

## Bernd Raichle

\relax ex machina II

**Question:** Is the following T<sub>E</sub>X input correct, i.e, will T<sub>E</sub>X abort with an error message or not?

```
\hbox \relax \relax {haha}
\hbox to \hsize \relax \relax {hehe}
\moveright .25\hsize \relax \relax \hbox{hihi}

\toks0 = \relax \relax {hoho}
\toksdef\tlist = 2 \tlist = \relax \relax {huhu}

\setbox0 = \relax \hbox \relax {haha}

\global \relax \global \relax \long \relax \def\foo{oh!}

$$ \halign{\kern 20pt #\cr
      \noalign \relax \relax {aha}\cr
      oho\cr} \relax $$

$ \left \relax ( 1 \mathord \relax {+} 2 ^ \relax {3} \right \relax ) $

a\leaders \hbox \relax {\TeX} \relax \hskip .5\hsize b

bla \vadjust \relax \relax {foo} bla.

B\accent 127\relax \relax \relax \relax a%
\discretionary \relax {k-} \relax {k} \relax {ck}%
er.
```

**Answer:** Every token above is not needed. Nonetheless these tokens do not cause any error, they are allowed and ignored at the shown places.

If you browse through the T<sub>E</sub>X source code file `tex.web` you will probably have seen the web chunk named `@<Get the next non-blank non-relax non-call token@>`. This web chunk is used in the procedure `scan_left_brace`, in `box_end` for leaders, in `scan_box`, in `scan_math`, in `scan_delimiter`, in `prefixed_command`, in assignments of `\toks` or `\toksdef` tokens after the equal sign, in `do_assignments`. These procedures are used to scan the input for some T<sub>E</sub>X primitive constructs. The effect is that spaces and `\relax` tokens can be inserted at various places without harm because they are ignored.