,c}g$ and $\foobar abc$

\symdecl[ args=a]{ plus }
\symdecl[ args=a]{ mult }
\notation[prec=50]{ plus }{#1}{#1 \comp+ #2}
\notation[prec=100]{ mult }{#1}{#1 \comp\cdot #2}
$\plus{a,\mult{b,c}}$ and $\mult{a,\plus{\frac{ab}{\frac{ac}}{}}}$
$\displaystyle \plus{a,\mult{b,c}}$ and $\mult{a,\plus{\frac{ab}{\frac{ac}}{}}}$
\withbrackets[]{$\displaystyle \mult{a,\plus{\frac{ab}{\frac{ac}}{}}}$}
\end{module}
```


<code>\STEXinvisible</code>	Exports its argument as OMDOC (invisible), but does not produce PDF output. Useful e.g. for semantic macros that take arguments that are not part of the symbolic notation.
-----------------------------	---

<code>\ellipses</code>	TODO
------------------------	------

3.6 Structural Features

<code>symboldoc</code>	<pre>\begin{<symboldoc>}{<symbols>} <text> \end{<symboldoc>}</pre> <p>Declares <code><text></code> to be a (natural language, encyclopaedic) description of <code>{<symbols>}</code> (a comma separated list of symbol identifiers).</p>
------------------------	--

3.6.1 Structures

<code>structure</code>	TODO
------------------------	------

Test 17

```
\begin{module}{StructureTest1}
\begin{structure}[name=Magma]{magma}
\symdef{universe}{\comp M}
\symdef[ args=2]{op}{#1 \comp\circ #2}
$ \isa{\op ab} \universe$
\end{structure}

\ExplSyntaxOn
\prop_get:NnN \g_stex_last_feature__prop {fields} \l_tmpa_seq
\seq_use:Nn \l_tmpa_seq {,}
\ExplSyntaxOff
\end{module}
```

```
Module 3.18[StructureTest1]
  aob:M
  file://home/jazzpirate/work/Software/ext/sTeX/sty/stex-master/stextest?StructureTest1/Magma-feature?universe,file://home/jazzp
  master/stextest?StructureTest1/Magma-feature?op
```

4 Implementation

4.1 The `stex` document class

```
1 <*cls>
2 \RequirePackage{expl3,l3keys2e}
3 \ProvidesExplClass{stex}{2021/08/01}{1.9}{bla}
4 \LoadClass[border=1px,varwidth]{standalone}
5 \setlength\textwidth{15cm}
6 %\g@addto@macro{@parboxrestore}{\setlength\parskip{\baselineskip}}
7
8 \DeclareOption*{\PassOptionsToPackage{\CurrentOption}{stex}}
9 \ProcessOptions
10
11 \RequirePackage{stex}
```

12 \langle /cls \rangle

4.2 Preliminaries

13 \langle *package \rangle
 14 \backslash RequirePackage{expl3,l3keys2e}
 15 \backslash ProvidesExplPackage{stex}{2021/08/01}{1.9}{bla}

Package options:

16 \backslash keys_define:nn { stex } {
 17 debug .bool_set:N = \c_stex_debug_bool ,
 18 showmods .bool_set:N = \c_stex_showmods_bool ,
 19 lang .clist_set:N = \c_stex_languages_clist ,
 20 mathhub .tl_set_x:N = \mathhub ,
 21 sms .bool_set:N = \c_stex_persist_mode_bool ,
 22 image .bool_set:N = \c_tikzinput_image_bool
 23 }
 24 \backslash ProcessKeysOptions { stex }

\backslash sTeX The \TeX logo:

25 \backslash protected\def\stex{%
 26 \backslash @ifundefined{texorpdfstring}%
 27 { \backslash let\texorpdfstring\@firstoftwo}%
 28 {}}%
 29 \texorpdfstring{\raisebox{-.5ex}{S\kern-.5ex\TeX}\{sTeX\}\xspace%
 30 }
 31 \backslash def\sTeX{\stex}

(End definition for \backslash sTeX. This function is documented on page 8.)

Messages

32 \backslash msg_new:nnn{stex}{debug}{}
 33 \backslash msg_new:nnn{stex}{warning/nomathhub}{
 34 MATHHUB~system~variable~not~found~and~no~
 35 \backslash detokenize{\mathhub}-value-set!
 36 }
 37 \backslash msg_new:nnn{stex}{error/norepository}{}

\backslash stex_debug:n Debug mode

38 \backslash cs_new_protected:Nn \stex_debug:n {
 39 \backslash bool_if:NTF{\c_stex_debug_bool}{
 40 \backslash exp_args:Nnn\msg_set:nnn{stex}{debug}{\Debug:~#1\\}
 41 \backslash msg_term:nn{stex}{debug} % should be \msg_note:nn
 42 }
 43 }
 44
 45 \backslash stex_debug:n{Debug~mode~on}

(End definition for \backslash stex_debug:n. This function is documented on page 8.)

\backslash c__stex_sms_iow File variable used for the sms-File

46 \backslash iow_new:N \c__stex_sms_iow
 47 \backslash AddToHook{begindocument}{
 48 \backslash bool_if:NTF \c_stex_persist_mode_bool {
 49 \backslash ExplSyntaxOn \input{\jobname.sms} \ExplSyntaxOff
 50 } {

```

51   \iow_open:Nn \c__stex_sms_iow {\jobname.sms}
52 }
53 }
54 \AddToHook{enddocument}{
55   \bool_if:NF \c_stex_persist_mode_bool {
56     \iow_close:N \c__stex_sms_iow
57   }
58 }

```

(End definition for `\c__stex_sms_iow`.)

`\stex_addtosms:n`

```

59 \cs_new_protected:Nn \stex_addtosms:n {
60   \bool_if:NF \c_stex_persist_mode_bool {
61     \iow_now:Nn \c__stex_sms_iow { #1 }
62   }
63 }

```

(End definition for `\stex_addtosms:n`. This function is documented on page 8.)

4.2.1 L^AT_EX_ML and S^CA_LT_EX

```

64 \RequirePackage{scalatex}

```

We add the namespace abbreviation `ns:stex="http://kwarc.info/ns/sTeX"` to S^CA_LT_EX:

```

65 \scalatex_add_Namespace:nn{stex}{http://kwarc.info/ns/sTeX}

```

`\if@latexml`
`\latexml_if_p:`
`\latexml_if:TF`

Conditionals for L^AT_EX_ML:

```

66 \ifcsname if@latexml\endcsname\else
67   \expandafter\newif\csname if@latexml\endcsname\@latexmlfalse
68 \fi
69
70 \prg_new_conditional:Nnn \latexml_if: {p, T, F, TF} {
71   \if@latexml
72     \prg_return_true:
73   \else:
74     \prg_return_false:
75   \fi:
76 }

```

(End definition for `\if@latexml` and `\latexml_if:TF`. These functions are documented on page 8.)

4.2.2 HTML Annotations

```

77 <@=stex_annotate>

```

`\l__stex_annotate_arg_tl`
`\c__stex_annotate_emptyarg_tl`

Used by annotation macros to ensure that the HTML output to annotate is not empty.

```

78 \tl_new:N \l__stex_annotate_arg_tl
79 \tl_const:Nx \c__stex_annotate_emptyarg_tl {
80   \scalatex_if:TF {
81     \scalatex_direct_HTML:n { \c_ampersand_str lrm; }
82   }{-}
83 }

```

(End definition for `\l__stex_annotate_arg_tl` and `\c__stex_annotate_emptyarg_tl`.)

`_stex_annotate_checkempty:n`

```

84 \cs_new_protected:Nn \_stex_annotate_checkempty:n {
85   \tl_set:Nn \l__stex_annotate_arg_tl { #1 }
86   \tl_if_empty:NT \l__stex_annotate_arg_tl {
87     \tl_set_eq:NN \l__stex_annotate_arg_tl \c__stex_annotate_emptyarg_tl
88   }
89 }

```

(End definition for `_stex_annotate_checkempty:n`.)

`\stex_annotate:nnw`

`\stex_annotate_invisible:n`

`\stex_annotate_invisible:nnn`

We define four macros for introducing attributes in the HTML output. The definitions depend on the “backend” used (L^AT_EXML, S^CA^LT_EX, p^Df^Lat_Ex).

The p^Df^Lat_Ex-macros largely do nothing; the S^CA^LT_EX-implementations are pretty clear in what they do, the L^AT_EXML-implementations resort to perl bindings.

```

90 \scalatex_if:TF{
91   \cs_new_protected:Nn \stex_annotate:nnn {
92     \_stex_annotate_checkempty:n { #3 }
93     \scalatex_annotate_HTML:nn {
94       property="stex:#1" ~
95       resource="#2"
96     } {
97       \tl_use:N \l__stex_annotate_arg_tl
98     }
99   }
100   \cs_new_protected:Nn \stex_annotate_invisible:n {
101     \_stex_annotate_checkempty:n { #1 }
102     \scalatex_annotate_HTML:nn {
103       stex:visible="false" ~
104       style:display="none"
105     } {
106       \tl_use:N \l__stex_annotate_arg_tl
107     }
108   }
109   \cs_new_protected:Nn \stex_annotate_invisible:nnn {
110     \_stex_annotate_checkempty:n { #3 }
111     \scalatex_annotate_HTML:nn {
112       property="stex:#1" ~
113       resource="#2" ~
114       stex:visible="false" ~
115       style:display="none"
116     } {
117       \tl_use:N \l__stex_annotate_arg_tl
118     }
119   }
120   \NewDocumentEnvironment{stex_annotate_env} { m m } {
121     \par
122     \scalatex_annotate_HTML_begin:n {
123       property="stex:#1" ~
124       resource="#2"
125     }
126   }{
127     \scalatex_annotate_HTML_end:
128   }
129 }{

```

```

130 \latexml_if:TF {
131   \cs_new_protected:Nn \stex_annotate:nnn {
132     \__stex_annotate_checkempty:n { #3 }
133     \mode_if_math:TF {
134       \cs:w latexml@annotate@math\cs_end:{#1}{#2}{
135         \tl_use:N \l__stex_annotate_arg_tl
136       }
137     }{
138       \cs:w latexml@annotate@text\cs_end:{#1}{#2}{
139         \tl_use:N \l__stex_annotate_arg_tl
140       }
141     }
142   }
143   \cs_new_protected:Nn \stex_annotate_invisible:n {
144     \__stex_annotate_checkempty:n { #1 }
145     \mode_if_math:TF {
146       \cs:w latexml@invisible@math\cs_end:{
147         \tl_use:N \l__stex_annotate_arg_tl
148       }
149     } {
150       \cs:w latexml@invisible@text\cs_end:{
151         \tl_use:N \l__stex_annotate_arg_tl
152       }
153     }
154   }
155   \cs_new_protected:Nn \stex_annotate_invisible:nnn {
156     \__stex_annotate_checkempty:n { #3 }
157     \cs:w latexml@annotate@invisible\cs_end:{#1}{#2}{
158       \tl_use:N \l__stex_annotate_arg_tl
159     }
160   }
161   \NewDocumentEnvironment{stex_annotate_env} { m m } {
162     \par\begin{latexml@annotateenv}{#1}{#2}
163   }{
164     \end{latexml@annotateenv}
165   }
166 }{
167   \cs_new_protected:Nn \stex_annotate:nnn {#3}
168   \cs_new_protected:Nn \stex_annotate_invisible:n {}
169   \cs_new_protected:Nn \stex_annotate_invisible:nnn {}
170   \NewDocumentEnvironment{stex_annotate_env} { m m } {\par}{\par}
171 }
172 }

```

(End definition for `\stex_annotate:nnn`, `\stex_annotate_invisible:n`, and `\stex_annotate_invisible:nnn`.
These functions are documented on page 8.)

4.2.3 Languages

```
173 <@@=stex_language>
```

`\c_stex_languages_prop`
`\c_stex_language_abbrevs_prop`

We store language abbreviations in two (mutually inverse) property lists:

```

174 \prop_const_from_keyval:Nn \c_stex_languages_prop {
175   en = english ,
176   de = ngerman ,

```

```

177   ar = arabic ,
178   bg = bulgarian ,
179   ru = russian ,
180   fi = finnish ,
181   ro = romanian ,
182   tr = turkish ,
183   fr = french
184 }
185
186 \prop_const_from_keyval:Nn \c_stex_language_abbrevs_prop {
187   english   = en ,
188   ngerman   = de ,
189   arabic    = ar ,
190   bulgarian = bg ,
191   russian   = ru ,
192   finnish   = fi ,
193   romanian  = ro ,
194   turkish   = tr ,
195   french    = fr
196 }
197 % todo: chinese simplified (zhs)
198 %       chinese traditional (zht)

```

(End definition for `\c_stex_languages_prop` and `\c_stex_language_abbrevs_prop`. These variables are documented on page 9.)

we use the `lang-package` option to load the corresponding babel languages:

```

199 \clist_if_empty:NF \c_stex_languages_clist {
200   \clist_clear:N \l_tmpa_clist
201   \clist_map_inline:Nn \c_stex_languages_clist {
202     \prop_get:NnNTF \c_stex_languages_prop { #1 } \l_tmpa_str {
203       \clist_put_right:No \l_tmpa_clist \l_tmpa_str
204     } {
205       \msg_set:nnn{stex}{error/unknownlanguage}{
206         Unknown~language~\l_tmpa_str
207       }
208       \msg_error:nn{stex}{error/unknownlanguage}
209     }
210   }
211   \stex_debug:n {Languages:~\clist_use:Nn \l_tmpa_clist {,~} }
212   \RequirePackage[\clist_use:Nn \l_tmpa_clist ,]{babel}
213 }

```

4.3 Files, Paths and URIs

```

214 \@@=stex_path

```

4.3.1 Generic Path Handling

We treat paths as L^AT_EX3-sequences (of the individual path segments, i.e. separated by a /-character) unix-style; i.e. a path is absolute if the sequence starts with an empty entry.

```

\stex_path_from_string:Nn

```

```

\stex_path_from_string:NV

```

```

\stex_path_from_string:cn

```

```

\stex_path_from_string:cV

```

```

215 \cs_new_protected:Nn \stex_path_from_string:Nn {
216   \str_set:Nx \l_tmpa_str { #2 }
217   \str_if_empty:NTF \l_tmpa_str {

```

```

218     \seq_clear:N #1
219   }{
220     \exp_args:NNo \seq_set_split:Nnn #1 / { \l_tmpa_str }
221     \sys_if_platform_windows:T{
222       \seq_clear:N \l_tmpa_tl
223       \seq_map_inline:Nn #1 {
224         \seq_set_split:Nnn \l_tmpb_tl \c_backslash_str { ##1 }
225         \seq_concat:NNN \l_tmpa_tl \l_tmpa_tl \l_tmpb_tl
226       }
227       \seq_set_eq:NN #1 \l_tmpa_tl
228     }
229     \stex_path_canonicalize:N #1
230   }
231 }
232 \cs_generate_variant:Nn \stex_path_from_string:Nn
233 { NV, cn, cV }

```

(End definition for `\stex_path_from_string:Nn`. This function is documented on page 9.)

`\stex_path_to_string:NN`
`\stex_path_to_string:N`

```

234 \cs_new_protected:Nn \stex_path_to_string:NN {
235   \exp_args:NNe \str_set:Nn #2 { \seq_use:Nn #1 / }
236 }
237
238 \cs_new:Nn \stex_path_to_string:N {
239   \seq_use:Nn #1 /
240 }

```

(End definition for `\stex_path_to_string:NN` and `\stex_path_to_string:N`. These functions are documented on page 9.)

`\c__stex_path_dot_str`
`\c__stex_path_up_str`

. and .., respectively.

```

241 \str_const:Nn \c__stex_path_dot_str {.}
242 \str_const:Nn \c__stex_path_up_str {..}

```

(End definition for `\c__stex_path_dot_str` and `\c__stex_path_up_str`.)

`\stex_path_canonicalize:N`

Canonicalizes the path provided; in particular, resolves . and .. path segments.

```

243 \cs_new_protected:Nn \stex_path_canonicalize:N {
244   \seq_if_empty:NF #1 {
245     \seq_clear:N \l_tmpa_seq
246     \seq_get_left:NN #1 \l_tmpa_tl
247     \str_if_empty:NT \l_tmpa_tl {
248       \seq_put_right:Nn \l_tmpa_seq {}
249     }
250     \seq_map_inline:Nn #1 {
251       \str_set:Nn \l_tmpa_tl { ##1 }
252       \str_if_eq:NNTF \l_tmpa_tl \c__stex_path_dot_str {} {
253         \str_if_eq:NNTF \l_tmpa_tl \c__stex_path_up_str {
254           \seq_if_empty:NNTF \l_tmpa_seq {
255             \exp_args:NNo \seq_put_right:Nn \l_tmpa_seq {
256               \c__stex_path_up_str
257             }
258           }
259         }
260       }
261     }
262   }
263 }

```

```

259         \seq_get_right:NN \l_tmpa_seq \l_tmpa_tl
260         \str_if_eq:NNTF \l_tmpa_tl \c__stex_path_up_str {
261             \exp_args:NNo \seq_put_right:Nn \l_tmpa_seq {
262                 \c__stex_path_up_str
263             }
264         }{
265             \seq_pop_right:NN \l_tmpa_seq \l_tmpb_tl
266         }
267     }
268     }{
269         \str_if_empty:NF \l_tmpa_tl {
270             \exp_args:NNo \seq_put_right:Nn \l_tmpa_seq { \l_tmpa_tl }
271         }
272     }
273 }
274 }
275 \seq_gset_eq:NN #1 \l_tmpa_seq
276 }
277 }

```

(End definition for `\stex_path_canonicalize:N`. This function is documented on page 9.)

`\stex_path_if_absolute_p:N`
`\stex_path_if_absolute:N \underline{TF}`

```

278 \prg_new_conditional:Nnn \stex_path_if_absolute:N {p, T, F, TF} {
279     \seq_if_empty:NTF #1 {
280         \prg_return_false:
281     }{
282         \seq_get_left:NN #1 \l_tmpa_tl
283         \str_if_empty:NNTF \l_tmpa_tl {
284             \prg_return_true:
285         }{
286             \prg_return_false:
287         }
288     }
289 }

```

(End definition for `\stex_path_if_absolute:N \underline{TF}` . This function is documented on page 9.)

4.3.2 PWD and kpsewhich

`\stex_kpsewhich:n`

```

290 \str_new:N\l_stex_kpsewhich_return_str
291 \cs_new_protected:Nn \stex_kpsewhich:n {
292     \sys_get_shell:nnN { kpsewhich ~ #1 } { } \l_tmpa_tl
293     \exp_args:NNo\str_set:Nn\l_stex_kpsewhich_return_str{\l_tmpa_tl}
294     \tl_trim_spaces:N \l_stex_kpsewhich_return_str
295 }

```

(End definition for `\stex_kpsewhich:n`. This function is documented on page 8.)

We determine the PWD

`\c_stex_pwd_seq`
`\c_stex_pwd_str`

```

296 \sys_if_platform_windows:TF{
297     \stex_kpsewhich:n{-expand-var~\c_percent_str CD\c_percent_str}

```



```

298 }{
299   \stex_kpsewhich:n{-var-value~PWD}
300 }
301
302 \stex_path_from_string:Nn\c_stex_pwd_seq\l_stex_kpsewhich_return_str
303 \stex_path_to_string:NN\c_stex_pwd_seq\c_stex_pwd_str
304 \stex_debug:n {PWD:~\str_use:N\c_stex_pwd_str}

```

(End definition for `\c_stex_pwd_seq` and `\c_stex_pwd_str`. These variables are documented on page 9.)

4.3.3 File Hooks and Tracking

```

305 <@@=stex_files>

```

We introduce hooks for file inputs that keep track of the absolute paths of files used. This will be useful to keep track of modules, their archives, namespaces etc.

Note that the absolute paths are only accurate in `\input`-statements for paths relative to the PWD, so they shouldn't be relied upon in any other setting than for \TeX -purposes.

`\g__stex_files_stack` keeps track of file changes

```

306 \seq_gclear_new:N\g__stex_files_stack

```

(End definition for `\g__stex_files_stack`.)

`\c_stex_mainfile_seq`

```

307 \stex_path_from_string:Nn \c_stex_mainfile_seq {
308   \c_stex_pwd_str/\jobname.tex
309 }

```

(End definition for `\c_stex_mainfile_seq`. This variable is documented on page 9.)

`\g_stex_currentfile_seq` Hooks for file inputs that push/pop `\g__stex_files_stack` to update `\c_stex_mainfile_seq`.

```

310 \seq_gclear_new:N\g_stex_currentfile_seq
311 \AddToHook{file/before}{
312   \stex_path_from_string:Nn\g_stex_currentfile_seq{\CurrentFilePath}
313   \stex_path_if_absolute:NTF\g_stex_currentfile_seq{
314     \exp_args:NNe\seq_put_right:Nn\g_stex_currentfile_seq{\CurrentFile}
315   }{
316     \stex_path_from_string:Nn\g_stex_currentfile_seq{
317       \c_stex_pwd_str/\CurrentFilePath/\CurrentFile
318     }
319   }
320   \seq_gset_eq:NN\g_stex_currentfile_seq\g_stex_currentfile_seq
321   \exp_args:NNo\seq_gpush:Nn\g__stex_files_stack\g_stex_currentfile_seq
322 }
323 \AddToHook{file/after}{
324   \seq_if_empty:NF\g__stex_files_stack{
325     \seq_gpop:NN\g__stex_files_stack\l_tmpa_seq
326   }
327   \seq_if_empty:NTF\g__stex_files_stack{
328     \seq_gset_eq:NN\g_stex_currentfile_seq\c_stex_mainfile_seq
329   }{

```

```

330 \seq_get:NN\g__stex_files_stack\l_tmpa_seq
331 \seq_gset_eq:NN\g_stex_currentfile_seq\l_tmpa_seq
332 }
333 }

```

(End definition for `\g_stex_currentfile_seq`. This variable is documented on page 9.)

4.4 MathHub Repositories

```

334 <@@=stex_mathhub>

\mathhub
\c_stex_mathhub_seq
\c_stex_mathhub_str
335 \str_if_empty:NTF\mathhub{
336 \stex_kpsewhich:n{-var-value~MATHHUB}
337 \str_set_eq:NN\c_stex_mathhub_str\l_stex_kpsewhich_return_str
338
339 \str_if_empty:NTF\c_stex_mathhub_str{
340 \msg_warning:nn{stex}{warning/nomathhub}
341 }{
342 \stex_debug:n {MathHub:~\str_use:N\c_stex_mathhub_str}
343 \exp_args:NN\ \stex_path_from_string:Nn\c_stex_mathhub_seq\c_stex_mathhub_str
344 }
345 }{
346 \stex_path_from_string:Nn \c_stex_mathhub_seq \mathhub
347 \stex_path_if_absolute:NF \c_stex_mathhub_seq {
348 \exp_args:NNx \stex_path_from_string:Nn \c_stex_mathhub_seq {
349 \c_stex_pwd_str/\mathhub
350 }
351 }
352 \stex_path_to_string:NN\c_stex_mathhub_seq\c_stex_mathhub_str
353 \stex_debug:n {MathHub:~\str_use:N\c_stex_mathhub_str}
354 }

```

(End definition for `\mathhub`, `\c_stex_mathhub_seq`, and `\c_stex_mathhub_str`. These variables are documented on page 10.)

```

\__stex_mathhub_do_manifest:n
355 \cs_new_protected:Nn \__stex_mathhub_do_manifest:n {
356 \str_set:Nx \l_tmpa_str { #1 }
357 \prop_if_exist:cF {c_stex_mathhub_#1_manifest_prop} {
358 \prop_new:c { c_stex_mathhub_#1_manifest_prop }
359 \seq_set_split:NnV \l_tmpa_seq / \l_tmpa_str
360 \seq_concat:NNN \l_tmpa_seq \c_stex_mathhub_seq \l_tmpa_seq
361 \__stex_mathhub_find_manifest:N \l_tmpa_seq
362 \seq_if_empty:NTF \l__stex_mathhub_manifest_file_seq {
363 \msg_set:nnn{stex}{error/norepository}{
364 No~archive~#1~found~in~
365 \stex_path_to_string:N \c_stex_mathhub_str
366 }
367 \msg_error:nn{stex}{error/norepository}
368 } {
369 \exp_args:No \__stex_mathhub_parse_manifest:n { \l_tmpa_str }
370 }
371 }
372 }

```

(End definition for _stex_mathhub_do_manifest:n.)

\l_stex_mathhub_manifest_file_seq

373 \str_new:N\l_stex_mathhub_manifest_file_seq

(End definition for \l_stex_mathhub_manifest_file_seq.)

_stex_mathhub_find_manifest:N Attempts to find the MANIFEST.MF in some file path and stores its path in \l_stex_mathhub_manifest_file_seq:

```

374 \cs_new_protected:Nn \_stex_mathhub_find_manifest:N {
375   \seq_set_eq:NN\l_tmpa_seq #1
376   \bool_set_true:N\l_tmpa_bool
377   \bool_while_do:Nn \l_tmpa_bool {
378     \seq_if_empty:NTF \l_tmpa_seq {
379       \bool_set_false:N\l_tmpa_bool
380     }{
381       \file_if_exist:nTF{
382         \stex_path_to_string:N\l_tmpa_seq/MANIFEST.MF
383       }{
384         \seq_put_right:Nn\l_tmpa_seq{MANIFEST.MF}
385         \bool_set_false:N\l_tmpa_bool
386       }{
387         \file_if_exist:nTF{
388           \stex_path_to_string:N\l_tmpa_seq/META-INF/MANIFEST.MF
389         }{
390           \seq_put_right:Nn\l_tmpa_seq{META-INF}
391           \seq_put_right:Nn\l_tmpa_seq{MANIFEST.MF}
392           \bool_set_false:N\l_tmpa_bool
393         }{
394           \file_if_exist:nTF{
395             \stex_path_to_string:N\l_tmpa_seq/meta-inf/MANIFEST.MF
396           }{
397             \seq_put_right:Nn\l_tmpa_seq{meta-inf}
398             \seq_put_right:Nn\l_tmpa_seq{MANIFEST.MF}
399             \bool_set_false:N\l_tmpa_bool
400           }{
401             \seq_pop_right:NN\l_tmpa_seq\l_tmpa_tl
402           }
403         }
404       }
405     }
406   }
407   \seq_set_eq:NN\l_stex_mathhub_manifest_file_seq\l_tmpa_seq
408 }

```

(End definition for _stex_mathhub_find_manifest:N.)

\c_stex_mathhub_manifest_ior File variable used for MANIFEST-files

409 \ior_new:N \c_stex_mathhub_manifest_ior

(End definition for \c_stex_mathhub_manifest_ior.)

`_stex_mathhub_parse_manifest:n` Stores the entries in manifest file in the corresponding property list:

```

410 \cs_new_protected:Nn \_stex_mathhub_parse_manifest:n {
411   \seq_set_eq:NN \l_tmpa_seq \l__stex_mathhub_manifest_file_seq
412   \ior_open:Nn \c__stex_mathhub_manifest_ior {\stex_path_to_string:N \l_tmpa_seq}
413   \ior_map_inline:Nn \c__stex_mathhub_manifest_ior {
414     \str_set:Nn \l_tmpa_str {##1}
415     \exp_args:NNoo \seq_set_split:Nnn
416       \l_tmpb_seq \c_colon_str \l_tmpa_str
417     \seq_pop_left:NNTF \l_tmpb_seq \l_tmpa_tl {
418       \exp_args:NNe \str_set:Nn \l_tmpb_tl {
419         \exp_args:NNo \seq_use:Nn \l_tmpb_seq \c_colon_str
420       }
421       \exp_args:No \str_case:nnTF \l_tmpa_tl {
422         {id} {
423           \prop_gput:cno { c_stex_mathhub_#1_manifest_prop }
424             { id } \l_tmpb_tl
425         }
426         {narration-base} {
427           \prop_gput:cno { c_stex_mathhub_#1_manifest_prop }
428             { narr } \l_tmpb_tl
429         }
430         {source-base} {
431           \prop_gput:cno { c_stex_mathhub_#1_manifest_prop }
432             { ns } \l_tmpb_tl
433         }
434         {ns} {
435           \prop_gput:cno { c_stex_mathhub_#1_manifest_prop }
436             { ns } \l_tmpb_tl
437         }
438         {dependencies} {
439           \prop_gput:cno { c_stex_mathhub_#1_manifest_prop }
440             { deps } \l_tmpb_tl
441         }
442       }{}{}
443     }{}
444   }
445   \ior_close:N \c__stex_mathhub_manifest_ior
446 }

```

(End definition for `_stex_mathhub_parse_manifest:n`.)

`\stex_set_current_repository:n`

```

447 \cs_new_protected:Nn \stex_set_current_repository:n {
448   \stex_require_repository:n { #1 }
449   \prop_set_eq:Nc \l_stex_current_repository_prop {
450     c_stex_mathhub_#1_manifest_prop
451   }
452 }

```

(End definition for `\stex_set_current_repository:n`. This function is documented on page 11.)

`\stex_require_repository:n`

```

453 \cs_new_protected:Nn \stex_require_repository:n {
454   \prop_if_exist:cF { c_stex_mathhub_#1_manifest_prop } {

```

```

455 \stex_debug:n{Opening~archive:~#1}
456 \__stex_mathhub_do_manifest:n { #1 }
457 \exp_args:Nx \stex_addtosms:n {
458   \prop_const_from_keyval:cn { c_stex_mathhub_#1_manifest_prop } {
459     id   = \prop_item:cn { c_stex_mathhub_#1_manifest_prop } { id } ,
460     ns   = \prop_item:cn { c_stex_mathhub_#1_manifest_prop } { ns } ,
461     narr = \prop_item:cn { c_stex_mathhub_#1_manifest_prop } { narr } ,
462     deps = \prop_item:cn { c_stex_mathhub_#1_manifest_prop } { deps }
463   }
464 }
465 }
466 }

```

(End definition for `\stex_require_repository:n`. This function is documented on page 11.)

`\l_stex_current_repository_prop` Current MathHub repository

```

467 \prop_new:N \l_stex_current_repository_prop
468
469 \__stex_mathhub_find_manifest:N \c_stex_pwd_seq
470 \seq_if_empty:NTF \l__stex_mathhub_manifest_file_seq {
471   \stex_debug:n{Not~currently~in~a~MathHub~repository}
472 } {
473   \__stex_mathhub_parse_manifest:n { main }
474   \prop_get:NnN \c_stex_mathhub_main_manifest_prop {id}
475   \l_tmpa_str
476   \prop_set_eq:cN { c_stex_mathhub_ \l_tmpa_str _manifest_prop }
477   \c_stex_mathhub_main_manifest_prop
478   \exp_args:Nx \stex_set_current_repository:n { \l_tmpa_str }
479   \stex_debug:n{Current~repository:~
480     \prop_item:Nn \l_stex_current_repository_prop {id}
481   }
482 }

```

(End definition for `\l_stex_current_repository_prop`. This variable is documented on page 10.)

`\libinput`

```

483 \cs_new_protected:Npn \libinput #1 {
484   \prop_get:NnNF \l_stex_current_repository_prop {id} \l_tmpa_str {
485     \msg_set:nnn{stex}{error/norepository}{
486       \c_backslash_str libinput~needs~to~be~called~in~an~archive
487     }
488     \msg_error:nn{stex}{error/norepository}
489   }
490   \bool_set_false:N \l_tmpa_bool
491   \tl_clear:N \l_tmpa_tl
492   \seq_set_eq:NN \l_tmpa_seq \c_stex_mathhub_seq
493   \seq_set_split:NnV \l_tmpb_seq / \l_tmpa_str
494   \seq_pop_right:NN \l_tmpb_seq \l_tmpa_str
495   \seq_pop_left:NNT \l_tmpb_seq \l_tmpb_str {
496     \seq_put_right:No \l_tmpa_seq \l_tmpb_str
497     \IfFileExists{ \stex_path_to_string:N \l_tmpa_seq
498       / meta-inf / lib / #1.tex}{
499       \bool_set_true:N \l_tmpa_bool
500       \tl_put_right:Nx \l_tmpa_tl {

```

```

501         \exp_not:N \input { \stex_path_to_string:N \l_tmpa_seq
502         / meta-inf / lib / #1.tex}
503     }
504 }{}
505 }
506 \IfFileExists{ \stex_path_to_string:N \l_tmpa_seq
507 / \l_tmpa_str / lib / #1.tex
508 }{
509     \bool_set_true:N \l_tmpa_bool
510     \tl_put_right:Nx \l_tmpa_tl {
511         \exp_not:N \input { \stex_path_to_string:N \l_tmpa_seq
512         / \l_tmpa_str / lib / #1.tex}
513     }
514 }{}
515 \bool_if:NF \l_tmpa_bool {
516     \msg_set:nnn{stex}{error/nofile}{
517         \c_backslash_str libinput~no~file~#1.tex~found!
518     }
519     \msg_error:nn{stex}{error/nofile}
520 }
521 \l_tmpa_tl
522 }

```

(End definition for `\libinput`. This function is documented on page 11.)

4.5 Module System

```

523 <@@=stex_module>

```

`\l_stex_current_module_prop`

```

524 \prop_new:N \l_stex_current_module_prop

```

(End definition for `\l_stex_current_module_prop`. This variable is documented on page 12.)

`stex_if_in_module_p:`

`stex_if_in_module:TF`

```

525 \prg_new_conditional:Nnn \stex_if_in_module: {p, T, F, TF} {
526     \prop_if_empty:NTF \l_stex_current_module_prop
527     \prg_return_false: \prg_return_true:
528 }

```

(End definition for `stex_if_in_module:TF`. This function is documented on page 12.)

`stex_if_module_exists_p:n`

`stex_if_module_exists:nTF`

```

529 \prg_new_conditional:Nnn \stex_if_module_exists:n {p, T, F, TF} {
530     \prop_if_exist:cTF { c_stex_module_#1_prop }
531     \prg_return_true: \prg_return_false:
532 }

```

(End definition for `stex_if_module_exists:nTF`. This function is documented on page 12.)

`\stex_add_to_current_module:n`

`\STEXexport`

```

533 \cs_new_protected:Nn \stex_add_to_current_module:n {
534     \prop_get:NnN \l_stex_current_module_prop { content } \l_tmpa_tl
535     \tl_put_right:Nn \l_tmpa_tl { #1 }
536     \prop_put:Nno \l_stex_current_module_prop { content } { \l_tmpa_tl }

```

```

537 }
538 \NewDocumentCommand \STEXexport { m }{
539   \stex_smsmode_set_codes:
540   \stex_add_to_current_module:n { #1 }
541   #1
542 }

```

(End definition for `\stex_add_to_current_module:n` and `\STEXexport`. These functions are documented on page 12.)

`\stex_add_constant_to_current_module:n`

```

543 \cs_new_protected:Nn \stex_add_constant_to_current_module:n {
544   \str_set:Nx \l_tmpa_str { #1 }
545   \prop_get:NnN \l_stex_current_module_prop { constants } \l_tmpa_seq
546   \seq_put_right:No \l_tmpa_seq { \l_tmpa_str }
547   \prop_put:Nno \l_stex_current_module_prop { constants } \l_tmpa_seq
548 }

```

(End definition for `\stex_add_constant_to_current_module:n`. This function is documented on page 12.)

`\stex_add_import_to_current_module:n`

```

549 \cs_new_protected:Nn \stex_add_import_to_current_module:n {
550   \str_set:Nx \l_tmpa_str { #1 }
551   \prop_get:NnN \l_stex_current_module_prop { imports } \l_tmpa_seq
552   \seq_put_right:No \l_tmpa_seq { \l_tmpa_str }
553   \prop_put:Nno \l_stex_current_module_prop { imports } \l_tmpa_seq
554 }

```

(End definition for `\stex_add_import_to_current_module:n`. This function is documented on page 12.)

`\stex_modules_compute_namespace:nN` stores its return values in:

```

\l_stex_modules_ns_str 555 \str_new:N \l_stex_modules_ns_str

556 \cs_new_protected:Nn \stex_modules_compute_namespace:nN {
557   \str_set:Nx \l_tmpa_str { #1 }
558   \seq_set_eq:NN \l_tmpa_seq #2
559   % split off file extension
560   \seq_pop_right:NN \l_tmpa_seq \l_tmpb_str
561   \exp_args:NNno \seq_set_split:Nnn \l_tmpb_seq . \l_tmpb_str
562   \seq_get_left:NN \l_tmpb_seq \l_tmpb_str
563   \seq_put_right:No \l_tmpa_seq \l_tmpb_str
564
565   \bool_set_true:N \l_tmpa_bool
566   \bool_while_do:Nn \l_tmpa_bool {
567     \seq_pop_left:NN \l_tmpa_seq \l_tmpb_str
568     \exp_args:No \str_case:nnTF { \l_tmpb_str } {
569       {source} { \bool_set_false:N \l_tmpa_bool }
570     }{}{
571       \seq_if_empty:NT \l_tmpa_seq {
572         \bool_set_false:N \l_tmpa_bool
573       }
574     }
575   }

```

```

576 \seq_if_empty:NTF \l_tmpa_seq {
577   \str_set_eq:NN \l_stex_modules_ns_str \l_tmpa_str
578 }{
579   \str_set:Nx \l_stex_modules_ns_str {
580     \l_tmpa_str/\stex_path_to_string:N \l_tmpa_seq
581   }
582 }
583 }
584 }

```

(End definition for `\stex_modules_compute_namespace:nN` and `\l_stex_modules_ns_str`. These functions are documented on page 13.)

`\stex_modules_current_namespace:`

```

585 \cs_new_protected:Nn \stex_modules_current_namespace: {
586   \prop_get:NnNTF \l_stex_current_repository_prop { ns } \l_tmpa_str {
587     \stex_modules_compute_namespace:nN \l_tmpa_str \g_stex_currentfile_seq
588   }{
589     % split off file extension
590     \seq_set_eq:NN \l_tmpa_seq \g_stex_currentfile_seq
591     \seq_pop_right:NN \l_tmpa_seq \l_tmpb_str
592     \exp_args:NNno \seq_set_split:Nnn \l_tmpb_seq . \l_tmpb_str
593     \seq_get_left:NN \l_tmpb_seq \l_tmpb_str
594     \seq_put_right:No \l_tmpa_seq \l_tmpb_str
595     \str_set:Nx \l_stex_modules_ns_str {
596       file:\stex_path_to_string:N \l_tmpa_seq
597     }
598   }
599 }

```

(End definition for `\stex_modules_current_namespace:.` This function is documented on page 13.)

4.5.1 The module environment

`\l_stex_all_modules_seq` Stores all available modules

```

600 \seq_new:N \l_stex_all_modules_seq

```

(End definition for `\l_stex_all_modules_seq`. This variable is documented on page 14.)

`\STEXModule`

`\stex_invoke_module:n`

```

601 \NewDocumentCommand \STEXModule { m } {
602   \exp_args:NNx \str_set:Nn \l_tmpa_str { #1 }
603   \int_set:Nn \l_tmpa_int { \str_count:N \l_tmpa_str }
604   \tl_set:Nn \l_tmpa_tl {
605     \msg_set:nnn{stex}{error/unknownmodule}{
606       No~module~#1~found!
607     }
608     \msg_error:nn{stex}{error/unknownmodule}
609   }
610   \seq_map_inline:Nn \l_stex_all_modules_seq {
611     \str_set:Nn \l_tmpb_str { ##1 }
612     \str_if_eq:eeT { \l_tmpa_str } {
613       \str_range:Nnn \l_tmpb_str { -\l_tmpa_int } { -1 }
614     } {
615       \seq_map_break:n {

```



```

616         \tl_set:Nn \l_tmpa_tl {
617             \stex_invoke_module:n { ##1 }
618         }
619     }
620 }
621 }
622 \l_tmpa_tl
623 }
624
625 \cs_new_protected:Nn \stex_invoke_module:n {
626     \stex_debug:n{Invoking~module~#1}
627     \peek_charcode_remove:NTF ! {
628         \__stex_module_invoke_uri:nN { #1 }
629     } {
630         \peek_charcode_remove:NTF ? {
631             \__stex_module_invoke_symbol:nn { #1 }
632         } {
633             \msg_set:nnn{stex}{error/syntax}{
634                 Syntax~error:~?~or~!~expected~after~
635                 \c_backslash_str STEXModule{#1}
636             }
637             \msg_error:nn{stex}{error/syntax}
638         }
639     }
640 }
641
642 \cs_new_protected:Nn \__stex_module_invoke_uri:nN {
643     \str_set:Nn #2 { #1 }
644 }
645
646 \cs_new_protected:Nn \__stex_module_invoke_symbol:nn {
647     \stex_invoke_symbol:n{#1?#2}
648 }

```

(End definition for `\STEXModule` and `\stex_invoke_module:n`. These functions are documented on page 14.)

module module arguments:

```

649 \keys_define:nn { stex / module } {
650     title          .tl_set_x:N = \l_stex_module_title_str ,
651     ns             .tl_set_x:N = \l_stex_module_ns_str ,
652     lang           .tl_set_x:N = \l_stex_module_lang_str ,
653     sig            .tl_set_x:N = \l_stex_module_sig_str ,
654     creators       .tl_set_x:N = \l_stex_module_creators_str ,
655     contributors   .tl_set_x:N = \l_stex_module_contributors_str ,
656     meta           .tl_set_x:N = \l_stex_module_meta_str
657 }
658
659 % module parameters here? In the body?
660
661 \cs_new_protected:Nn \__stex_module_args:n {
662     \str_clear:N \l_stex_module_title_str
663     \str_clear:N \l_stex_module_ns_str
664     \str_clear:N \l_stex_module_lang_str

```

```

665 \str_clear:N \l_stex_module_sig_str
666 \str_clear:N \l_stex_module_creators_str
667 \str_clear:N \l_stex_module_contributors_str
668 \str_clear:N \l_stex_module_meta_str
669 \keys_set:nn { stex / module } { #1 }
670 \exp_args:NNo \str_set:Nn \l_stex_module_title_str
671   \l_stex_module_title_str
672 \exp_args:NNo \str_set:Nn \l_stex_module_ns_str
673   \l_stex_module_ns_str
674 \exp_args:NNo \str_set:Nn \l_stex_module_lang_str
675   \l_stex_module_lang_str
676 \exp_args:NNo \str_set:Nn \l_stex_module_sig_str
677   \l_stex_module_sig_str
678 \exp_args:NNo \str_set:Nn \l_stex_module_meta_str
679   \l_stex_module_meta_str
680 \exp_args:NNo \str_set:Nn \l_stex_module_creators_str
681   \l_stex_module_creators_str
682 \exp_args:NNo \str_set:Nn \l_stex_module_contributors_str
683   \l_stex_module_contributors_str
684 }

```

`_stex_module_begin_module:` implements `\begin{module}`

```

685 \cs_new_protected:Nn \_stex_module_begin_module: {
686   % Nested module?
687   \stex_if_in_module:TF {
688     % Nested module
689     \prop_get:NnN \l_stex_current_module_prop
690       { ns } \l_stex_module_ns_str
691     \str_set:Nx \l_stex_module_name_str {
692       \prop_item:Nn \l_stex_current_module_prop
693         { name } / \l_stex_module_name_str
694     }
695   }{
696     % not nested:
697     \str_if_empty:NT \l_stex_module_ns_str {
698       \stex_modules_current_namespace:
699       \str_set_eq:NN \l_stex_module_ns_str \l_stex_modules_ns_str
700       \exp_args:NNNo \seq_set_split:Nnn \l_tmpa_seq
701         / {\l_stex_module_ns_str}
702       \seq_pop_right:NN \l_tmpa_seq \l_tmpa_str
703       \str_if_eq:NNT \l_tmpa_str \l_stex_module_name_str {
704         \str_set:Nx \l_stex_module_ns_str {
705           \stex_path_to_string:N \l_tmpa_seq
706         }
707       }
708     }
709   }
710
711   % language
712   \str_if_empty:NT \l_stex_module_lang_str {
713     \seq_get_right:NN \g_stex_currentfile_seq \l_tmpa_str
714     \seq_set_split:NnV \l_tmpa_seq . \l_tmpa_str
715     \seq_pop_right:NN \l_tmpa_seq \l_tmpa_str % .tex
716     \seq_pop_left:NN \l_tmpa_seq \l_tmpa_str % <filename>

```

```

717 \seq_if_empty:NF \l_tmpa_seq { %remaining element should be language
718 \stex_debug:n {Language~\l_stex_module_lang_str~
719   inferred~from~file~name}
720 \seq_pop_left:NN \l_tmpa_seq \l_stex_module_lang_str
721 }
722 }
723
724 \str_if_empty:NF \l_stex_module_lang_str {
725 \prop_get:NVNTF \c_stex_languages_prop \l_stex_module_lang_str
726 \l_tmpa_str {
727 \ltx@ifpackageloaded{babel}{
728 \exp_args:Nx \selectlanguage { \l_tmpa_str }
729 }{}
730 } {
731 \msg_set:nnn{stex}{error/unknownlanguage}{
732   Unknown~language~\l_tmpa_str
733 }
734 \msg_error:nn{stex}{error/unknownlanguage}
735 }
736 }
737
738 % signature
739 \str_if_empty:NTF \l_stex_module_sig_str {
740 \str_clear:N \l_tmpa_str
741 \seq_clear:N \l_tmpa_seq
742 \tl_clear:N \l_tmpa_tl
743 \exp_args:NNx \prop_set_from_keyval:Nn \l_stex_current_module_prop {
744   name      = \l_stex_module_name_str ,
745   ns        = \l_stex_module_ns_str ,
746   imports   = \exp_not:o { \l_tmpa_seq } ,
747   constants = \exp_not:o { \l_tmpa_seq } ,
748   content   = \exp_not:o { \l_tmpa_tl } ,
749   file      = \exp_not:o { \g_stex_currentfile_seq } ,
750   lang      = \l_stex_module_lang_str ,
751   sig       = \l_stex_module_sig_str ,
752   meta      = \l_stex_module_meta_str
753 }
754 }{
755 \str_if_empty:NT \l_stex_module_lang_str {
756 \msg_set:nnn{stex}{error/siglanguage}{
757   Module~\l_stex_module_ns_str?\l_stex_module_name_str~
758   declares~signature~\l_stex_module_sig_str,~but~does~not~
759   declare~its~language
760 }
761 \msg_error:nn{stex}{error/siglanguage}
762 }
763
764 \seq_set_eq:NN \l_tmpa_seq \g_stex_currentfile_seq
765 \seq_pop_right:NN \l_tmpa_seq \l_tmpa_str
766 \seq_set_split:NnV \l_tmpb_seq . \l_tmpa_str
767 \seq_pop_right:NN \l_tmpb_seq \l_tmpa_str % .tex
768 \seq_pop_left:NN \l_tmpb_seq \l_tmpa_str % <filename>
769 \str_set:Nx \l_tmpa_str {
770 \stex_path_to_string:N \l_tmpa_seq /

```

```

771     \l_tmpa_str . \l_stex_module_sig_str .tex
772 }
773 \IfFileExists \l_tmpa_str {
774     \exp_args:No \stex_in_smsmode:nn { \l_tmpa_str } {
775         \seq_clear:N \l_stex_all_modules_seq
776         \prop_clear:N \l_stex_current_module_prop
777         \stex_debug:n{Loading~signature~\l_tmpa_str}
778         \input { \l_tmpa_str }
779     }
780 }{
781     \msg_set:nnn{stex}{error/modulemissing}{
782         No~file~for~signature~module~\l_tmpa_str~found
783     }
784     \msg_error:nn{stex}{error/modulemissing}
785 }
786 \stex_activate_module:n {
787     \l_stex_module_ns_str ? \l_stex_module_name_str
788 }
789 \prop_set_eq:Nc \l_stex_current_module_prop {
790     c_stex_module_
791     \l_stex_module_ns_str ?
792     \l_stex_module_name_str
793     _prop
794 }
795 }
796
797 % metatheory
798 \str_if_empty:NT \l_stex_module_meta_str {
799     \str_set:Nx \l_stex_module_meta_str {
800         \c_stex_metatheory_ns_str ? Metatheory
801     }
802 }
803
804
805 \stex_debug:n{
806     New~module:\\
807     Namespace::~\l_stex_module_ns_str\\
808     Name::~\l_stex_module_name_str\\
809     Language::~\l_stex_module_lang_str\\
810     Signature::~\l_stex_module_sig_str\\
811     Metatheory::~\l_stex_module_meta_str\\
812     File::~\stex_path_to_string:N \g_stex_currentfile_seq
813 }
814
815 \seq_put_right:Nx \l_stex_all_modules_seq {
816     \l_stex_module_ns_str ? \l_stex_module_name_str
817 }
818
819 \seq_gput_right:Nx \g_stex_modules_in_file_seq
820     { \l_stex_module_ns_str ? \l_stex_module_name_str }
821
822 \stex_if_smsmode:TF {
823     \stex_smsmode_set_codes:
824 } {

```

```

825 \begin{stex_annotate_env} {theory} {
826   \l_stex_module_ns_str ? \l_stex_module_name_str
827 }
828
829 \stex_annotate_invisible:nnn{header}{} {
830   \stex_annotate:nnn{language}{ \l_stex_module_lang_str }{}
831   \stex_annotate:nnn{signature}{ \l_stex_module_sig_str }{}
832   \str_if_eq:VnF \l_stex_module_meta_str {NONE} {
833     \stex_annotate:nnn{metatheory}{ \l_stex_module_meta_str }{}
834   }
835 }
836 }
837
838 \str_if_eq:VnF \l_stex_module_meta_str {NONE} {
839   \exp_args:Nx \STEXexport{
840     \stex_activate_module:n { \l_stex_module_meta_str }
841   }
842 }
843 % TODO: Inherit metatheory for nested modules?
844 }
845 \iffalse \end{stex_annotate_env} \fi % make syntax highlighting work again

```

(End definition for `_stex_module_begin_module:`)

`_stex_module_end_module:` implements `\end{module}`

```

846 \iffalse \begin{stex_annotate_env} \fi %^^A make syntax highlighting work again
847 \cs_new_protected:Nn \_stex_module_end_module: {
848   \str_set:Nx \l_tmpa_str {
849     c_stex_module_
850     \prop_item:Nn \l_stex_current_module_prop { ns } ?
851     \prop_item:Nn \l_stex_current_module_prop { name }
852     _prop
853   }
854   %^^A \prop_new:c { \l_tmpa_str }
855   \prop_gset_eq:cn { \l_tmpa_str } \l_stex_current_module_prop
856   \stex_debug:n{Closing module~\prop_item:Nn \l_stex_current_module_prop { name }}
857   \stex_if_smsmode:TF {
858     \exp_args:Nx \stex_addtosms:n {
859       \prop_gset_from_keyval:cn {
860         c_stex_module_
861         \prop_item:Nn \l_stex_current_module_prop { ns } ?
862         \prop_item:Nn \l_stex_current_module_prop { name }
863         _prop
864       } {
865         name      = \prop_item:cn { \l_tmpa_str } { name } ,
866         ns        = \prop_item:cn { \l_tmpa_str } { ns } ,
867         imports   = \prop_item:cn { \l_tmpa_str } { imports } ,
868         constants = \prop_item:cn { \l_tmpa_str } { constants } ,
869         content   = \prop_item:cn { \l_tmpa_str } { content } ,
870         file      = \prop_item:cn { \l_tmpa_str } { file } ,
871         lang      = \prop_item:cn { \l_tmpa_str } { lang } ,
872         sig       = \prop_item:cn { \l_tmpa_str } { sig } ,
873         meta      = \prop_item:cn { \l_tmpa_str } { meta }
874       }
875     }
876   }
877 }

```

```

875     }
876   }{
877     \end{stex_annotate_env}
878   }
879 }

```

(End definition for `_stex_module_end_module:.`)

@module The core environment, with no header

```

880 \NewDocumentEnvironment { @module } { 0{} m } {
881   \str_set:Nx \l_stex_module_name_str { #2 }
882   \par
883   \_stex_module_args:n { #1 }
884   \_stex_module_begin_module:
885 } {
886   \_stex_module_end_module:
887 }

```

\stex_modules_heading: Code for document headers

```

888 \cs_if_exist:NTF \thesection {
889   \newcounter{module}[section]
890 }{
891   \newcounter{module}
892 }
893
894 \bool_if:NT \c_stex_showmods_bool {
895   \latexml_if:F { \RequirePackage{mdframed} }
896 }
897
898 \cs_new_protected:Nn \stex_modules_heading: {
899   \stepcounter{module}
900   \par
901   \bool_if:NT \c_stex_showmods_bool {
902     \noindent{\textbf{Module} ~
903       \cs_if_exist:NT \thesection {\thesection.}
904       \themodule ~ [\l_stex_module_name_str]
905     }
906     % TODO references
907     % \sref@label@id{Module \thesection.\themodule [\module@name]]%
908     \str_if_empty:NTF \l_stex_module_title_str {
909       }{
910         \quad(\l_stex_module_title_str)\hfill
911       }\par
912     }
913 }

```

(End definition for `\stex_modules_heading:.` This function is documented on page 13.)

Finally:

```

914 \NewDocumentEnvironment { module } { 0{} m } {
915   \bool_if:NT \c_stex_showmods_bool {
916     \begin{mdframed}
917   }
918   \begin{@module}[#1]{#2}
919   \stex_modules_heading:

```

```

920 }{
921   \end{@module}
922   \bool_if:NT \c_stex_showmods_bool {
923     \end{mdframed}
924   }
925 }

```

4.5.2 SMS Mode

```

926 <@=stex_smsmode>

```

```

\g_stex_smsmode_allowedmacros_tl
\g_stex_smsmode_allowedmacros_escape_tl
\g_stex_smsmode_allowedenvs_seq
927 \tl_new:N \g_stex_smsmode_allowedmacros_tl
928 \tl_new:N \g_stex_smsmode_allowedmacros_escape_tl
929 \seq_new:N \g_stex_smsmode_allowedenvs_seq
930
931 \tl_set:Nn \g_stex_smsmode_allowedmacros_tl {
932   \makeatletter
933   \makeatother
934   \ExplSyntaxOn
935   \ExplSyntaxOff
936 }
937
938 \tl_set:Nn \g_stex_smsmode_allowedmacros_escape_tl {
939   \symdef
940   \importmodule
941   \notation
942   \symdecl
943   \STEXexport
944 }
945
946 \exp_args:NNx \seq_set_from_clist:Nn \g_stex_smsmode_allowedenvs_seq {
947   \tl_to_str:n {
948     module,
949     @module
950   }
951 }

```

(End definition for `\g_stex_smsmode_allowedmacros_tl`, `\g_stex_smsmode_allowedmacros_escape_tl`, and `\g_stex_smsmode_allowedenvs_seq`. These variables are documented on page 15.)

```

\stex_if_smsmode_p:
\stex_if_smsmode:TF
952 \bool_new:N \g__stex_smsmode_bool
953 \bool_set_false:N \g__stex_smsmode_bool
954 \prg_new_conditional:Nnn \stex_if_smsmode: { p, T, F, TF } {
955   \bool_if:NTF \g__stex_smsmode_bool \prg_return_true: \prg_return_false:
956 }

```

(End definition for `\stex_if_smsmode:TF`. This function is documented on page 16.)

```

\_stex_smsmode_if_catcodes_p: Checks whether the SMS mode category code scheme is active.
\_stex_smsmode_if_catcodes:TF
957 \bool_new:N \g__stex_smsmode_catcode_bool
958 \bool_set_false:N \g__stex_smsmode_catcode_bool
959 \prg_new_conditional:Nnn \_stex_smsmode_if_catcodes: { p, T, F, TF } {
960   \bool_if:NTF \g__stex_smsmode_catcode_bool

```

```

961 \prg_return_true: \prg_return_false:
962 }

```

(End definition for `_stex_smsmode_if_catcodes:TF`.)

`\stex_smsmode_set_codes:`

```

963 \cs_new_protected:Nn \stex_smsmode_set_codes: {
964   \stex_if_smsmode:T {
965     \__stex_smsmode_if_catcodes:F {
966       \bool_gset_true:N \g__stex_smsmode_catcode_bool
967       \exp_after:wN \char_gset_active_eq:NN
968       \c_backslash_str \__stex_smsmode_cs:
969       \tex_global:D \char_set_catcode_active:N \
970       \tex_global:D \char_set_catcode_other:N $
971       \tex_global:D \char_set_catcode_other:N ^
972       \tex_global:D \char_set_catcode_other:N _
973       \tex_global:D \char_set_catcode_other:N &
974       \tex_global:D \char_set_catcode_other:N ##
975     }
976   }
977 } \iffalse $ \fi % to make syntax highlighting work again

```

(End definition for `\stex_smsmode_set_codes:.` This function is documented on page 16.)

`_stex_smsmode_unset_codes:` Sets category code scheme back from the one used in SMS mode.

```

978 \cs_new_protected:Nn \_stex_smsmode_unset_codes: {
979   \__stex_smsmode_if_catcodes:T {
980     \bool_gset_false:N \g__stex_smsmode_catcode_bool
981     \exp_after:wN \tex_global:D \exp_after:wN
982     \char_set_catcode_escape:N \c_backslash_str
983     \tex_global:D \char_set_catcode_math_toggle:N $
984     \tex_global:D \char_set_catcode_math_superscript:N ^
985     \tex_global:D \char_set_catcode_math_subscript:N _
986     \tex_global:D \char_set_catcode_alignment:N &
987     \tex_global:D \char_set_catcode_parameter:N ##
988   }
989 } \iffalse $ \fi % to make syntax highlighting work again

```

(End definition for `_stex_smsmode_unset_codes:.`)

`\stex_in_smsmode:nn`

```

990 \cs_new_protected:Nn \stex_in_smsmode:nn {
991   \vbox_set:Nn \l_tmpa_box {
992     \bool_set_eq:cN { l__stex_smsmode_#1_bool } \g__stex_smsmode_bool
993     \bool_gset_true:N \g__stex_smsmode_bool
994     \stex_smsmode_set_codes:
995     #2
996     \bool_gset_eq:Nc \g__stex_smsmode_bool { l__stex_smsmode_#1_bool }
997     \stex_if_smsmode:F {
998       \_stex_smsmode_unset_codes:
999     }
1000   }
1001   \box_clear:N \l_tmpa_box
1002 }

```


(End definition for `\stex_in_smsmode:nn`. This function is documented on page 16.)

`__stex_smsmode_cs:` is executed on encountering `\` in `smsmode`. It checks whether the corresponding command is allowed and executes or ignores it accordingly:

```

1003 \cs_new_protected:Nn \__stex_smsmode_cs: {
1004   \str_clear:N \l_tmpa_str
1005   \peek_analysis_map_inline:n {
1006     % #1: token (one expansion)
1007     % #2: charcode
1008     % #3 catcode
1009     \token_if_eq_charcode:NNTF ##3 B {
1010       % token is a letter
1011       \exp_args:NNo \str_put_right:Nn \l_tmpa_str { ##1 }
1012     } {
1013       \str_if_empty:NTF \l_tmpa_str {
1014         % we don't allow (or need) single non-letter CSs
1015         % for now
1016         \peek_analysis_map_break:
1017       }{
1018         \str_if_eq:onTF \l_tmpa_str { begin } {
1019           \peek_analysis_map_break:n {
1020             \exp_after:wN \__stex_smsmode_checkbegin:n ##1
1021           }
1022         } {
1023           \str_if_eq:onTF \l_tmpa_str { end } {
1024             \peek_analysis_map_break:n {
1025               \exp_after:wN \__stex_smsmode_checkend:n ##1
1026             }
1027           } {
1028             \tl_set:Nn \l_tmpa_tl { \use:c{\l_tmpa_str} }
1029             \exp_args:NNNo \exp_args:NNo \tl_if_in:NnTF
1030               \g_stex_smsmode_allowedmacros_tl
1031               { \use:c{\l_tmpa_str} } {
1032               \stex_debug:n{Executing~1:~\l_tmpa_str}
1033               \peek_analysis_map_break:n {
1034                 \exp_after:wN \l_tmpa_tl ##1
1035               }
1036             } {
1037               \exp_args:NNNo \exp_args:NNo \tl_if_in:NnTF
1038               \g_stex_smsmode_allowedmacros_escape_tl
1039               { \use:c{\l_tmpa_str} } {
1040               \stex_debug:n{Executing~2:~\l_tmpa_str}
1041               % TODO \__stex_smsmode_rescan_cs:
1042               \exp_after:wN \exp_after:wN \exp_after:wN
1043               \token_if_eq_charcode:NNTF \exp_after:wN \c_backslash_str ##1 {
1044               %
1045               \peek_analysis_map_break:n {
1046               %
1047               \__stex_smsmode_unset_codes:
1048               %
1049               \__stex_smsmode_rescan_cs:
1050               }
1051             } {
1052               \peek_analysis_map_break:n {
1053               \__stex_smsmode_unset_codes:
1054               \exp_after:wN \l_tmpa_tl ##1
1055             }
1056           }
1057         }
1058       }
1059     }
1060   }
1061 }

```

```

1053 %           }
1054           } {
1055           \peek_analysis_map_break:n { ##1 }
1056           }
1057       }
1058   }
1059 }
1060 }
1061 }
1062 }
1063 }

```

(End definition for `_stex_smsmode_cs:.`)

`_stex_smsmode_rescan_cs:` If the last token gobbled by `\stex_smsmode_cs:` happened to be a `\`, we need to rescan the cs name and reinsert it into the input stream:

```

1064 \cs_new_protected:Nn \_stex_smsmode_rescan_cs: {
1065   \str_clear:N \l_tmpb_str
1066   \peek_analysis_map_inline:n {
1067     \token_if_eq_charcode:NNTF ##3 B {
1068       % token is a letter
1069       \exp_args:NNo \str_put_right:Nn \l_tmpb_str { ##1 }
1070     } {
1071       \peek_analysis_map_break:n {
1072         \exp_after:wN \use:c \exp_after:wN {
1073           \exp_after:wN \l_tmpa_str\exp_after:wN
1074         } \use:c { \l_tmpb_str \exp_after:wN } ##1
1075       }
1076     }
1077   }
1078 }

```

(End definition for `_stex_smsmode_rescan_cs:.`)

`_stex_smsmode_checkbegin:n` called on `\begin`; checks whether the environment being opened is allowed in SMS mode.

```

1079 \cs_new_protected:Nn \_stex_smsmode_checkbegin:n {
1080   \str_set:Nn \l_tmpa_str { #1 }
1081   \seq_if_in:NoT \g_stex_smsmode_allowedenvs_seq \l_tmpa_str {
1082     \_stex_smsmode_unset_codes:
1083     \begin{#1}
1084   }
1085 }

```

(End definition for `_stex_smsmode_checkbegin:n.`)

`_stex_smsmode_checkend:n` called on `\end`; checks whether the environment being opened is allowed in SMS mode.

```

1086 \cs_new_protected:Nn \_stex_smsmode_checkend:n {
1087   \str_set:Nn \l_tmpa_str { #1 }
1088   \seq_if_in:NoT \g_stex_smsmode_allowedenvs_seq \l_tmpa_str {
1089     \end{#1}
1090   }
1091 }

```

(End definition for `_stex_smsmode_checkend:n.`)

4.5.3 Inheritance

1092 <@@=stex_importmodule>

\stex_import_module_uri:nn

```

1093 \cs_new_protected:Nn \stex_import_module_uri:nn {
1094   \str_set:Nx \l__stex_importmodule_archive_str { #1 }
1095   \str_set:Nx \l__stex_importmodule_path_str { #2 }
1096   \str_if_empty:NT \l__stex_importmodule_archive_str {
1097     \prop_if_empty:NF \l_stex_current_repository_prop {
1098       \prop_get:NnN \l_stex_current_repository_prop { id } \l__stex_importmodule_archive_str
1099     }
1100   }
1101
1102   \exp_args:NNNo \seq_set_split:Nnn \l_tmpb_seq ? { \l__stex_importmodule_path_str }
1103   \seq_pop_right:NN \l_tmpb_seq \l__stex_importmodule_name_str
1104   \str_set:Nx \l__stex_importmodule_path_str { \seq_use:Nn \l_tmpb_seq ? }
1105
1106   \str_if_empty:NTF \l__stex_importmodule_archive_str {
1107     \stex_modules_current_namespace:
1108     \str_if_empty:NF \l__stex_importmodule_path_str {
1109       \str_set:Nx \l_stex_module_ns_str {
1110         \l_stex_module_ns_str / \l__stex_importmodule_path_str
1111       }
1112     }
1113   }{
1114     \stex_require_repository:n \l__stex_importmodule_archive_str
1115     \prop_get:cnN { c_stex_mathhub\l__stex_importmodule_archive_str _manifest_prop } { ns }
1116     \l_stex_module_ns_str
1117     \str_if_empty:NF \l__stex_importmodule_path_str {
1118       \str_set:Nx \l_stex_module_ns_str {
1119         \l_stex_module_ns_str / \l__stex_importmodule_path_str
1120       }
1121     }
1122   }
1123 }
```

(End definition for \stex_import_module_uri:nn. This function is documented on page 19.)

\l__stex_importmodule_name_str	Store the return values of \stex_import_module_uri:nn.
\l__stex_importmodule_archive_str	1124 \str_new:N \l__stex_importmodule_name_str
\l__stex_importmodule_path_str	1125 \str_new:N \l__stex_importmodule_archive_str
\l__stex_importmodule_file_str	1126 \str_new:N \l__stex_importmodule_path_str
	1127 \str_new:N \g__stex_importmodule_file_str

(End definition for \l__stex_importmodule_name_str and others.)

\stex_import_require_module:nnnn

```

    {<ns>} {<archive-ID>} {<path>} {<name>}
1128 \cs_new_protected:Nn \stex_import_require_module:nnnn {
1129   \exp_args:Nx \stex_if_module_exists:nF { #1 ? #4 } {
1130     % \stex_debug:n{Arguments: #1, #2, #3, #4}
1131
1132     % archive
1133     \str_set:Nx \l_tmpa_str { #2 }
1134     \str_if_empty:NTF \l_tmpa_str {
```

```

1135     \seq_set_eq:NN \l_tmpa_seq \g_stex_currentfile_seq
1136 } {
1137   \stex_path_from_string:Nn \l_tmpb_seq { \l_tmpa_str }
1138   \seq_concat:NNN \l_tmpa_seq \c_stex_mathhub_seq \l_tmpb_seq
1139   \seq_put_right:Nn \l_tmpa_seq { source }
1140 }
1141
1142 % path
1143 \str_set:Nx \l_tmpb_str { #3 }
1144 \str_if_empty:NTF \l_tmpb_str {
1145   \str_set:Nx \l_tmpa_str { \stex_path_to_string:N \l_tmpa_seq / #4 }
1146 }
1147 \ltx@ifpackageloaded{babel} {
1148   \exp_args:NNx \prop_get:NnNF \c_stex_language_abbrevs_prop
1149     { \language } \l_tmpb_str {
1150     \msg_set:nnn{stex}{error/unknownlanguage}{
1151       Unknown-language-~\language
1152     }
1153     \msg_error:nn{stex}{error/unknownlanguage}
1154   }
1155 } {
1156   \str_clear:N \l_tmpb_str
1157 }
1158
1159 \stex_debug:n{Checking-~\l_tmpa_str.\l_tmpb_str.tex}
1160 \IfFileExists{ \l_tmpa_str.\l_tmpb_str.tex }{
1161   \str_gset:Nx \g__stex_importmodule_file_str { \l_tmpa_str.\l_tmpb_str.tex }
1162 }{
1163   \stex_debug:n{Checking-~\l_tmpa_str.tex}
1164   \IfFileExists{ \l_tmpa_str.tex }{
1165     \str_gset:Nx \g__stex_importmodule_file_str { \l_tmpa_str.tex }
1166   }{
1167     % try english as default
1168     \stex_debug:n{Checking-~\l_tmpa_str.en.tex}
1169     \IfFileExists{ \l_tmpa_str.en.tex }{
1170       \str_gset:Nx \g__stex_importmodule_file_str { \l_tmpa_str.en.tex }
1171     }{
1172       \msg_set:nnn{stex}{error/modulemissing}{
1173         No-file-for-module-~#1?#4-found
1174       }
1175       \msg_error:nn{stex}{error/modulemissing}
1176     }
1177   }
1178 }
1179
1180 } {
1181   \seq_set_split:NnV \l_tmpb_seq / \l_tmpb_str
1182   \seq_concat:NNN \l_tmpa_seq \l_tmpa_seq \l_tmpb_seq
1183 }
1184 \ltx@ifpackageloaded{babel} {
1185   \exp_args:NNx \prop_get:NnNF \c_stex_language_abbrevs_prop
1186     { \language } \l_tmpb_str {
1187     \msg_set:nnn{stex}{error/unknownlanguage}{
1188       Unknown-language-~\language

```

```

1189         }
1190         \msg_error:nn{stex}{error/unknownlanguage}
1191     }
1192 } {
1193     \str_clear:N \l_tmpb_str
1194 }
1195
1196 \stex_path_to_string:NN \l_tmpa_seq \l_tmpa_str
1197
1198 \stex_debug:n{Checking~\l_tmpa_str/#4.\l_tmpb_str.tex}
1199 \IfFileExists{ \l_tmpa_str/#4.\l_tmpb_str.tex }{
1200     \str_gset:Nx \g__stex_importmodule_file_str { \l_tmpa_str/#4.\l_tmpb_str.tex }
1201 }{
1202     \stex_debug:n{Checking~\l_tmpa_str/#4.tex}
1203     \IfFileExists{ \l_tmpa_str/#4.tex }{
1204         \str_gset:Nx \g__stex_importmodule_file_str { \l_tmpa_str/#4.tex }
1205     }{
1206         % try english as default
1207         \stex_debug:n{Checking~\l_tmpa_str/#4.en.tex}
1208         \IfFileExists{ \l_tmpa_str/#4.en.tex }{
1209             \str_gset:Nx \g__stex_importmodule_file_str { \l_tmpa_str/#4.en.tex }
1210         }{
1211             \stex_debug:n{Checking~\l_tmpa_str.\l_tmpb_str.tex}
1212             \IfFileExists{ \l_tmpa_str.\l_tmpb_str.tex }{
1213                 \str_gset:Nx \g__stex_importmodule_file_str { \l_tmpa_str.\l_tmpb_str.tex }
1214             }{
1215                 \stex_debug:n{Checking~\l_tmpa_str.tex}
1216                 \IfFileExists{ \l_tmpa_str.tex }{
1217                     \str_gset:Nx \g__stex_importmodule_file_str { \l_tmpa_str.tex }
1218                 }{
1219                     % try english as default
1220                     \stex_debug:n{Checking~\l_tmpa_str.en.tex}
1221                     \IfFileExists{ \l_tmpa_str.en.tex }{
1222                         \str_gset:Nx \g__stex_importmodule_file_str { \l_tmpa_str.en.tex }
1223                     }{
1224                         \msg_set:nnn{stex}{error/modulemissing}{
1225                             No~file~for~module~#1?#4~found
1226                         }
1227                         \msg_error:nn{stex}{error/modulemissing}
1228                     }
1229                 }
1230             }
1231         }
1232     }
1233 }
1234 }
1235
1236 \seq_set_eq:NN \l_tmpa_seq \g_stex_modules_in_file_seq
1237 \seq_clear:N \g_stex_modules_in_file_seq
1238 % \exp_args:Nnx \use:nn {
1239     \exp_args:No \stex_in_smsmode:nn { \g__stex_importmodule_file_str } {
1240         \seq_clear:N \l_stex_all_modules_seq
1241         \prop_clear:N \l_stex_current_module_prop
1242         \str_set:Nx \l_tmpb_str { #2 }

```

```

1243     \str_if_empty:NF \l_tmpb_str {
1244         \stex_set_current_repository:n { #2 }
1245     }
1246     \stex_debug:n{Loading~\g__stex_importmodule_file_str}
1247     \input { \g__stex_importmodule_file_str }
1248 }
1249 % }{
1250
1251 % }
1252 \prop_gput:Noo \g_stex_module_files_prop
1253 \g__stex_importmodule_file_str \g_stex_modules_in_file_seq
1254 \seq_set_eq:NN \g_stex_modules_in_file_seq \l_tmpa_seq
1255
1256 \stex_if_module_exists:nF { #1 ? #4 } {
1257     \msg_set:nnn{stex}{error/modulemissing}{
1258         Module~#1?#4~not~found~in~file~\g__stex_importmodule_file_str
1259     }
1260     \msg_error:nn{stex}{error/modulemissing}
1261 }
1262 }
1263 \stex_activate_module:n { #1 ? #4 }
1264 }

```

(End definition for `\stex_import_require_module:nnnn`. This function is documented on page 19.)

`\stex_activate_module:n`

```

1265 \cs_new_protected:Nn \stex_activate_module:n {
1266     \stex_debug:n{Activating~module~#1}
1267     \exp_args:NNx \seq_if_in:NnF \l_stex_all_modules_seq { #1 } {
1268         \seq_put_right:Nx \l_stex_all_modules_seq { #1 }
1269         \prop_item:cn { c_stex_module_#1_prop } { content }
1270     }
1271 }

```

(End definition for `\stex_activate_module:n`. This function is documented on page 19.)

`\importmodule`

```

1272 \NewDocumentCommand \importmodule { 0{} m } {
1273     \stex_import_module_uri:nn { #1 } { #2 }
1274     \stex_debug:n{Importing~module:~
1275         \l_stex_module_ns_str ? \l__stex_importmodule_name_str
1276     }
1277     \stex_if_smsmode:F {
1278         \stex_import_require_module:nnnn
1279         { \l_stex_module_ns_str } { \l__stex_importmodule_archive_str }
1280         { \l__stex_importmodule_path_str } { \l__stex_importmodule_name_str }
1281         \stex_annotate_invisible:nnn
1282         {import} { \l_stex_module_ns_str ? \l__stex_importmodule_name_str } {}
1283     }
1284     \exp_args:Nx \stex_add_to_current_module:n {
1285         \stex_import_require_module:nnnn
1286         { \l_stex_module_ns_str } { \l__stex_importmodule_archive_str }
1287         { \l__stex_importmodule_path_str } { \l__stex_importmodule_name_str }
1288     }
1289     \exp_args:Nx \stex_add_import_to_current_module:n {

```

```

1290 \l_stex_module_ns_str ? \l__stex_importmodule_name_str
1291 }
1292 \stex_smsmode_set_codes:
1293 }

```

(End definition for \importmodule. This function is documented on page 16.)

\usemodule

```

1294 \NewDocumentCommand \usemodule { 0{} m } {
1295 \stex_if_smsmode:F {
1296 \stex_import_module_uri:nn { #1 } { #2 }
1297 \stex_import_require_module:nnnn
1298 { \l_stex_module_ns_str } { \l__stex_importmodule_archive_str }
1299 { \l__stex_importmodule_path_str } { \l__stex_importmodule_name_str }
1300 \stex_annotate_invisible:nnn
1301 {usemodule} {\l_stex_module_ns_str ? \l__stex_importmodule_name_str} {}
1302 }
1303 \stex_smsmode_set_codes:
1304 }

```

(End definition for \usemodule. This function is documented on page 17.)

\g_stex_modules_in_file_seq \g_stex_module_files_prop

```

1305 \seq_new:N \g_stex_modules_in_file_seq
1306 \prop_new:N \g_stex_module_files_prop

```

(End definition for \g_stex_modules_in_file_seq and \g_stex_module_files_prop. These variables are documented on page 19.)

4.6 Symbol Declarations

```

1307 <@@=stex_symdecl>

```

\l_stex_all_symbols_seq Stores all available symbols

```

1308 \seq_new:N \l_stex_all_symbols_seq

```

(End definition for \l_stex_all_symbols_seq. This variable is documented on page 21.)

\STEXsymbol

```

1309 \NewDocumentCommand \STEXsymbol { m } {
1310 \stex_get_symbol:n { #1 }
1311 \exp_args:No
1312 \stex_invoke_symbol:n { \l_stex_get_symbol_uri_str }
1313 }

```

(End definition for \STEXsymbol. This function is documented on page 21.)

symdecl arguments:

```

1314 \keys_define:nn { stex / symdecl } {
1315 name .tl_set_x:N = \l_stex_symdecl_name_str ,
1316 local .bool_set:N = \l_stex_symdecl_local_bool ,
1317 args .tl_set_x:N = \l_stex_symdecl_args_str ,
1318 type .tl_set:N = \l_stex_symdecl_type_tl ,
1319 align .tl_set:N = \l_stex_symdecl_align_str , % TODO(?)
1320 gfc .tl_set:N = \l_stex_symdecl_gfc_str , % TODO(?)
1321 specializes .tl_set:N = \l_stex_symdecl_specializes_str , % TODO(?)

```

```

1322   def          .tl_set:N      = \l_stex_symdecl_definiens_tl
1323 }
1324
1325 \bool_new:N \l_stex_symdecl_make_macro_bool
1326
1327 \cs_new_protected:Nn \__stex_symdecl_args:n {
1328   \str_clear:N \l_stex_symdecl_name_str
1329   \str_clear:N \l_stex_symdecl_args_str
1330   \bool_set_false:N \l_stex_symdecl_local_bool
1331   \tl_clear:N \l_stex_symdecl_type_tl
1332   \tl_clear:N \l_stex_symdecl_definiens_tl
1333
1334   \keys_set:nn { stex /symdecl } { #1 }
1335
1336   \exp_args:NNo \str_set:Nn \l_stex_symdecl_name_str
1337     \l_stex_symdecl_name_str
1338   \exp_args:NNo \str_set:Nn \l_stex_symdecl_args_str
1339     \l_stex_symdecl_args_str
1340 }

```

\symdecl Parses the optional arguments and passes them on to `\stex_symdecl_do:` (so that `\symdef` can do the same)

```

1341
1342 \NewDocumentCommand \symdecl { s O{} m } {
1343   \__stex_symdecl_args:n { #2 }
1344   \IfBooleanTF #1 {
1345     \bool_set_false:N \l_stex_symdecl_make_macro_bool
1346   } {
1347     \bool_set_true:N \l_stex_symdecl_make_macro_bool
1348   }
1349   \stex_symdecl_do:n { #3 }
1350   \stex_smsmode_set_codes:
1351 }

```

(End definition for `\symdecl`. This function is documented on page 20.)

\stex_symdecl_do:n

```

1352 \cs_new_protected:Nn \stex_symdecl_do:n {
1353   \stex_if_in_module:F {
1354     % TODO throw error? some default namespace?
1355   }
1356
1357   \str_if_empty:NT \l_stex_symdecl_name_str {
1358     \str_set:Nx \l_stex_symdecl_name_str { #1 }
1359   }
1360
1361   \prop_if_exist:cT { g_stex_symdecl_
1362     \prop_item:Nn \l_stex_current_module_prop {ns} ?
1363     \prop_item:Nn \l_stex_current_module_prop {name} ?
1364     \l_stex_symdecl_name_str
1365     _prop
1366   }{
1367     % TODO throw error (beware of circular dependencies)
1368   }

```



```

1369
1370 \prop_clear:N \l_tmpa_prop
1371 \prop_put:Nnx \l_tmpa_prop { module } {
1372   \prop_item:Nn \l_stex_current_module_prop {ns} ?
1373   \prop_item:Nn \l_stex_current_module_prop {name}
1374 }
1375 \seq_clear:N \l_tmpa_seq
1376 \prop_put:Nno \l_tmpa_prop { notations } \l_tmpa_seq
1377 \prop_put:Nno \l_tmpa_prop { name } \l_stex_symdecl_name_str
1378 \prop_put:Nno \l_tmpa_prop { local } \l_stex_symdecl_local_bool
1379 \prop_put:Nno \l_tmpa_prop { type } \l_stex_symdecl_type_tl
1380
1381 \exp_args:No \stex_add_constant_to_current_module:n {
1382   \l_stex_symdecl_name_str
1383 }
1384
1385 % arity/args
1386 \int_zero:N \l_tmpb_int
1387
1388 \bool_set_true:N \l_tmpa_bool
1389 \str_map_inline:Nn \l_stex_symdecl_args_str {
1390   \token_case_meaning:NnF ##1 {
1391     0 {} 1 {} 2 {} 3 {} 4 {} 5 {} 6 {} 7 {} 8 {} 9 {}
1392     {\tl_to_str:n i} { \bool_set_false:N \l_tmpa_bool }
1393     {\tl_to_str:n b} { \bool_set_false:N \l_tmpa_bool }
1394     {\tl_to_str:n a} {
1395       \bool_set_false:N \l_tmpa_bool
1396       \int_incr:N \l_tmpb_int
1397     }
1398     {\tl_to_str:n B} {
1399       \bool_set_false:N \l_tmpa_bool
1400       \int_incr:N \l_tmpb_int
1401     }
1402   }{
1403     \msg_set:nnn{stex}{error/wrongargs}{
1404       args~value~in~symbol~declaration~for~
1405       \prop_item:Nn \l_stex_current_module_prop {ns} ?
1406       \prop_item:Nn \l_stex_current_module_prop {name} ?
1407       \l_stex_symdecl_name_str ~
1408       needs~to~be~
1409       i,~a,~b~or~B,~but~##1~given
1410     }
1411     \msg_error:nn{stex}{error/wrongargs}
1412   }
1413 }
1414 \bool_if:NTF \l_tmpa_bool {
1415   % possibly numeric
1416   \str_if_empty:NTF \l_stex_symdecl_args_str {
1417     \prop_put:Nnn \l_tmpa_prop { args } {}
1418     \prop_put:Nnn \l_tmpa_prop { arity } { 0 }
1419   }{
1420     \int_set:Nn \l_tmpa_int { \l_stex_symdecl_args_str }
1421     \prop_put:Nnx \l_tmpa_prop { arity } { \int_use:N \l_tmpa_int }
1422     \str_clear:N \l_tmpa_str

```

```

1423     \int_step_inline:nn \l_tmpa_int {
1424       \str_put_right:Nn \l_tmpa_str i
1425     }
1426     \prop_put:Nnx \l_tmpa_prop { args } { \l_tmpa_str }
1427   }
1428 } {
1429   \prop_put:Nnx \l_tmpa_prop { args } { \l_stex_symdecl_args_str }
1430   \prop_put:Nnx \l_tmpa_prop { arity }
1431     { \str_count:N \l_stex_symdecl_args_str }
1432 }
1433 \prop_put:Nnx \l_tmpa_prop { assocs } { \int_use:N \l_tmpb_int }
1434
1435
1436 % semantic macro
1437
1438 \bool_if:NT \l_stex_symdecl_make_macro_bool {
1439   \tl_set:cx { #1 } { \stex_invoke_symbol:n {
1440     \prop_item:Nn \l_tmpa_prop { module } ?
1441     \prop_item:Nn \l_tmpa_prop { name }
1442   } }
1443
1444   \bool_if:NF \l_stex_symdecl_local_bool {
1445     \exp_args:Nx \stex_add_to_current_module:n {
1446       \tl_set:cx { #1 } { \stex_invoke_symbol:n {
1447         \prop_item:Nn \l_tmpa_prop { module } ?
1448         \prop_item:Nn \l_tmpa_prop { name }
1449       } }
1450     }
1451   }
1452 }
1453
1454 % add to all symbols
1455
1456 \bool_if:NF \l_stex_symdecl_local_bool {
1457   \exp_args:Nx \stex_add_to_current_module:n {
1458     \seq_put_right:Nn \exp_not:N \l_stex_all_symbols_seq {
1459       \prop_item:Nn \l_tmpa_prop { module } ?
1460       \prop_item:Nn \l_tmpa_prop { name }
1461     }
1462   }
1463 }
1464
1465 \stex_debug:n{New~symbol:~
1466   \prop_item:Nn \l_tmpa_prop { module } ?
1467   \prop_item:Nn \l_tmpa_prop { name }^^J
1468   Type:~\exp_not:o { \l_stex_symdecl_type_tl }^^J
1469   Args:~\prop_item:Nn \l_tmpa_prop { args }
1470 }
1471
1472 % circular dependencies require this:
1473
1474 \prop_if_exist:cF {
1475   g_stex_symdecl_
1476   \prop_item:Nn \l_tmpa_prop { module } ?

```

```

1477     \prop_item:Nn \l_tmpa_prop { name }
1478     _prop
1479   } {
1480     \prop_gset_eq:cN {
1481       g_stex_symdecl_
1482       \prop_item:Nn \l_tmpa_prop { module } ?
1483       \prop_item:Nn \l_tmpa_prop { name }
1484       _prop
1485     } \l_tmpa_prop
1486   }
1487
1488   \stex_if_smsmode:TF {
1489     \bool_if:NF \l_stex_symdecl_local_bool {
1490       \exp_args:Nx \stex_addtosms:n {
1491         \prop_gset_from_keyval:cn {
1492           g_stex_symdecl_
1493           \prop_item:Nn \l_tmpa_prop { module } ?
1494           \prop_item:Nn \l_tmpa_prop { name }
1495           _prop
1496         } {
1497           name      = \prop_item:Nn \l_tmpa_prop { name }      ,
1498           module    = \prop_item:Nn \l_tmpa_prop { module }    ,
1499           notations = \prop_item:Nn \l_tmpa_prop { notations } ,
1500           local     = \prop_item:Nn \l_tmpa_prop { local }     ,
1501           type      = \prop_item:Nn \l_tmpa_prop { type }      ,
1502           args      = \prop_item:Nn \l_tmpa_prop { args }      ,
1503           arity     = \prop_item:Nn \l_tmpa_prop { arity }     ,
1504           assocs    = \prop_item:Nn \l_tmpa_prop { assocs }
1505         }
1506         \seq_put_right:Nn \exp_not:N \l_stex_all_symbols_seq {
1507           \prop_item:Nn \l_tmpa_prop { module } ?
1508           \prop_item:Nn \l_tmpa_prop { name }
1509         }
1510       }
1511     }
1512   }{
1513     \exp_args:NNx \seq_put_right:Nn \l_stex_all_symbols_seq {
1514       \prop_item:Nn \l_tmpa_prop { module } ?
1515       \prop_item:Nn \l_tmpa_prop { name }
1516     }
1517     \stex_annotate_invisible:nnn {symdecl} {
1518       \prop_item:Nn \l_tmpa_prop { module } ?
1519       \prop_item:Nn \l_tmpa_prop { name }
1520     } {
1521       \stex_annotate_invisible:nnn{type}{-}{\l_stex_symdecl_type_tl$}
1522       \stex_annotate_invisible:nnn{args}{-}{
1523         \prop_item:Nn \l_tmpa_prop { args }
1524       }
1525       \stex_annotate_invisible:nnn{macroname}{-}{#1}
1526       \tl_if_empty:NF \l_stex_symdecl_definiens_tl {
1527         \stex_annotate_invisible:nnn{definiens}{-}{
1528           {\l_stex_symdecl_definiens_tl$}
1529         }
1530       }

```

```

1531 }
1532 }

```

(End definition for `\stex_symdecl_do:n`. This function is documented on page 20.)

`\stex_get_symbol:n`

```

1533 \str_new:N \l_stex_get_symbol_uri_str
1534
1535 \cs_new_protected:Nn \stex_get_symbol:n {
1536   \tl_if_head_eq_catcode:nNTF { #1 } \relax {
1537     \__stex_symdecl_get_symbol_from_cs:n { #1 }
1538   }{
1539     % argument is a string
1540     % is it a command name?
1541     \cs_if_exist:cTF { #1 }{
1542       \cs_set_eq:Nc \l_tmpa_tl { #1 }
1543       \str_set:Nx \l_tmpa_str { \cs_argument_spec:N \l_tmpa_tl }
1544       \str_if_empty:NNTF \l_tmpa_str {
1545         \exp_args:Nx \cs_if_eq:NNTF {
1546           \tl_head:N \l_tmpa_tl
1547         } \stex_invoke_symbol:n {
1548           \exp_args:No \__stex_symdecl_get_symbol_from_cs:n { \use:c { #1 } }
1549         }{
1550           \__stex_symdecl_get_symbol_from_string:n { #1 }
1551         }
1552       } {
1553         \__stex_symdecl_get_symbol_from_string:n { #1 }
1554       }
1555     }{
1556       % argument is not a command name
1557       \__stex_symdecl_get_symbol_from_string:n { #1 }
1558       % \l_stex_all_symbols_seq
1559     }
1560   }
1561 }
1562
1563 \cs_new_protected:Nn \__stex_symdecl_get_symbol_from_string:n {
1564   \prop_get:NnN \l_stex_current_module_prop
1565   { constants } \l_tmpa_seq
1566   \seq_if_in:NnTF \l_tmpa_seq { #1 } {
1567     \str_set:Nx \l_stex_get_symbol_uri_str {
1568       \prop_item:Nn \l_stex_current_module_prop { ns } ?
1569       \prop_item:Nn \l_stex_current_module_prop { name } ? #1
1570     }
1571   } {
1572     \tl_set:Nn \l_tmpa_tl {
1573       \msg_set:nnn{stex}{error/unknownsymbol}{
1574         No~symbol~#1~found!
1575       }
1576       \msg_error:nn{stex}{error/unknownsymbol}
1577     }
1578     \exp_args:NNx \str_set:Nn \l_tmpa_str { #1 }
1579     \int_set:Nn \l_tmpa_int { \str_count:N \l_tmpa_str }
1580     \seq_map_inline:Nn \l_stex_all_symbols_seq {

```

```

1581     \str_set:Nn \l_tmpb_str { ##1 }
1582     \str_if_eq:eeT { \l_tmpa_str } {
1583       \str_range:Nnn \l_tmpb_str { -\l_tmpa_int } { -1 }
1584     } {
1585       \seq_map_break:n {
1586         \tl_set:Nn \l_tmpa_tl {
1587           \str_set:Nn \l_stex_get_symbol_uri_str {
1588             ##1
1589           }
1590         }
1591       }
1592     }
1593   }
1594   \l_tmpa_tl
1595 }
1596 }
1597
1598 \cs_new_protected:Nn \__stex_symdecl_get_symbol_from_cs:n {
1599   \exp_args:NNx \tl_set:Nn \l_tmpa_tl
1600     { \tl_tail:N \l_tmpa_tl }
1601   \tl_if_single:NTF \l_tmpa_tl {
1602     \exp_args:No \tl_if_head_is_group:nTF \l_tmpa_tl {
1603       \exp_after:wN \str_set:Nn \exp_after:wN
1604         \l_stex_get_symbol_uri_str \l_tmpa_tl
1605     }{
1606       % TODO
1607       % tail is not a single group
1608     }
1609   }{
1610     % TODO
1611     % tail is not a single group
1612   }
1613 }

```

(End definition for `\stex_get_symbol:n`. This function is documented on page 21.)

4.7 Notations

```

1614 <@@=stex_notation>
1615 notation arguments:
1616 \keys_define:nn { stex / notation } {
1617   lang      .tl_set_x:N = \l__stex_notation_lang_str ,
1618   variant   .tl_set_x:N = \l__stex_notation_variant_str ,
1619   prec      .tl_set_x:N = \l__stex_notation_prec_str ,
1620   unknown   .code:n      = \str_set:Nx
1621     \l__stex_notation_variant_str \l_keys_key_str
1622 }
1623 \cs_new_protected:Nn \__stex_notation_args:n {
1624   \str_clear:N \l__stex_notation_lang_str
1625   \str_clear:N \l__stex_notation_variant_str
1626   \str_clear:N \l__stex_notation_prec_str
1627
1628   \keys_set:nn { stex / notation } { #1 }

```

```

1629
1630 \str_set:Nx \l__stex_notation_lang_str \l__stex_notation_lang_str
1631 \str_set:Nx \l__stex_notation_variant_str \l__stex_notation_variant_str
1632 \str_set:Nx \l__stex_notation_prec_str \l__stex_notation_prec_str
1633 }

```

\notation

```

1634 \NewDocumentCommand \notation { 0{ } m } {
1635   \__stex_notation_args:n { #1 }
1636   \tl_clear:N \l_stex_symdecl_definiens_tl
1637   \stex_get_symbol:n { #2 }
1638   \stex_notation_do:nn { \l_stex_get_symbol_uri_str }
1639 }

```

(End definition for \notation. This function is documented on page 21.)

\stex_notation_do:nn

```

1640 \cs_new_protected:Nn \stex_notation_do:nn {
1641   \prop_set_eq:Nc \l_tmpa_prop {
1642     g_stex_symdecl_#1 _prop
1643   }
1644
1645   \prop_clear:N \l_tmpb_prop
1646   \prop_put:Nno \l_tmpb_prop { symbol } { #1 }
1647   \prop_put:Nno \l_tmpb_prop { language } \l__stex_notation_lang_str
1648   \prop_put:Nno \l_tmpb_prop { variant } \l__stex_notation_variant_str
1649
1650   % precedences
1651   \seq_clear:N \l_tmpb_seq
1652   \exp_args:NNno
1653   \str_if_empty:NTF \l__stex_notation_prec_str {
1654     \prop_get:NnN \l_tmpa_prop { arity } \l_tmpa_str
1655     \int_compare:nNnTF \l_tmpa_str = 0 {
1656       \exp_args:NNnx
1657       \prop_put:Nno \l_tmpb_prop { opprec }
1658       { \infprec }
1659     }{
1660       \prop_put:Nnn \l_tmpb_prop { opprec } { 0 }
1661     }
1662   } {
1663     \seq_set_split:NnV \l_tmpa_seq ; \l__stex_notation_prec_str
1664     \seq_pop_left:NNTF \l_tmpa_seq \l_tmpa_str {
1665       \prop_put:Nno \l_tmpb_prop { opprec } \l_tmpa_str
1666       \seq_pop_left:NNT \l_tmpa_seq \l_tmpa_str {
1667         \exp_args:NNno \exp_args:NNno \seq_set_split:Nnn
1668         \l_tmpa_seq {\tl_to_str:n{x}} { \l_tmpa_str }
1669         \seq_map_inline:Nn \l_tmpa_seq {
1670           \seq_put_right:Nn \l_tmpb_seq { ##1 }
1671         }
1672       }
1673       \prop_get:NnN \l_tmpa_prop { arity } \l_tmpa_str
1674     }{
1675       \prop_get:NnN \l_tmpa_prop { arity } \l_tmpa_str
1676       \int_compare:nNnTF \l_tmpa_str = 0 {
1677         \exp_args:NNnx

```

```

1678     \prop_put:Nno \l_tmpb_prop { opprec }
1679     { \infprec }
1680   }{
1681     \prop_put:Nnn \l_tmpb_prop { opprec } { 0 }
1682   }
1683 }
1684 }
1685
1686 \seq_set_eq:NN \l_tmpa_seq \l_tmpb_seq
1687 \int_step_inline:nn { \l_tmpa_str } {
1688   \seq_pop_left:NNF \l_tmpa_seq \l_tmpb_str {
1689     \exp_args:NNx
1690     \seq_put_right:Nn \l_tmpb_seq {
1691       \prop_item:Nn \l_tmpb_prop { opprec }
1692     }
1693   }
1694 }
1695
1696 \prop_put:Nno \l_tmpb_prop { argprec } \l_tmpb_seq
1697 \tl_clear:N \l_tmpa_tl
1698
1699 \int_compare:nNnTF \l_tmpa_str = 0 {
1700   \exp_args:NNe
1701   \cs_set:Npn \l__stex_notation_macrocode_cs {
1702     \_stex_term_math_oms:nnnn { #1 }
1703     { \l__stex_notation_variant_str \c_hash_str \l__stex_notation_lang_str }
1704     { \prop_item:Nn \l_tmpb_prop { opprec } }
1705     { \exp_not:n { #2 } }
1706   }
1707   \__stex_notation_final:
1708 }{
1709   \prop_get:NnN \l_tmpa_prop { args } \l_tmpb_str
1710   \str_if_in:NnTF \l_tmpb_str b {
1711     \exp_args:Nne \use:nn
1712     {
1713       \cs_generate_from_arg_count:NNnn \l__stex_notation_macrocode_cs
1714       \cs_set:Npn \l_tmpa_str { {
1715         \_stex_term_math_omb:nnnn { #1 }
1716         { \l__stex_notation_variant_str \c_hash_str \l__stex_notation_lang_str }
1717         { \prop_item:Nn \l_tmpb_prop { opprec } }
1718         { \exp_not:n { #2 } }
1719       } }
1720     }{
1721       \str_if_in:NnTF \l_tmpb_str B {
1722         \exp_args:Nne \use:nn
1723         {
1724           \cs_generate_from_arg_count:NNnn \l__stex_notation_macrocode_cs
1725           \cs_set:Npn \l_tmpa_str { {
1726             \_stex_term_math_omb:nnnn { #1 }
1727             { \l__stex_notation_variant_str \c_hash_str \l__stex_notation_lang_str }
1728             { \prop_item:Nn \l_tmpb_prop { opprec } }
1729             { \exp_not:n { #2 } }
1730           } }
1731         }{

```

```

1732     \exp_args:Nne \use:nn
1733     {
1734     \cs_generate_from_arg_count:NNnn \l__stex_notation_macrocode_cs
1735     \cs_set:Npn \l_tmpa_str } { {
1736       \stex_term_math_oma:nnnn { #1 }
1737       { \l__stex_notation_variant_str \c_hash_str \l__stex_notation_lang_str }
1738       { \prop_item:Nn \l_tmpb_prop { opprec } }
1739       { \exp_not:n { #2 } }
1740     } }
1741   }
1742 }
1743
1744 \int_zero:N \l_tmpa_int
1745 \prop_get:NnN \l_tmpa_prop { args } \l_tmpa_str
1746 \prop_get:NnN \l_tmpb_prop { argprec } \l_tmpa_seq
1747 \__stex_notation_arguments:
1748 }
1749 }

```

(End definition for `\stex_notation_do:nn`. This function is documented on page 22.)

`__stex_notation_arguments:` Takes care of annotating the arguments in a notation macro

```

1750 \cs_new_protected:Nn \__stex_notation_arguments: {
1751   \int_incr:N \l_tmpa_int
1752   \str_if_empty:NTF \l_tmpa_str {
1753     \__stex_notation_final:
1754   }{
1755     \str_set:Nx \l_tmpb_str { \str_head:N \l_tmpa_str }
1756     \str_set:Nx \l_tmpa_str { \str_tail:N \l_tmpa_str }
1757     \str_if_eq:VnTF \l_tmpb_str a {
1758       \__stex_notation_argument_assoc:n
1759     }{
1760       \str_if_eq:VnTF \l_tmpb_str B {
1761         \__stex_notation_argument_assoc:n
1762       }{
1763         \seq_pop_left:NN \l_tmpa_seq \l_tmpb_str
1764         \tl_put_right:Nx \l_tmpa_tl {
1765           { \stex_term_math_arg:nnn
1766             { \int_use:N \l_tmpa_int }
1767             { \l_tmpb_str }
1768             { ###\int_use:N \l_tmpa_int }
1769           }
1770         }
1771         \__stex_notation_arguments:
1772       }
1773     }
1774   }
1775 }

```

(End definition for `__stex_notation_arguments:.`)

`__stex_notation_argument_assoc:n`

```

1776 \cs_new_protected:Nn \__stex_notation_argument_assoc:n {
1777   \seq_pop_left:NN \l_tmpa_seq \l_tmpb_str

```



```

1778 \cs_set:Npn \l_tmpa_cs ##1 ##2 { #1 }
1779 \tl_put_right:Nx \l_tmpa_tl {
1780   { \stex_term_math_assoc_arg:nnnn
1781     { \int_use:N \l_tmpa_int }
1782     { \l_tmpb_str }
1783     \exp_args:No \exp_not:n
1784     {\exp_after:wN { \l_tmpa_cs {####1} {####2} } }
1785     { ####\int_use:N \l_tmpa_int }
1786   }
1787 }
1788 \__stex_notation_arguments:
1789 }

```

(End definition for __stex_notation_argument_assoc:n.)

__stex_notation_final: Called after processing all notation arguments

```

1790 \cs_new_protected:Nn \__stex_notation_final: {
1791   \prop_get:NnN \l_tmpa_prop { arity } \l_tmpb_str
1792   \prop_get:NnN \l_tmpb_prop { symbol } \l_tmpa_str
1793   \prop_get:NnN \l_tmpb_prop { argprec } \l_tmpa_seq
1794   \exp_args:Nne \use:nn
1795   {
1796     \cs_generate_from_arg_count:cNnn {
1797       stex_notation_ \l_tmpa_str \c_hash_str
1798       \l__stex_notation_variant_str \c_hash_str \l__stex_notation_lang_str
1799       _cs
1800     }
1801     \cs_gset:Npn \l_tmpb_str { { {
1802       \exp_after:wN \exp_after:wN \exp_after:wN
1803       \exp_not:n \exp_after:wN \exp_after:wN \exp_after:wN
1804       { \exp_after:wN \l__stex_notation_macrocode_cs \l_tmpa_tl }
1805     } } }
1806
1807     \stex_debug:n{
1808       Notation~\l__stex_notation_variant_str \c_hash_str \l__stex_notation_lang_str
1809       ~for~\prop_item:Nn \l_tmpb_prop { symbol }^^J
1810       Operator~precedence:~
1811       \prop_item:Nn \l_tmpb_prop { opprec }^^J
1812       Argument~precedences:~
1813       \seq_use:Nn \l_tmpa_seq {,~}^^J
1814       Notation: \cs_meaning:c {
1815         stex_notation_ \l_tmpa_str \c_hash_str
1816         \l__stex_notation_variant_str \c_hash_str \l__stex_notation_lang_str
1817         _cs
1818       }
1819     }
1820
1821     \prop_gset_eq:cN {
1822       g_stex_notation_ \l_tmpa_str \c_hash_str \l__stex_notation_variant_str
1823       \c_hash_str \l__stex_notation_lang_str _prop
1824     } \l_tmpb_prop
1825
1826     \exp_args:Nx
1827     \stex_add_to_current_module:n {

```

```

1828 \prop_get:cnN {
1829   g_stex_symdecl_
1830   \prop_item:Nn \l_tmpb_prop { symbol }
1831   _prop
1832 } { notations } \exp_not:N \l_tmpa_seq
1833 \seq_put_right:Nn \exp_not:N \l_tmpa_seq {
1834   \l__stex_notation_variant_str \c_hash_str \l__stex_notation_lang_str
1835 }
1836 \prop_put:cno {
1837   g_stex_symdecl_
1838   \prop_item:Nn \l_tmpb_prop { symbol }
1839   _prop
1840 } { notations } \exp_not:N \l_tmpa_seq
1841 }
1842
1843 \stex_if_smsmode:TF {
1844   \stex_smsmode_set_codes:
1845   \exp_args:Nx \stex_addtosms:n {
1846     \prop_gset_from_keyval:cn {
1847       g_stex_notation_ \l_tmpa_str \c_hash_str \l__stex_notation_variant_str
1848       \c_hash_str \l__stex_notation_lang_str _prop
1849     } {
1850       symbol      = \prop_item:Nn \l_tmpb_prop { symbol }      ,
1851       language    = \prop_item:Nn \l_tmpb_prop { language }    ,
1852       variant     = \prop_item:Nn \l_tmpb_prop { variant }     ,
1853       opprec      = \prop_item:Nn \l_tmpb_prop { opprec }      ,
1854       argprecs    = \prop_item:Nn \l_tmpb_prop { argprecs }    ,
1855     }
1856   }
1857 }{
1858   \prop_get:NnN \l_tmpa_prop { notations } \l_tmpa_seq
1859   \seq_put_right:Nx \l_tmpa_seq {
1860     \l__stex_notation_variant_str \c_hash_str \l__stex_notation_lang_str
1861   }
1862   \prop_put:Nno \l_tmpa_prop { notations } \l_tmpa_seq
1863   \prop_set_eq:cn {
1864     g_stex_symdecl_ \l_tmpa_str _prop
1865   } \l_tmpa_prop
1866
1867   % HTML annotations
1868   \stex_annotate_invisible:nnn { notation }
1869   { \prop_item:Nn \l_tmpb_prop { symbol } } {
1870     \stex_annotate_invisible:nnn { notationfragment }
1871     { \l__stex_notation_variant_str \c_hash_str \l__stex_notation_lang_str }{}
1872     \prop_get:NnN \l_tmpb_prop { argprecs } \l_tmpa_seq
1873     \stex_annotate_invisible:nnn { precedence }
1874     { \prop_item:Nn \l_tmpb_prop { opprec };
1875       \seq_use:Nn \l_tmpa_seq { x }
1876     }{}
1877
1878     \int_zero:N \l_tmpa_int
1879     \prop_get:NnN \l_tmpa_prop { args } \l_tmpa_str
1880     \tl_clear:N \l_tmpa_tl
1881     \int_step_inline:nn { \prop_item:Nn \l_tmpa_prop { arity } }{}

```

```

1882 \int_incr:N \l_tmpa_int
1883 \str_set:Nx \l_tmpb_str { \str_head:N \l_tmpa_str }
1884 \str_set:Nx \l_tmpa_str { \str_tail:N \l_tmpa_str }
1885 \str_if_eq:VnTF \l_tmpb_str a {
1886   \tl_set:Nx \l_tmpa_tl { \l_tmpa_tl {
1887     \c_hash_str \c_hash_str \int_use:N \l_tmpa_int a ,
1888     \c_hash_str \c_hash_str \int_use:N \l_tmpa_int b
1889   } }
1890 }{
1891   \str_if_eq:VnTF \l_tmpb_str B {
1892     \tl_set:Nx \l_tmpa_tl { \l_tmpa_tl {
1893       \c_hash_str \c_hash_str \int_use:N \l_tmpa_int a ,
1894       \c_hash_str \c_hash_str \int_use:N \l_tmpa_int b
1895     } }
1896   }{
1897     \tl_set:Nx \l_tmpa_tl { \l_tmpa_tl {
1898       \c_hash_str \c_hash_str \int_use:N \l_tmpa_int
1899     } }
1900   }
1901 }
1902 }
1903 \stex_annotate_invisible:nnn { notationcomp }{}{
1904   $ \exp_args:Nno \use:nn { \use:c {
1905     stex_notation_ \prop_item:Nn \l_tmpb_prop { symbol }
1906     \c_hash_str \l__stex_notation_variant_str
1907     \c_hash_str \l__stex_notation_lang_str_cs
1908   } } { \l_tmpa_tl } $
1909 }
1910 }
1911 }
1912 }

```

(End definition for _stex_notation_final:.)

\symdef

```

1913 \keys_define:nn { stex / symdef } {
1914   name .tl_set_x:N = \l_stex_symdecl_name_str ,
1915   local .bool_set:N = \l_stex_symdecl_local_bool ,
1916   args .tl_set_x:N = \l_stex_symdecl_args_str ,
1917   type .tl_set:N = \l_stex_symdecl_type_tl ,
1918   def .tl_set:N = \l_stex_symdecl_definiens_tl ,
1919   lang .tl_set_x:N = \l__stex_notation_lang_str ,
1920   variant .tl_set_x:N = \l__stex_notation_variant_str ,
1921   prec .tl_set_x:N = \l__stex_notation_prec_str ,
1922   unknown .code:n = \str_set:Nx
1923     \l__stex_notation_variant_str \l_keys_key_str
1924 }
1925
1926 \cs_new_protected:Nn \_stex_notation_symdef_args:n {
1927   \str_clear:N \l_stex_symdecl_name_str
1928   \str_clear:N \l_stex_symdecl_args_str
1929   \bool_set_false:N \l_stex_symdecl_local_bool
1930   \tl_clear:N \l_stex_symdecl_type_tl
1931   \tl_clear:N \l_stex_symdecl_definiens_tl

```

```

1932 \str_clear:N \l__stex_notation_lang_str
1933 \str_clear:N \l__stex_notation_variant_str
1934 \str_clear:N \l__stex_notation_prec_str
1935
1936 \keys_set:nn { stex /symdef } { #1 }
1937
1938 \exp_args:NNo \str_set:Nn \l_stex_symdecl_name_str
1939   \l_stex_symdecl_name_str
1940 \exp_args:NNo \str_set:Nn \l_stex_symdecl_args_str
1941   \l_stex_symdecl_args_str
1942 \exp_args:NNo \str_set:Nn \l__stex_notation_lang_str
1943   \l__stex_notation_lang_str
1944 \exp_args:NNo \str_set:Nn \l__stex_notation_variant_str
1945   \l__stex_notation_variant_str
1946 \exp_args:NNo \str_set:Nn \l__stex_notation_prec_str
1947   \l__stex_notation_prec_str
1948 }
1949
1950 \NewDocumentCommand \symdef { 0{} m } {
1951   \__stex_notation_symdef_args:n { #1 }
1952   \bool_set_true:N \l_stex_symdecl_make_macro_bool
1953   \stex_symdecl_do:n { #2 }
1954   \exp_args:Nx \stex_notation_do:nn {
1955     \prop_item:Nn \l_tmpa_prop { module } ?
1956     \prop_item:Nn \l_tmpa_prop { name }
1957   }
1958 }

```

(End definition for `\symdef`. This function is documented on page 22.)

`\stex_invoke_symbol:n` Invokes a semantic macro

```

1959 \cs_new_protected:Nn \stex_invoke_symbol:n {
1960   \peek_charcode_remove:NTF ! {
1961     \stex_term_custom:nn { #1 } { }
1962   } {
1963     \if_mode_math:
1964       \exp_after:wN \__stex_notation_invoke_math:n
1965     \else:
1966       \exp_after:wN \__stex_notation_invoke_text:n
1967     \fi: { #1 }
1968   }
1969 }

```

(End definition for `\stex_invoke_symbol:n`. This function is documented on page 21.)

`__stex_notation_invoke_math:n`

```

1970 \cs_new_protected:Nn \__stex_notation_invoke_math:n {
1971   \peek_charcode_remove:NTF * {
1972     \__stex_notation_invoke_text:n { #1 }
1973   }{
1974     \peek_charcode:NTF [ {
1975       \__stex_notation_invoke_math:nw { #1 }
1976     }{
1977       \__stex_notation_invoke_math:nw { #1 } []

```

```

1978     }
1979   }
1980 }

```

(End definition for `_stex_notation_invoke_math:n`.)

`_stex_notation_invoke_math:nw`

```

1981 \cs_new_protected:Npn \_stex_notation_invoke_math:nw #1 [#2] {
1982   \_stex_notation_args:n { #2 }
1983   \prop_set_eq:Nc \l_tmpa_prop {
1984     g_stex_symdecl_ #1 _prop
1985   }
1986   \prop_get:NnN \l_tmpa_prop { notations } \l_tmpa_seq
1987   \seq_if_empty:NTF \l_tmpa_seq {
1988     \msg_set:nnn{stex}{error/nonotations}{
1989       Symbol~#1~used,~but~has~no~notations!
1990     }
1991     \msg_error:nn{stex}{error/nonotations}
1992   } {
1993     \seq_if_in:NxTF \l_tmpa_seq
1994       { \l__stex_notation_variant_str \c_hash_str \l__stex_notation_lang_str }{
1995       \use:c{
1996         stex_notation_ #1 \c_hash_str
1997         \l__stex_notation_variant_str \c_hash_str \l__stex_notation_lang_str
1998         _cs
1999       }
2000     }{
2001       \str_if_empty:NTF \l__stex_notation_variant_str {
2002         \str_if_empty:NTF \l__stex_notation_lang_str {
2003           \seq_get_left:NN \l_tmpa_seq \l_tmpa_str
2004           \use:c{
2005             stex_notation_ #1 \c_hash_str \l_tmpa_str
2006             _cs
2007           }
2008         }{
2009           \msg_set:nnn{stex}{error/wrongnotation}{
2010             Symbol~#1~has~no~notation~
2011             \l__stex_notation_variant_str \c_hash_str \l__stex_notation_lang_str
2012           }
2013           \msg_error:nn{stex}{error/wrongnotation}
2014         }
2015       }{
2016         \msg_set:nnn{stex}{error/wrongnotation}{
2017           Symbol~#1~has~no~notation~
2018           \l__stex_notation_variant_str \c_hash_str \l__stex_notation_lang_str
2019         }
2020         \msg_error:nn{stex}{error/wrongnotation}
2021       }
2022     }
2023   }
2024 }

```

(End definition for `_stex_notation_invoke_math:nw`.)

`_stex_notation_invoke_text:n`

```

2025 \cs_new_protected:Nn \_stex_notation_invoke_text:n {
2026   \prop_set_eq:Nc \l_tmpa_prop {
2027     g_stex_symdecl_ #1 _prop
2028   }
2029   \prop_get:NnN \l_tmpa_prop { args } \l_tmpa_str
2030   \exp_args:Nnx \stex_term_custom:nn { #1 } { \l_tmpa_str }
2031 }

```

(End definition for `_stex_notation_invoke_text:n`.)

4.8 Terms

2032 `<@=stex_term>`

Precedences:

```

\infprec
\neginfprec
2033 \tl_const:Nx \infprec {\int_use:N \c_max_int}
2034 \tl_const:Nx \neginfprec {-\int_use:N \c_max_int}
2035 \int_new:N \l__stex_term_downprec
2036 \int_set_eq:NN \l__stex_term_downprec \neginfprec

```

(End definition for `\infprec`, `\neginfprec`, and `\l__stex_term_downprec`. These variables are documented on page 23.)

Bracketing:

```

\l_stex_term_left_bracket_str
\l_stex_term_right_bracket_str
2037 \tl_set:Nn \l__stex_term_left_bracket_str (
2038 \tl_set:Nn \l__stex_term_right_bracket_str )

```

(End definition for `\l__stex_term_left_bracket_str` and `\l__stex_term_right_bracket_str`.)

`_stex_term_maybe_brackets:nn`

Compares precedences and insert brackets accordingly

```

2039 \cs_new_protected:Nn \_stex_term_maybe_brackets:nn {
2040   \int_compare:nNnTF { #1 } < \l__stex_term_downprec {
2041     \bool_if:NTF \l_stex_inarray_bool { #2 }{
2042       \dobrackets { #2 }
2043     }
2044   }{ #2 }
2045 }

```

(End definition for `_stex_term_maybe_brackets:nn`.)

`\dobrackets`

```

2046 %\RequirePackage{scalerel}
2047 \cs_new_protected:Npn \dobrackets #1 {
2048   %\ThisStyle{\if D\m@switch
2049   %   \exp_args:Nnx \use:nn
2050   %   { \exp_after:wN \left\l__stex_term_left_bracket_str #1 }
2051   %   { \exp_not:N\right\l__stex_term_right_bracket_str }
2052   %   \else
2053   %   \exp_args:Nnx \use:nn
2054   %   { \l__stex_term_left_bracket_str #1 }
2055   %   { \l__stex_term_right_bracket_str }
2056   %\fi}
2057 }

```

(End definition for `\dobrackets`. This function is documented on page 23.)

`\withbrackets`

```

2058 \cs_new_protected:Npn \withbrackets #1 #2 #3 {
2059   \exp_args:Nnx \use:nn
2060   {
2061     \tl_set:Nx \l__stex_term_left_bracket_str { #1 }
2062     \tl_set:Nx \l__stex_term_right_bracket_str { #2 }
2063     #3
2064   }
2065   {
2066     \tl_set:Nn \exp_not:N \l__stex_term_left_bracket_str
2067     {\l__stex_term_left_bracket_str}
2068     \tl_set:Nn \exp_not:N \l__stex_term_right_bracket_str
2069     {\l__stex_term_right_bracket_str}
2070   }
2071 }

```

(End definition for `\withbrackets`. This function is documented on page 23.)

`\STEXinvisible`

```

2072 \cs_new_protected:Npn \STEXinvisible #1 {
2073   \stex_annotate_invisible:n { #1 }
2074 }

```

(End definition for `\STEXinvisible`. This function is documented on page 25.)

OMDOC terms:

`_stex_term_math_oms:nnnn`

```

2075 \cs_new_protected:Nn \_stex_term_oms:nnn {
2076   \stex_annotate:nnn{ OMID }{ #2 }{
2077     \stex_highlight_term:nn { #1 } { #3 }
2078   }
2079 }
2080
2081 \cs_new_protected:Nn \_stex_term_math_oms:nnnn {
2082   \__stex_term_maybe_brackets:nn { #3 }{
2083     \_stex_term_oms:nnn { #1 } { #1\c_hash_str#2 } { #4 }
2084   }
2085 }

```

(End definition for `_stex_term_math_oms:nnnn`. This function is documented on page 22.)

`_stex_term_math_oma:nnnn`

```

2086 \cs_new_protected:Nn \_stex_term_oma:nnn {
2087   \stex_annotate:nnn{ OMA }{ #2 }{
2088     \stex_highlight_term:nn { #1 } { #3 }
2089   }
2090 }
2091
2092 \cs_new_protected:Nn \_stex_term_math_oma:nnnn {
2093   \__stex_term_maybe_brackets:nn { #3 }{
2094     \_stex_term_oma:nnn { #1 } { #1\c_hash_str#2 } { #4 }
2095   }
2096 }

```

(End definition for `_stex_term_math_oma:nnnn`. This function is documented on page 22.)

`_stex_term_math_omb:nnnn`

```

2097 \cs_new_protected:Nn \_stex_term_ombind:nnn {
2098   \stex_annotate:nnn{ OMBIND }{ #2 }{
2099     \stex_highlight_term:nn { #1 } { #3 }
2100   }
2101 }
2102
2103 \cs_new_protected:Nn \_stex_term_math_omb:nnnn {
2104   \_stex_term_maybe_brackets:nn { #3 }{
2105     \stex_term_ombind:nnn { #1 } { #1\c_hash_str#2 } { #4 }
2106   }
2107 }

```

(End definition for `_stex_term_math_omb:nnnn`. This function is documented on page 22.)

`_stex_term_math_arg:nnn`

```

2108 \cs_new_protected:Nn \_stex_term_arg:nn {
2109   \stex_unhighlight_term:n {
2110     \stex_annotate:nnn{ arg }{ #1 }{ #2 }
2111   }
2112 }
2113 \cs_new_protected:Nn \_stex_term_math_arg:nnn {
2114   \exp_args:Nnx \use:nn
2115     { \int_set:Nn \l__stex_term_downprec { #2 }
2116       \stex_term_arg:nn { #1 } { #3 }
2117     }
2118   { \int_set:Nn \exp_not:N \l__stex_term_downprec { \int_use:N \l__stex_term_downprec } }
2119 }

```

(End definition for `_stex_term_math_arg:nnn`. This function is documented on page 23.)

`_stex_term_math_assoc_arg:nnnn`

```

2120 \cs_new_protected:Nn \_stex_term_math_assoc_arg:nnnn {
2121   \seq_set_split:Nnn \l_tmpa_seq , { #4 }
2122   \int_compare:nNnTF { \seq_count:N \l_tmpa_seq } < 2 {
2123     \tl_set:Nn \l_tmpa_tl { #4 }
2124   }{
2125     \cs_set:Npn \l_tmpa_cs ##1 ##2 { #3 }
2126     \seq_reverse:N \l_tmpa_seq
2127     \seq_pop_left:NN \l_tmpa_seq \l_tmpb_tl
2128     \tl_set:No \l_tmpa_tl { \l_tmpb_tl }
2129     \seq_map_inline:Nn \l_tmpa_seq {
2130       \tl_set:Nx \l_tmpa_tl {
2131         \exp_args:Nno
2132           \l_tmpa_cs { ##1 } { \l_tmpa_tl }
2133       }
2134     }
2135   }
2136   \exp_args:Nnno
2137   \_stex_term_math_arg:nnn{#1}{#2}{ \l_tmpa_tl }
2138 }

```

(End definition for `_stex_term_math_assoc_arg:nnnn`. This function is documented on page 23.)

`\stex_term_custom:nn`

```

2139 \cs_new_protected:Nn \stex_term_custom:nn {
2140   \str_set:Nn \l__stex_term_custom_uri { #1 }
2141   \str_set:Nn \l_tmpa_str { #2 }
2142   \tl_clear:N \l_tmpa_tl
2143   \int_zero:N \l_tmpa_int
2144   \int_set:Nn \l_tmpb_int { \str_count:N \l_tmpa_str }
2145   \__stex_term_custom_loop:
2146 }

```

(End definition for `\stex_term_custom:nn`. This function is documented on page 24.)

`__stex_term_custom_loop:`

```

2147 \cs_new_protected:Nn \__stex_term_custom_loop: {
2148   \bool_set_false:N \l_tmpa_bool
2149   \bool_while_do:nn {
2150     \str_if_eq_p:ee X {
2151       \str_item:Nn \l_tmpa_str { \l_tmpa_int + 1 }
2152     }
2153   }{
2154     \int_incr:N \l_tmpa_int
2155   }
2156
2157   \peek_charcode:NTF [ {
2158     % notation/text component
2159     \__stex_term_custom_component:w
2160   } {
2161     \int_compare:nNnTF \l_tmpa_int = \l_tmpb_int {
2162       % all arguments read => finish
2163       \__stex_term_custom_final:
2164     } {
2165       % arguments missing
2166       \peek_charcode_remove:NTF * {
2167         % invisible, specific argument position or both
2168         \peek_charcode:NTF [ {
2169           % visible specific argument position
2170           \__stex_term_custom_arg:wn
2171         } {
2172           % invisible
2173           \peek_charcode_remove:NTF * {
2174             % invisible specific argument position
2175             \__stex_term_custom_arg_inv:wn
2176           } {
2177             % invisible next argument
2178             \__stex_term_custom_arg_inv:wn [ \l_tmpa_int + 1 ]
2179           }
2180         }
2181       } {
2182         % next normal argument
2183         \__stex_term_custom_arg:wn [ \l_tmpa_int + 1 ]
2184       }
2185     }
2186   }
2187 }

```

(End definition for _stex_term_custom_loop:.)

_stex_term_custom_arg_inv:wn

```

2188 \cs_new_protected:Npn \_stex_term_custom_arg_inv:wn [ #1 ] #2 {
2189   \bool_set_true:N \l_tmpa_bool
2190   \_stex_term_custom_arg:wn [ #1 ] { #2 }
2191 }

```

(End definition for _stex_term_custom_arg_inv:wn.)

_stex_term_custom_arg:wn

```

2192 \cs_new_protected:Npn \_stex_term_custom_arg:wn [ #1 ] #2 {
2193   \str_set:Nx \l_tmpb_str {
2194     \str_item:Nn \l_tmpa_str { #1 }
2195   }
2196   \str_case:VnTF \l_tmpb_str {
2197     { X } { } % TODO throw error ?
2198     { i } { \_stex_term_custom_set_X:n { #1 } }
2199     { b } { \_stex_term_custom_set_X:n { #1 } }
2200     { a } { \_stex_term_custom_set_X:n { #1 } } % TODO ?
2201     { B } { \_stex_term_custom_set_X:n { #1 } } % TODO ?
2202   }{}{
2203     % TODO throw error
2204   }
2205
2206   \bool_if:nTF \l_tmpa_bool {
2207     \tl_put_right:Nx \l_tmpa_tl {
2208       \stex_annotate_invisible:n {
2209         \_stex_term_arg:nn { \int_eval:n { #1 } }
2210         \exp_not:n { { #2 } }
2211       }
2212     }
2213   } {
2214     \tl_put_right:Nx \l_tmpa_tl {
2215       \_stex_term_arg:nn { \int_eval:n { #1 } }
2216       \exp_not:n { { #2 } }
2217     }
2218   }
2219
2220   \_stex_term_custom_loop:
2221 }

```

(End definition for _stex_term_custom_arg:wn.)

_stex_term_custom_set_X:n

```

2222 \cs_new_protected:Nn \_stex_term_custom_set_X:n {
2223   \str_set:Nx \l_tmpa_str {
2224     \str_range:Nnn \l_tmpa_str 1 { #1 - 1 }
2225     X
2226     \str_range:Nnn \l_tmpa_str { #1 + 1 } { -1 }
2227   }
2228 }

```

(End definition for _stex_term_custom_set_X:n.)

`_stex_term_custom_component:`

```

2229 \cs_new_protected:Npn \_stex_term_custom_component:w [ #1 ] {
2230   \tl_put_right:Nn \l_tmpa_tl { \comp{ #1 } }
2231   \_stex_term_custom_loop:
2232 }

```

(End definition for _stex_term_custom_component:.)

`_stex_term_custom_final:`

```

2233 \cs_new_protected:Nn \_stex_term_custom_final: {
2234   \int_compare:nNnTF \l_tmpb_int = 0 {
2235     \exp_args:Nnno \_stex_term_oms:nnn
2236   }{
2237     \str_if_in:NnTF \l_tmpa_str {b} {
2238       \exp_args:Nnno \_stex_term_ombind:nnn
2239     } {
2240       \exp_args:Nnno \_stex_term_oma:nnn
2241     }
2242   }
2243   { \l__stex_term_custom_uri } { \l__stex_term_custom_uri } { \l_tmpa_tl }
2244 }

```

(End definition for _stex_term_custom_final:.)

`\symref`

`\symname`

```

2245 \NewDocumentCommand \symref { m m }{
2246   \STEXsymbol{#1}! [#2]
2247 }
2248
2249 \NewDocumentCommand \symname { m }{
2250   \stex_get_symbol:n { #1 }
2251   \str_set:Nx \l_tmpa_str {
2252     \prop_item:cn { g_stex_symdecl_ \l_stex_get_symbol_uri_str _prop } { name }
2253   }
2254   \exp_args:NNno \str_replace_all:Nnn \l_tmpa_str {-} {~}
2255   \exp_args:NNx \use:nn
2256   \stex_invoke_symbol:n { { \l_stex_get_symbol_uri_str }! [
2257     \l_tmpa_str
2258   ] }
2259 }

```

(End definition for \symref and \symname. These functions are documented on page 21.)

4.9 Notation Components

2260 `<@@=stex_notationcomps>`

`\stex_highlight_term:nn`

```

2261 \latexml_if:F {
2262   \scalatex_if:F{
2263     \RequirePackage{pdfcomment}
2264   }
2265 }
2266
2267 \str_new:N \l__stex_notationcomps_highlight_uri_str

```

```

2268 \cs_new_protected:Nn \stex_highlight_term:nn {
2269   \exp_args:Nnx
2270   \use:nn {
2271     \str_set:Nx \l__stex_notationcomps_highlight_uri_str { #1 }
2272     #2
2273   } {
2274     \str_set:Nx \exp_not:N \l__stex_notationcomps_highlight_uri_str
2275     { \l__stex_notationcomps_highlight_uri_str }
2276   }
2277 }
2278
2279 \cs_new_protected:Nn \stex_unhighlight_term:n {
2280   % \latexml_if:TF {
2281   %   #1
2282   % } {
2283   %   \scalatex_if:TF {
2284   %     #1
2285   %   } {
2286     #1 %\iffalse{{\fi}} #1 {{\iffalse}}\fi
2287   % }
2288   % }
2289 }

```

(End definition for `\stex_highlight_term:nn`. This function is documented on page 24.)

```

\comp
\@comp
\@defemph
2290 \cs_new_protected:Npn \comp #1 {
2291   \str_if_empty:NF \l__stex_notationcomps_highlight_uri_str {
2292     \scalatex_if:TF {
2293       \stex_annotate:nnn { comp } { \l__stex_notationcomps_highlight_uri_str } { #1 }
2294     } {
2295       \exp_args:Nnx \@comp { #1 } { \l__stex_notationcomps_highlight_uri_str }
2296     }
2297   }
2298 }
2299
2300 \cs_new_protected:Npn \@comp #1 #2 {
2301   \pdftooltip {
2302     \textcolor{blue}{#1}
2303   } { #2 }
2304 }
2305
2306 \cs_new_protected:Npn \@defemph #1 #2 {
2307   \pdftooltip {
2308     \textbf{\textcolor{magenta}{#1}}
2309   } { #2 }
2310 }

```

(End definition for `\comp`, `\@comp`, and `\@defemph`. These functions are documented on page 24.)

`\ellipses`

```

2311 \NewDocumentCommand \ellipses {} { \ldots }

```

(End definition for `\ellipses`. This function is documented on page 25.)

```

\parray
\prmatrix 2312 \bool_new:N \l_stex_inarray_bool
\parrayline 2313 \bool_set_false:N \l_stex_inarray_bool
\parraycell 2314 \NewDocumentCommand \parray { m m } {
2315 \begingroup
2316 \bool_set_true:N \l_stex_inarray_bool
2317 \begin{array}{#1}
2318 #2
2319 \end{array}
2320 \endgroup
2321 }
2322
2323 \NewDocumentCommand \prmatrix { m } {
2324 \begingroup
2325 \bool_set_true:N \l_stex_inarray_bool
2326 \begin{matrix}
2327 #1
2328 \end{matrix}
2329 \endgroup
2330 }
2331
2332 \def \parrayline #1 #2 {
2333 #1 #2 \bool_if:NT \l_stex_inarray_bool {\}
2334 }
2335
2336 \def \parraycell #1 {
2337 #1 \bool_if:NT \l_stex_inarray_bool {&}
2338 }

```

(End definition for `\parray` and others. These functions are documented on page ??.)

4.10 Structural Features

```

2339 <@@=stex_features>

symboldoc
2340 \NewDocumentEnvironment{symboldoc}{ m }{
2341 \seq_set_split:Nnn \l_tmpa_seq , { #1 }
2342 \seq_clear:N \l_tmpb_seq
2343 \seq_map_inline:Nn \l_tmpa_seq {
2344 \stex_get_symbol:n { ##1 }
2345 \exp_args:NNo \seq_put_right:Nn \l_tmpb_seq {
2346 \l_stex_get_symbol_uri_str
2347 }
2348 }
2349 \par
2350 \exp_args:Nnnx
2351 \begin{stex_annotate_env}{symboldoc}{\seq_use:Nn \l_tmpb_seq {,}}
2352 }{
2353 \end{stex_annotate_env}
2354 }

STEXdefinition
2355 \cs_new_protected:Nn \__stex_features_defi_begin:n {

```

```

2356 \cs_set_protected:Npn \definiendum ##1 ##2 {
2357   \stex_get_symbol:n { ##1 }
2358   \scalatex_if:TF {
2359     \stex_annotate:nnn { definiendum } { \l_stex_get_symbol_uri_str } { ##2 }
2360   } {
2361     \exp_args:Nnx \@defemph { ##2 } { \l_stex_get_symbol_uri_str }
2362   }
2363 }
2364 \cs_set_protected:Npn \definame ##1 {
2365   \stex_get_symbol:n { ##1 }
2366   \str_set:Nx \l_tmpa_str {
2367     \prop_item:cn { g_stex_symdecl_ \l_stex_get_symbol_uri_str _prop } { name }
2368   }
2369   \exp_args:NNno \str_replace_all:Nnn \l_tmpa_str {-} {-}
2370   \scalatex_if:TF {
2371     \stex_annotate:nnn { definiendum } { \l_stex_get_symbol_uri_str } {
2372       \l_tmpa_str
2373     }
2374   } {
2375     \@defemph {
2376       \l_tmpa_str
2377     } { \l_stex_get_symbol_uri_str }
2378   }
2379 }
2380
2381 \seq_set_split:Nnn \l_tmpa_seq , { #1 }
2382 \seq_clear:N \l_tmpb_seq
2383 \seq_map_inline:Nn \l_tmpa_seq {
2384   \stex_get_symbol:n { ##1 }
2385   \exp_args:NNo \seq_put_right:Nn \l_tmpb_seq {
2386     \l_stex_get_symbol_uri_str
2387   }
2388 }
2389 \exp_args:Nnnx
2390 \begin{stex_annotate_env}{definition}{\seq_use:Nn \l_tmpb_seq {,}}
2391 }
2392
2393 \cs_new_protected:Nn \__stex_features_defi_end: {
2394   \end{stex_annotate_env}
2395 }
2396
2397 \NewDocumentEnvironment{STEXdefinition}{m}{
2398   \__stex_features_defi_begin:n { #1 }
2399 }{
2400   \__stex_features_defi_end:
2401 }

```

`\setSTEXdefinition`

```

2402 \cs_new_protected:Npn \setSTEXdefinition #1 {
2403   \AddToHook{env/#1/before}[stex]{\__stex_features_defi_begin:n{#1}}
2404   \AddToHook{env/#1/after}[stex]{\__stex_features_defi_end:}
2405 }

```

(End definition for `\setSTEXdefinition`. This function is documented on page ??.)

structural@feature

```
2406
2407 \NewDocumentEnvironment{structural@feature}{ m m m }{
2408   \stex_if_in_module:F {
2409     \msg_set:nnn{stex}{error/nomodule}{
2410       Structural~Feature~has~to~occur~in~a~module:\\
2411       Feature~#2~of~type~#1\\
2412       In~File:~\stex_path_to_string:N \g_stex_currentfile_seq
2413     }
2414     \msg_error:nn{stex}{error/nomodule}
2415   }
2416
2417   \str_set:Nx \l_stex_module_name_str {
2418     \prop_item:Nn \l_stex_current_module_prop
2419       { name } / #2 - feature
2420   }
2421
2422
2423   \str_clear:N \l_tmpa_str
2424   \seq_clear:N \l_tmpa_seq
2425   \tl_clear:N \l_tmpa_tl
2426   \exp_args:NNx \prop_set_from_keyval:Nn \l_stex_current_module_prop {
2427     origname = #2,
2428     name      = \l_stex_module_name_str ,
2429     ns        = \l_stex_module_ns_str ,
2430     imports   = \exp_not:o { \l_tmpa_seq } ,
2431     constants = \exp_not:o { \l_tmpa_seq } ,
2432     content   = \exp_not:o { \l_tmpa_tl } ,
2433     file      = \exp_not:o { \g_stex_currentfile_seq } ,
2434     lang      = \l_stex_module_lang_str ,
2435     sig       = \l_tmpa_str ,
2436     meta      = \l_tmpa_str ,
2437     feature   = #1 ,
2438   }
2439
2440   \stex_if_smsmode:TF {
2441     \stex_smsmode_set_codes:
2442   } {
2443     \begin{stex_annotate_env}{ feature:#1 }{ }
2444     \stex_annotate_invisible:nnn{header}{ }{ #3 }
2445   }
2446 }{
2447   \str_set:Nx \l_tmpa_str {
2448     c_stex_feature_
2449     \prop_item:Nn \l_stex_current_module_prop { ns } ?
2450     \prop_item:Nn \l_stex_current_module_prop { name }
2451     _prop
2452   }
2453   \prop_gset_eq:cn { \l_tmpa_str } \l_stex_current_module_prop
2454   \prop_gset_eq:NN \g_stex_last_feature_prop \l_stex_current_module_prop
2455
2456   \stex_if_smsmode:TF {
2457     \exp_args:Nx \stex_addtosms:n {
2458       \prop_gset_from_keyval:cn {
```

```

2459         c_stex_feature_
2460         \prop_item:Nn \l_stex_current_module_prop { ns } ?
2461         \prop_item:Nn \l_stex_current_module_prop { name }
2462         _prop
2463     } {
2464         origname = #2,
2465         name      = \prop_item:cn { \l_tmpa_str } { name } ,
2466         ns        = \prop_item:cn { \l_tmpa_str } { ns } ,
2467         imports   = \prop_item:cn { \l_tmpa_str } { imports } ,
2468         constants = \prop_item:cn { \l_tmpa_str } { constants } ,
2469         content   = \prop_item:cn { \l_tmpa_str } { content } ,
2470         file      = \prop_item:cn { \l_tmpa_str } { file } ,
2471         lang      = \prop_item:cn { \l_tmpa_str } { lang } ,
2472         sig       = \prop_item:cn { \l_tmpa_str } { sig } ,
2473         meta      = \prop_item:cn { \l_tmpa_str } { meta } ,
2474         feature   = \prop_item:cn { \l_tmpa_str } { feature }
2475     }
2476 }
2477 } {
2478     \end{stex_annotate_env}
2479 }
2480 }
2481

```

structure

```

2482
2483 \seq_new:N \l_stex_all_structures_seq
2484
2485 \keys_define:nn { stex / features / structure } {
2486     name          .tl_set_x:N = \l__stex_features_structure_name_str ,
2487 }
2488
2489 \cs_new_protected:Nn \__stex_features_structure_args:n {
2490     \str_clear:N \l__stex_features_structure_name_str
2491     \keys_set:nn { stex / features / structure } { #1 }
2492     \exp_args:NNo \str_set:Nn \l__stex_features_structure_name_str
2493         \l__stex_features_structure_name_str
2494 }
2495
2496 %\stex_new_feature:nnnn { structure } { 0{} m } {
2497 % \__stex_features_structure_args:n { ##1 }
2498 % \str_if_empty:NT \l__stex_features_structure_name_str {
2499 %     \str_set:Nx \l__stex_features_structure_name_str { ##2 }
2500 % }
2501 %} {
2502 %
2503 %}
2504
2505 \NewDocumentEnvironment{structure}{ 0{} m }{
2506     \__stex_features_structure_args:n { #1 }
2507     \str_if_empty:NT \l__stex_features_structure_name_str {
2508         \str_set:Nx \l__stex_features_structure_name_str { #2 }
2509     }
2510     \exp_args:Nnnx

```



```

2511 \begin{structural@feature}{ structure }
2512 { \l__stex_features_structure_name_str }{}
2513 \seq_clear:N \l_tmpa_seq
2514 \prop_put:Nno \l_stex_current_module_prop { fields } \l_tmpa_seq
2515
2516 }{
2517 \prop_get:NnN \l_stex_current_module_prop { constants } \l_tmpa_seq
2518 \prop_get:NnN \l_stex_current_module_prop { fields } \l_tmpb_seq
2519 \str_set:Nx \l_tmpa_str {
2520   \prop_item:Nn \l_stex_current_module_prop { ns } ?
2521   \prop_item:Nn \l_stex_current_module_prop { name }
2522 }
2523 \seq_map_inline:Nn \l_tmpa_seq {
2524   \exp_args:NNx \seq_put_right:Nn \l_tmpb_seq { \l_tmpa_str ? ##1 }
2525 }
2526 \prop_put:Nno \l_stex_current_module_prop { fields } { \l_tmpb_seq }
2527 \exp_args:Nnx
2528 \AddToHookNext { env / structural@feature / after }{
2529   \symdecl*[type = \exp_not:N\collection,def={\STEXsymbol{module-type}}{
2530     \stex_term_math_oms:nnnn { \l_tmpa_str }{}{0}{}
2531   }]{\prop_item:Nn \l_stex_current_module_prop { origname } }
2532   \STEXexport {
2533     \seq_put_right:Nn \exp_not:N \l_stex_all_structures_seq {
2534       \l_tmpa_str ,
2535       \prop_item:Nn \l_stex_current_module_prop { origname }
2536     }
2537   %   \tl_set:cx { #2 } {
2538   %     \stex_invoke_structure:n { \l_tmpa_str }
2539   %   }
2540 }
2541
2542 \end{structural@feature}
2543 % \g_stex_last_feature_prop
2544 }

```

`\stex_invoke_structure:n`

```

2545 \cs_new_protected:Nn \stex_invoke_structure:n {
2546
2547 }

```

(End definition for `\stex_invoke_structure:n`. This function is documented on page ??.)

4.11 Put these somewhere

`\MSC`

```

2548 \NewDocumentCommand \MSC {m} {
2549   % TODO
2550 }

```

(End definition for `\MSC`. This function is documented on page ??.)

```

2551 \@ifpackageloaded{tikzinput}{
2552   \RequirePackage{stex-tikzinput}
2553 }{}
2554

```

```

2555 \AddToHook{begindocument}{
2556   \input{stex-metatheory}
2557 }
2558 \</package>

```

4.12 Metatheory

The default meta theory for an \LaTeX module. Contains symbols so ubiquitous, that it is virtually impossible to describe any flexiformal content without them, or that are required to annotate even the most primitive symbols with meaningful (foundation-independent) “type”-annotations, or required for basic structuring principles (theorems, definitions).

Foundations should ideally instantiate these symbols with their formal counterparts, e.g. `isa` corresponds to a typing operation in typed setting, or the \in -operator in set-theoretic contexts; `bind` corresponds to a universal quantifier in (n th-order) logic, or a Π in dependent type theories.

```

2559 \*metatheory>
2560 \ExplSyntaxOn
2561 \str_const:Nn \c_stex_metatheory_ns_str {http://mathhub.info/sTeX}
2562 \begin{@module}[ns=\c_stex_metatheory_ns_str,meta=NONE]{Metatheory}
2563   \ExplSyntaxOff
2564
2565   % is-a (a:A, a \in A, a is an A, etc.)
2566   \symdecl[args=ai]{isa}
2567   \notation[typed]{isa}{#1 \comp: #2}{#1 \comp, #2}
2568   \notation[in]{isa}{#1 \comp\in #2}{#1 \comp, #2}
2569   \notation[pred]{isa}{#2\comp(#1 \comp)}{#1 \comp, #2}
2570
2571   % bind (\forall, \Pi, \lambda etc.)
2572   \symdecl[args=Bi]{bind}
2573   \notation[forall]{bind}{\comp\forall #1. #2}{#1 \comp, #2}
2574   \notation[\Pi]{bind}{\comp\Prod_{#1} #2}{#1 \comp, #2}
2575   \notation[depfun]{bind}{\comp( #1 \comp{} \; \to \; )}{#1 \comp, #2}
2576
2577   % dummy variable
2578   \symdecl{dummyvar}
2579   \notation[underscore]{dummyvar}{\comp\_}
2580   \notation[dot]{dummyvar}{\comp\cdot}
2581   \notation[dot]{dummyvar}{\comp\cdot}
2582   \notation[dash]{dummyvar}{\comp{\rm --}}
2583
2584   % fromto (function space, Hom-set, implication etc.)
2585   \symdecl[args=ai]{fromto}
2586   \notation[xarrow]{fromto}{#1 \comp\to #2}{#1 \comp\times #2}
2587   \notation[arrow]{fromto}{#1 \comp\to #2}{#1 \comp\to #2}
2588
2589   % mapto (lambda etc.)
2590   \symdecl[args=Bi]{mapto}
2591   \notation[mapsto]{mapto}{#1 \comp\mapsto #2}{#1 \comp, #2}
2592   \notation[\lambda]{mapto}{\comp\lambda #1 \comp. \; #2}{#1 \comp, #2}
2593   \notation[\lambda\text{dau}]{mapto}{\comp\lambda_{#1} \comp. \; #2}{#1 \comp, #2}
2594
2595   % function/operator application

```

```

2596 \symdecl[args=ia]{apply}
2597 \notation[prec=0;0x\neginfp{prec,parens}{apply}{#1 \comp( #2 \comp)}{#1 \comp, #2}
2598 \notation[prec=0;0x\neginfp{prec,lambda}{apply}{#1 \; #2 }{#1 \; #2}
2599
2600 % ‘‘type’’ of all collections (sets, classes, types, kinds)
2601 \symdecl{collection}
2602 \notation[U]{collection}{\comp{\mathcal{U}}}
2603 \notation[set]{collection}{\comp{\textsf{Set}}}
2604
2605 % sequences
2606 \symdecl[args=1]{seqtype}
2607 \notation[kleene]{seqtype}{#1^{\comp\ast}}
2608
2609 \symdef[args=2,li]{sequence-index}{#1_{#2}}
2610 \symdef[args=3]{naseqli}{#1_{#2}\comp{\ellipses},#1_{#3}}
2611
2612 % letin (‘‘let’’, local definitions, variable substitution)
2613 \symdecl[args=bii]{letin}
2614 \notation[let]{letin}{\comp{\rm let}}\;#1\comp{=}\#2\; \comp{\rm in}}\;#3}
2615 \notation[subst]{letin}{#3 \comp[ #1 \comp/ #2 \comp]}
2616 \notation[frac]{letin}{#3 \comp[ \frac{#2}{#1} \comp]}
2617
2618 % structures
2619 \symdecl*[args=1]{module-type}
2620 \symdecl[name=mathematical-structure,args=a]{mathstruct} % TODO
2621
2622 \STEXexport{
2623   \let\nappa\apply
2624   \def\livar{\csname sequence-index\endcsname[li]}
2625 }
2626
2627 \end{@module}
2628 \ExplSyntaxOff
2629 </metatheory>

```

4.13 Auxiliary Packages

4.13.1 tikzinput

```

2630 <*tikzinput>
2631 <@@=tikzinput>
2632 \ProvidesExplPackage{tikzinput}{2021/08/31}{1.9}{bla}
2633 \RequirePackage{l3keys2e}
2634
2635 \keys_define:nn { tikzinput } {
2636   image .bool_set:N = \c_tikzinput_image_bool
2637 }
2638
2639 \ProcessKeysOptions { tikzinput }
2640
2641 \bool_if:NTF \c_tikzinput_image_bool {
2642   \RequirePackage{graphicx}
2643
2644   \providecommand\usetikzlibrary[]{}

```

```

2645 \newcommand\tikzinput [2] [] {\includegraphics[#1]{#2}}
2646 }{
2647 \RequirePackage{tikz}
2648 \RequirePackage{standalone}
2649
2650 \newcommand \tikzinput [2] [] {
2651 \setkeys{Gin}{#1}
2652 \ifx \Gin@width \Gin@exclamation
2653 \ifx \Gin@height \Gin@exclamation
2654 \input { #2 }
2655 \else
2656 \resizebox{!}{ \Gin@height }{
2657 \input { #2 }
2658 }
2659 \fi
2660 \else
2661 \ifx \Gin@height \Gin@exclamation
2662 \resizebox{ \Gin@width }{!}{
2663 \input { #2 }
2664 }
2665 \else
2666 \resizebox{ \Gin@width }{ \Gin@height }{
2667 \input { #2 }
2668 }
2669 \fi
2670 \fi
2671 }
2672 }
2673
2674 \newcommand \ctikzinput [2] [] {
2675 \begin{center}
2676 \tikzinput [#1] {#2}
2677 \end{center}
2678 }
2679
2680 \@ifpackageloaded{stex}{
2681 \RequirePackage{stex-tikzinput}
2682 }{}
2683 \tikzinput
2684 \stex-tikzinput
2685 \ProvidesExplPackage{stex-tikzinput}{2021/08/31}{1.9}{bla}
2686 \RequirePackage{stex}
2687 \RequirePackage{tikzinput}
2688
2689 % TODO
2690
2691 \stex-tikzinput

```

4.13.2 sTeX1 Compatibility

```

2692 \smglom
2693 \RequirePackage{expl3, l3keys2e}
2694 \ProvidesExplClass{smglom}{2021/08/01}{1.9}{sTeX1 compatibility}
2695 \LoadClass[border=1px, varwidth]{standalone}
2696 \setlength\textwidth{15cm}

```

```

2697 %\g@addto@macro{\@parboxrestore}{\setlength\parskip{\baselineskip}}
2698 \DeclareOption{mh}{\setlength\parskip{\baselineskip}}
2699 \DeclareOption*{\PassOptionsToPackage{\CurrentOption}{stex}}
2700 \ProcessOptions
2701
2702 \RequirePackage{stex-compatibility}
2703 </smglom>
2704
2705 <*compat>
2706 <@@=stex_deprec>
2707 \ProvidesExplPackage{stex-compatibility}{2021/08/01}{1.9}{bla}
2708 \RequirePackage[debug,lang={de,en,ro,tr,fr}]{stex}
2709
2710 \NewDocumentEnvironment { mhmodnl } { 0{} m m } {
2711   \msg_set:nnn{stex}{warning/deprecated}{
2712     \
2713     Environment~mhmodnl~is~deprected! \
2714     Please~update~module~#2~in~file~
2715     \stex_path_to_string:N \g_stex_currentfile_seq!
2716     \
2717   }
2718   \msg_warning:nn{stex}{warning/deprecated}
2719
2720   \begin{module}[#1,lang=#3]{#2}
2721     \seq_set_eq:NN \l_tmpa_seq \g_stex_currentfile_seq
2722     \seq_pop_right:NN \l_tmpa_seq \l_tmpa_str
2723     \seq_set_split:NnV \l_tmpb_seq . \l_tmpa_str
2724     \seq_pop_left:NN \l_tmpb_seq \l_tmpa_str
2725     \input { \stex_path_to_string:N \l_tmpa_seq / \l_tmpa_str.tex }
2726   } {
2727     \end{module}
2728   }
2729
2730 \NewDocumentEnvironment { modsig } { 0{} m } {
2731   \stex_if_in_module:TF {
2732     \prop_get:NnN \l_stex_current_module_prop {name} \l_tmpa_str
2733     \str_set:Nn \l_tmpb_str { #2 }
2734     \str_if_eq:NNTF \l_tmpa_str \l_tmpb_str {
2735       \prop_set_eq:NN \l_modsig_old_module_prop \l_stex_current_module_prop
2736       \begin{@module}{modsig-#2}
2737       % \prop_set_eq:NN \l_stex_current_module_prop \l_modsig_old_module_prop
2738     } {
2739       \begin{@module}{#2}
2740     }
2741   } {
2742     \begin{@module}{#2}
2743   }
2744 }{
2745   \end{@module}
2746 \AddToHookNext { env / modsig / after }{
2747   \stex_if_in_module:T {
2748     \prop_get:NnN \l_stex_current_module_prop {name} \l_tmpa_str
2749     \str_set:Nn \l_tmpb_str { #2 }
2750     \str_if_eq:NNT \l_tmpa_str \l_tmpb_str {

```

```

2751 % \xdef \g_stex_module_after_group_tl {
2752 \stex_if_smsmode:TF {
2753 \exp_args:Nx
2754 \stex_add_to_current_module:n {
2755 \stex_debug:n{Activating~signature~of~#2}
2756 \exp_not:N \prop_item:cn { c_stex_module_
2757 \prop_item:Nn \l_stex_current_module_prop {ns} ?
2758 \prop_item:Nn \l_stex_current_module_prop {name}
2759 / modsig-#2_prop } { content }
2760 }
2761 }
2762 {
2763 \gdef \g_stex_modsig_after_group_tl {
2764 \stex_activate_module:n {
2765 \prop_item:Nn \l_stex_current_module_prop {ns} ?
2766 \prop_item:Nn \l_stex_current_module_prop {name}
2767 / modsig-#2
2768 }
2769
2770 \exp_args:Nx
2771 \stex_add_to_current_module:n {
2772 \stex_activate_module:n {
2773 \prop_item:Nn \l_stex_current_module_prop {ns} ?
2774 \prop_item:Nn \l_stex_current_module_prop {name}
2775 / modsig-#2
2776 }
2777 }
2778 }
2779 \aftergroup \g_stex_modsig_after_group_tl
2780 }
2781 }
2782 }
2783 }
2784 }
2785
2786 \cs_new_protected:Npn \gimport {
2787 \peek_charcode_remove:NTF * {
2788 \gimport_do:
2789 } {
2790 \gimport_do:
2791 }
2792 }
2793
2794 \NewDocumentCommand \gimport_do: { 0 } m } {
2795 \msg_set:nnn{stex}{warning/deprecated}{
2796 \\\
2797 \c_backslash_str gimport-is-deprecated! \\\
2798 Please-use-\c_backslash_str importmodule[#1]{#2}-instead!~(in-file~
2799 \stex_path_to_string:N \g_stex_currentfile_seq)
2800 \\\ \\\
2801 }
2802 \msg_warning:nn{stex}{warning/deprecated}
2803 \importmodule[#1]{#2}
2804 }

```

```

2805
2806 \cs_new_protected:Npn \guse {
2807   \peek_charcode_remove:NTF * {
2808     \guse_do:
2809   } {
2810     \guse_do:
2811   }
2812 }
2813
2814 \NewDocumentCommand \guse_do: { 0{ } m } {
2815   \msg_set:nnn{stex}{warning/deprecated}{
2816     \\
2817     \c_backslash_str guse~is~deprecated! \\
2818     Please~use~\c_backslash_str usemodule[#1]{#2}~instead!~(in~file~
2819     \stex_path_to_string:N \g_stex_currentfile_seq)
2820     \\ \\
2821   }
2822   \msg_warning:nn{stex}{warning/deprecated}
2823   \usemodule[#1]{#2}
2824 }
2825
2826 \cs_new:Nn \stex_capitalize:n { \uppercase{#1} }
2827
2828 \cs_new_protected:Npn \symi {
2829   \peek_charcode_remove:NTF * {
2830     \symi_do:
2831   } {
2832     \symi_do:
2833   }
2834 }
2835
2836 \NewDocumentCommand \symi_do: { 0{ } m } {
2837   \msg_set:nnn{stex}{warning/deprecated}{
2838     \\
2839     \c_backslash_str symi~is~deprecated! \\
2840     Please~use~\c_backslash_str symdecl[#1]{#2}~instead!~(in~file~
2841     \stex_path_to_string:N \g_stex_currentfile_seq)
2842     \\ \\
2843   }
2844   \msg_warning:nn{stex}{warning/deprecated}
2845   \symdecl* [#1]{#2}
2846 }
2847
2848 \cs_new_protected:Npn \symii {
2849   \peek_charcode_remove:NTF * {
2850     \symii_do:
2851   } {
2852     \symii_do:
2853   }
2854 }
2855
2856 \NewDocumentCommand \symii_do: { 0{ } m m } {
2857   \msg_set:nnn{stex}{warning/deprecated}{
2858     \\

```

```

2859 \c_backslash_str symii~is~deprecated! \\
2860 Please~use~\c_backslash_str symdecl[#1]{#2-#3}~instead!~(in~file~
2861 \stex_path_to_string:N \g_stex_currentfile_seq)
2862 \\ \\
2863 }
2864 \msg_warning:nn{stex}{warning/deprecated}
2865 \symdecl*[#1]{#2-#3}
2866 }
2867
2868 \cs_new_protected:Npn \symiii {
2869 \peek_charcode_remove:NTF * {
2870 \symiii_do:
2871 } {
2872 \symiii_do:
2873 }
2874 }
2875
2876 \NewDocumentCommand \symiii_do: { 0{} m m m } {
2877 \msg_set:nnn{stex}{warning/deprecated}{
2878 \\
2879 \c_backslash_str symiii~is~deprecated! \\
2880 Please~use~\c_backslash_str symdecl[#1]{#2-#3-#4}~instead!~(in~file~
2881 \stex_path_to_string:N \g_stex_currentfile_seq)
2882 \\ \\
2883 }
2884 \msg_warning:nn{stex}{warning/deprecated}
2885 \symdecl*[#1]{#2-#3-#4}
2886 }
2887
2888 \keys_define:nn { stex / deprec / defi } {
2889 name .tl_set_x:N = \l_tmpa_str
2890 }
2891
2892 \cs_new_protected:Npn \defi {
2893 \peek_charcode_remove:NTF * {
2894 \defi_do:
2895 } {
2896 \defi_do:
2897 }
2898 }
2899
2900 \NewDocumentCommand \defi_do: { 0{} m } {
2901 \str_clear:N \l_tmpa_str
2902 \keys_set:nn { stex / deprec / defi } { #1 }
2903
2904 \str_if_empty:NTF \l_tmpa_str {
2905 \msg_set:nnn{stex}{warning/deprecated}{
2906 \\
2907 \c_backslash_str defi~is~deprecated! \\
2908 Please~use~\c_backslash_str STExsymbol{#2}!{#2}~instead!~(in~file~
2909 \stex_path_to_string:N \g_stex_currentfile_seq)
2910 \\ \\
2911 }
2912 \msg_warning:nn{stex}{warning/deprecated}

```



```

2913 \STEXsymbol { #2 }![ \comp{#2} ]
2914 } {
2915 \msg_set:nnn{stex}{warning/deprecated}{
2916 \\\
2917 \c_backslash_str defi~is~deprecated! \\\
2918 Please~use~\c_backslash_str STEXsymbol { \l_tmpa_str }[ #2 ]~instead!~(in~file~
2919 \stex_path_to_string:N \g_stex_currentfile_seq)
2920 \\\
2921 }
2922 \msg_warning:nn{stex}{warning/deprecated}
2923 \exp_args:No \STEXsymbol { \l_tmpa_str }![ \comp{#2} ]
2924 }
2925 }
2926
2927
2928 \cs_new_protected:Npn \Defi {
2929 \peek_charcode_remove:NTF * {
2930 \Defi_do:
2931 } {
2932 \Defi_do:
2933 }
2934 }
2935
2936 \NewDocumentCommand \Defi_do: { 0{ } m } {
2937 \str_clear:N \l_tmpa_str
2938 \keys_set:nn { stex / deprec / defi } { #1 }
2939
2940 \str_if_empty:NTF \l_tmpa_str {
2941 \msg_set:nnn{stex}{warning/deprecated}{
2942 \\\
2943 \c_backslash_str Defi~is~deprecated! \\\
2944 Please~use~\c_backslash_str STEXsymbol{#2}![\exp_after:wN \stex_capitalize:n #2]~inste
2945 \stex_path_to_string:N \g_stex_currentfile_seq)
2946 \\\
2947 }
2948 \msg_warning:nn{stex}{warning/deprecated}
2949 \STEXsymbol { #2 }![ \comp{\exp_after:wN \stex_capitalize:n #2} ]
2950 } {
2951 \msg_set:nnn{stex}{warning/deprecated}{
2952 \\\
2953 \c_backslash_str Defi~is~deprecated! \\\
2954 Please~use~\c_backslash_str STEXsymbol { \l_tmpa_str }[ \exp_after:wN \stex_capitalize
2955 \stex_path_to_string:N \g_stex_currentfile_seq)
2956 \\\
2957 }
2958 \msg_warning:nn{stex}{warning/deprecated}
2959 \exp_args:No \STEXsymbol { \l_tmpa_str }![ \comp{\exp_after:wN \stex_capitalize:n #2} ]
2960 }
2961 }
2962
2963 \cs_new_protected:Npn \adefi {
2964 \peek_charcode_remove:NTF * {
2965 \adefi_do:
2966 } {

```

```

2967     \adefi_do:
2968   }
2969 }
2970
2971 \NewDocumentCommand \adefi_do: { 0{} m m } {
2972   \str_clear:N \l_tmpa_str
2973   \keys_set:nn { stex / deprec / defi } { #1 }
2974
2975   \str_if_empty:NTF \l_tmpa_str {
2976     \msg_set:nnn{stex}{warning/deprecated}{
2977       \\
2978       \c_backslash_str adefi-is-deprecated! \\
2979       Please~use~\c_backslash_str STEXsymbol{#3}![#2]~instead!~(in~file~
2980       \stex_path_to_string:N \g_stex_currentfile_seq)
2981       \\ \\
2982     }
2983     \msg_warning:nn{stex}{warning/deprecated}
2984     \STEXsymbol { #3 }![ \comp{#2} ]
2985   } {
2986     \msg_set:nnn{stex}{warning/deprecated}{
2987       \\
2988       \c_backslash_str adefi-is-deprecated! \\
2989       Please~use~\c_backslash_str STEXsymbol { \l_tmpa_str }[ #2 ]~instead!~(in~file~
2990       \stex_path_to_string:N \g_stex_currentfile_seq)
2991       \\ \\
2992     }
2993     \msg_warning:nn{stex}{warning/deprecated}
2994     \exp_args:No \STEXsymbol { \l_tmpa_str }![ \comp{#2} ]
2995   }
2996 }
2997
2998 \cs_new_protected:Npn \defis {
2999   \peek_charcode_remove:NTF * {
3000     \defis_do:
3001   } {
3002     \defis_do:
3003   }
3004 }
3005
3006 \NewDocumentCommand \defis_do: { 0{} m } {
3007   \str_clear:N \l_tmpa_str
3008   \keys_set:nn { stex / deprec / defi } { #1 }
3009
3010   \str_if_empty:NTF \l_tmpa_str {
3011     \msg_set:nnn{stex}{warning/deprecated}{
3012       \\
3013       \c_backslash_str defis-is-deprecated! \\
3014       Please~use~\c_backslash_str STEXsymbol{#2}![#2s]~instead!~(in~file~
3015       \stex_path_to_string:N \g_stex_currentfile_seq)
3016       \\ \\
3017     }
3018     \msg_warning:nn{stex}{warning/deprecated}
3019     \STEXsymbol { #2 }![ \comp{#2s} ]
3020   } {

```

```

3021 \msg_set:nnn{stex}{warning/deprecated}{
3022   \
3023   \c_backslash_str defis-is-deprecated! \
3024   Please~use~\c_backslash_str STExsymbol { \l_tmpa_str }[ #2s ]~instead!~(in~file~
3025   \stex_path_to_string:N \g_stex_currentfile_seq)
3026   \
3027 }
3028 \msg_warning:nn{stex}{warning/deprecated}
3029 \exp_args:No \STExsymbol { \l_tmpa_str }![ \comp{#2s} ]
3030 }
3031 }
3032
3033 \cs_new_protected:Npn \defii {
3034   \peek_charcode_remove:NTF * {
3035     \defii_do:
3036   } {
3037     \defii_do:
3038   }
3039 }
3040
3041 \NewDocumentCommand \defii_do: { 0{} m m } {
3042   \str_clear:N \l_tmpa_str
3043   \keys_set:nn { stex / deprec / defi } { #1 }
3044   \str_if_empty:NTF \l_tmpa_str {
3045     \msg_set:nnn{stex}{warning/deprecated}{
3046       \
3047       \c_backslash_str defii-is-deprecated! \
3048       Please~use~\c_backslash_str STExsymbol{#2~#3}![#2~#3]~instead!~(in~file~
3049       \stex_path_to_string:N \g_stex_currentfile_seq)
3050       \
3051     }
3052     \msg_warning:nn{stex}{warning/deprecated}
3053     \STExsymbol { #2~#3 }![ \comp{#2~#3} ]
3054   } {
3055     \msg_set:nnn{stex}{warning/deprecated}{
3056       \
3057       \c_backslash_str defii-is-deprecated! \
3058       Please~use~\c_backslash_str STExsymbol { \l_tmpa_str }[ #2~#3 ]~instead!~(in~file~
3059       \stex_path_to_string:N \g_stex_currentfile_seq)
3060       \
3061     }
3062     \msg_warning:nn{stex}{warning/deprecated}
3063     \exp_args:No \STExsymbol { \l_tmpa_str }![ \comp{#2~#3} ]
3064   }
3065 }
3066
3067
3068 \cs_new_protected:Npn \defiis {
3069   \peek_charcode_remove:NTF * {
3070     \defiis_do:
3071   } {
3072     \defiis_do:
3073   }
3074 }

```

```

3075
3076 \NewDocumentCommand \defiis_do: { O{} m m } {
3077   \str_clear:N \l_tmpa_str
3078   \keys_set:nn { stex / deprec / defi } { #1 }
3079   \str_if_empty:NTF \l_tmpa_str {
3080     \msg_set:nnn{stex}{warning/deprecated}{
3081       \\\
3082       \c_backslash_str defiis-is-deprecated! \\\
3083       Please~use~\c_backslash_str STEXsymbol{#2-#3}![#2-#3s]~instead!~(in~file~
3084       \stex_path_to_string:N \g_stex_currentfile_seq)
3085       \\\ \\\
3086     }
3087     \msg_warning:nn{stex}{warning/deprecated}
3088     \STEXsymbol { #2-#3 }![ \comp{#2-#3s} ]
3089   } {
3090     \msg_set:nnn{stex}{warning/deprecated}{
3091       \\\
3092       \c_backslash_str defiis-is-deprecated! \\\
3093       Please~use~\c_backslash_str STEXsymbol { \l_tmpa_str }[ #2-#3s ]~instead!~(in~file~
3094       \stex_path_to_string:N \g_stex_currentfile_seq)
3095       \\\ \\\
3096     }
3097     \msg_warning:nn{stex}{warning/deprecated}
3098     \exp_args:No \STEXsymbol { \l_tmpa_str }![ \comp{#2-#3s} ]
3099   }
3100 }
3101
3102
3103 \cs_new_protected:Npn \defiii {
3104   \peek_charcode_remove:NTF * {
3105     \defiii_do:
3106   } {
3107     \defiii_do:
3108   }
3109 }
3110
3111 \NewDocumentCommand \defiii_do: { O{} m m m } {
3112   \str_clear:N \l_tmpa_str
3113   \keys_set:nn { stex / deprec / defi } { #1 }
3114   \str_if_empty:NTF \l_tmpa_str {
3115     \msg_set:nnn{stex}{warning/deprecated}{
3116       \\\
3117       \c_backslash_str defiii-is-deprecated! \\\
3118       Please~use~\c_backslash_str STEXsymbol{#2-#3-#4}![#2-#3-#4]~instead!~(in~file~
3119       \stex_path_to_string:N \g_stex_currentfile_seq)
3120       \\\ \\\
3121     }
3122     \msg_warning:nn{stex}{warning/deprecated}
3123     \STEXsymbol { #2-#3-#4 }![ \comp{#2-#3-#4} ]
3124   } {
3125     \msg_set:nnn{stex}{warning/deprecated}{
3126       \\\
3127       \c_backslash_str defiii-is-deprecated! \\\
3128       Please~use~\c_backslash_str STEXsymbol { \l_tmpa_str }[ #2-#3-#4 ]~instead!~(in~file~

```

```

3129     \stex_path_to_string:N \g_stex_currentfile_seq)
3130     \\\ \\\
3131   }
3132   \msg_warning:nn{stex}{warning/deprecated}
3133   \exp_args:No \STEXsymbol { \l_tmpa_str }![ \comp{#2~#3~#4} ]
3134 }
3135 }
3136
3137 %\RequirePackage[hyperref]{ntheorem}
3138 %\theoremstyle{plain}
3139 %\RequirePackage{amsthm}
3140
3141 \NewDocumentEnvironment {definition} { 0{} } {
3142   \begin{STEXdefinition}{ }
3143 }{
3144   \end{STEXdefinition}
3145 }
3146
3147 \NewDocumentCommand \trefi { 0{} m } {
3148   \str_set:Nn \l_tmpa_str { #1 }
3149   \str_if_empty:NTF \l_tmpa_str {
3150     \msg_set:nnn{stex}{warning/deprecated}{
3151       \\\
3152       \c_backslash_str trefi-is-deprecated! \\\
3153       Please~use~\c_backslash_str STEXsymbol{#2}![#2]~instead!~(in~file~
3154       \stex_path_to_string:N \g_stex_currentfile_seq)
3155       \\\ \\\
3156     }
3157     \msg_warning:nn{stex}{warning/deprecated}
3158     \STEXsymbol { #2 }![ \comp{#2} ]
3159   } {
3160     \msg_set:nnn{stex}{warning/deprecated}{
3161       \\\
3162       \c_backslash_str trefi-is-deprecated! \\\
3163       Please~use~\c_backslash_str STEXsymbol { #1?#2 }[ #2 ]~instead!~(in~file~
3164       \stex_path_to_string:N \g_stex_currentfile_seq)
3165       \\\ \\\
3166     }
3167     \msg_warning:nn{stex}{warning/deprecated}
3168     \STEXsymbol { #1 }![ \comp{#2} ]
3169   }
3170 }
3171
3172
3173 \NewDocumentCommand \Trefi { 0{} m } {
3174   \str_set:Nn \l_tmpa_str { #1 }
3175   \str_if_empty:NTF \l_tmpa_str {
3176     \msg_set:nnn{stex}{warning/deprecated}{
3177       \\\
3178       \c_backslash_str Trefi-is-deprecated! \\\
3179       Please~use~\c_backslash_str STEXsymbol{#2}![\exp_after:wN \stex_capitalize:n #2]~inste
3180       \stex_path_to_string:N \g_stex_currentfile_seq)
3181       \\\ \\\
3182     }

```

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3183 \msg_warning:nn{stex}{warning/deprecated}
3184 \STEXsymbol { #2 }![ \comp{\exp_after:wN \stex_capitalize:n #2} ]
3185 } {
3186 \msg_set:nnn{stex}{warning/deprecated}{
3187 \\\
3188 \c_backslash_str Trefi-is-deprecated! \\\
3189 Please~use~\c_backslash_str STEXsymbol { #1 }[ \exp_after:wN \stex_capitalize:n #2 ]~i
3190 \stex_path_to_string:N \g_stex_currentfile_seq)
3191 \\\
3192 }
3193 \msg_warning:nn{stex}{warning/deprecated}
3194 \STEXsymbol { #1 }![ \comp{\exp_after:wN \stex_capitalize:n #2} ]
3195 }
3196 }
3197
3198 \NewDocumentCommand \trefis { O{} m } {
3199 \str_set:Nn \l_tmpa_str { #1 }
3200 \str_if_empty:NTF \l_tmpa_str {
3201 \msg_set:nnn{stex}{warning/deprecated}{
3202 \\\
3203 \c_backslash_str trefi-is-deprecated! \\\
3204 Please~use~\c_backslash_str STEXsymbol{#2}![#2s]~instead!~(in~file~
3205 \stex_path_to_string:N \g_stex_currentfile_seq)
3206 \\\
3207 }
3208 \msg_warning:nn{stex}{warning/deprecated}
3209 \STEXsymbol { #2 }![ \comp{#2s} ]
3210 } {
3211 \msg_set:nnn{stex}{warning/deprecated}{
3212 \\\
3213 \c_backslash_str trefi-is-deprecated! \\\
3214 Please~use~\c_backslash_str STEXsymbol { #1 }[ #2s ]~instead!~(in~file~
3215 \stex_path_to_string:N \g_stex_currentfile_seq)
3216 \\\
3217 }
3218 \msg_warning:nn{stex}{warning/deprecated}
3219 \STEXsymbol { #1 }![ \comp{#2s} ]
3220 }
3221 }
3222
3223
3224 \NewDocumentCommand \Trefis { O{} m } {
3225 \str_set:Nn \l_tmpa_str { #1 }
3226 \str_if_empty:NTF \l_tmpa_str {
3227 \msg_set:nnn{stex}{warning/deprecated}{
3228 \\\
3229 \c_backslash_str Trefis-is-deprecated! \\\
3230 Please~use~\c_backslash_str STEXsymbol{#2}![\exp_after:wN \stex_capitalize:n #2s]~inst
3231 \stex_path_to_string:N \g_stex_currentfile_seq)
3232 \\\
3233 }
3234 \msg_warning:nn{stex}{warning/deprecated}
3235 \STEXsymbol { #2 }![ \comp{\exp_after:wN \stex_capitalize:n #2s} ]
3236 } {

```

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3237 \msg_set:nnn{stex}{warning/deprecated}{
3238   \
3239   \c_backslash_str Trefis~is-deprecated! \
3240   Please~use~\c_backslash_str STExsymbol { #1 }[ \exp_after:wN \stex_capitalize:n #2s ]~
3241   \stex_path_to_string:N \g_stex_currentfile_seq)
3242   \
3243 }
3244 \msg_warning:nn{stex}{warning/deprecated}
3245 \STExsymbol { #1 }![ \comp{\exp_after:wN \stex_capitalize:n #2s} ]
3246 }
3247 }
3248
3249 \NewDocumentCommand \trefii { O{} m m } {
3250   \str_set:Nn \l_tmpa_str { #1 }
3251   \str_if_empty:NTF \l_tmpa_str {
3252     \msg_set:nnn{stex}{warning/deprecated}{
3253       \
3254       \c_backslash_str trefii~is-deprecated! \
3255       Please~use~\c_backslash_str STExsymbol{#2~#3}![#2~#3]~instead!~(in~file~
3256       \stex_path_to_string:N \g_stex_currentfile_seq)
3257       \
3258     }
3259     \msg_warning:nn{stex}{warning/deprecated}
3260     \STExsymbol { #2~#3 }![ \comp{#2~#3} ]
3261   } {
3262     \msg_set:nnn{stex}{warning/deprecated}{
3263       \
3264       \c_backslash_str trefii~is-deprecated! \
3265       Please~use~\c_backslash_str STExsymbol { #1 }[ #2~#3 ]~instead!~(in~file~
3266       \stex_path_to_string:N \g_stex_currentfile_seq)
3267       \
3268     }
3269     \msg_warning:nn{stex}{warning/deprecated}
3270     \STExsymbol { #1 }![ \comp{#2~#3} ]
3271   }
3272 }
3273
3274 \NewDocumentCommand \trefiii { O{} m m m } {
3275   \str_set:Nn \l_tmpa_str { #1 }
3276   \str_if_empty:NTF \l_tmpa_str {
3277     \msg_set:nnn{stex}{warning/deprecated}{
3278       \
3279       \c_backslash_str trefiii~is-deprecated! \
3280       Please~use~\c_backslash_str STExsymbol{#2~#3~#4}![#2~#3~#4]~instead!~(in~file~
3281       \stex_path_to_string:N \g_stex_currentfile_seq)
3282       \
3283     }
3284     \msg_warning:nn{stex}{warning/deprecated}
3285     \STExsymbol { #2~#3~#4 }![ \comp{#2~#3~#4} ]
3286   } {
3287     \msg_set:nnn{stex}{warning/deprecated}{
3288       \
3289       \c_backslash_str trefiii~is-deprecated! \
3290       Please~use~\c_backslash_str STExsymbol { #1 }[ #2~#3~#4 ]~instead!~(in~file~

```

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3291     \stex_path_to_string:N \g_stex_currentfile_seq)
3292     \\\
3293   }
3294   \msg_warning:nn{stex}{warning/deprecated}
3295   \STEXsymbol { #1 }![ \comp{#2~#3~#4} ]
3296 }
3297 }
3298
3299
3300 \NewDocumentCommand \treffiis { 0{ } m m } {
3301   \str_set:Nn \l_tmpa_str { #1 }
3302   \str_if_empty:NTF \l_tmpa_str {
3303     \msg_set:nnn{stex}{warning/deprecated}{
3304       \\\
3305       \c_backslash_str treffiis~is~deprecated! \\\
3306       Please~use~\c_backslash_str STEXsymbol{#2~#3}![#2~#3s]~instead!~(in~file~
3307       \stex_path_to_string:N \g_stex_currentfile_seq)
3308       \\\
3309     }
3310     \msg_warning:nn{stex}{warning/deprecated}
3311     \STEXsymbol { #2~#3 }![ \comp{#2~#3s} ]
3312   } {
3313     \msg_set:nnn{stex}{warning/deprecated}{
3314       \\\
3315       \c_backslash_str treffiis~is~deprecated! \\\
3316       Please~use~\c_backslash_str STEXsymbol { #1 }[ #2~#3s ]~instead!~(in~file~
3317       \stex_path_to_string:N \g_stex_currentfile_seq)
3318       \\\
3319     }
3320     \msg_warning:nn{stex}{warning/deprecated}
3321     \STEXsymbol { #1 }![ \comp{#2~#3s} ]
3322   }
3323 }
3324
3325 \NewDocumentCommand \symvariant { 0{ } m 0{0} m m } {
3326   \msg_set:nnn{stex}{warning/deprecated}{
3327     \\\
3328     \c_backslash_str symvariant~is~deprecated! \\\
3329     Please~use~\c_backslash_str notation[#4]{ #2 }~instead!~(in~file~
3330     \stex_path_to_string:N \g_stex_currentfile_seq)
3331     \\\
3332   }
3333   \msg_warning:nn{stex}{warning/deprecated}
3334
3335   \notation[variant=#4]{#2}{#5}
3336 }
3337
3338 \NewDocumentCommand \mixfixi { 0{ } m m m } {
3339   \msg_set:nnn{stex}{warning/deprecated}{
3340     \c_backslash_str mixfixi~is~fatally~deprecated!\\
3341     Symbol:~\l__stex_term_highlight_uri_str\\
3342     Current~file:~\stex_path_to_string:N \g_stex_currentfile_seq
3343   }
3344   \msg_error:nn{stex}{warning/deprecated}

```



```

3345 }
3346
3347
3348 \NewDocumentCommand \infix {} {
3349   \msg_set:nnn{stex}{warning/deprecated}{
3350     \c_backslash_str infix~is~fatally~deprecated!\\
3351     Symbol:~\l__stex_term_highlight_uri_str\\
3352     Current~file:~\stex_path_to_string:N \g_stex_currentfile_seq
3353   }
3354   \msg_error:nn{stex}{warning/deprecated}
3355 }
3356
3357 \let\iprec\infprec
3358
3359 \NewDocumentCommand \inlineex { m } {
3360   \msg_set:nnn{stex}{warning/deprecated}{
3361     \c_backslash_str inlineex~is~deprecated!\\
3362     No~replacement~exists~yet.\\
3363     Current~file:~\stex_path_to_string:N \g_stex_currentfile_seq
3364   }
3365   \msg_warning:nn{stex}{warning/deprecated}
3366   #1
3367 }
3368
3369
3370 \NewDocumentCommand \term { m } {
3371   \msg_set:nnn{stex}{warning/deprecated}{
3372     \c_backslash_str term~is~deprecated!\\
3373     No~replacement~exists~yet.\\
3374     Current~file:~\stex_path_to_string:N \g_stex_currentfile_seq
3375   }
3376   \msg_warning:nn{stex}{warning/deprecated}
3377   #1
3378 }
3379
3380
3381 \seq_gput_right:Nx \g_stex_smsmode_allowedenvs_seq { \tl_to_str:n { mhmodnl } }
3382 \seq_gput_right:Nx \g_stex_smsmode_allowedenvs_seq { \tl_to_str:n { modsig } }
3383 \tl_gput_right:Nn \g_stex_smsmode_allowedmacros_escape_tl {\gimport\syml\symii\symiii\symiv\
3384
3385 % omtex:
3386 \cs_new_protected:Npn \lec #1 {
3387   \strut\hfil\strut\hfill(#1)
3388 }
3389 \cs_new_protected:Npn \nlex #1 {
3390   \textcolor{green}{\sl #1}
3391 }
3392
3393
3394 </compat>

```