

## Hans Hagen

`\lccode` builds a hash table

Wybo Dekker (NTG) asked on the TEX-NL list how to construct a macro where in the name a '1' would be replaced by an 'A'. This involves a conversion and T<sub>E</sub>X does not ship with that many straightforward conversion features. His approach involved the `\char` primitive but failed for the (maybe not that obvious) reason that this primitive results in a character node and in expansions (as in an `\edef`) remains as it is: a reference to a specific character (slot) in the font used at the moment when it is applied.

```
\Name{test}{1}{Hello}
\Name{test}{2}{World!}
\testA\ \testB % this should give: Hello World!
```

A rather convenient way to remap characters is using the `\lccode` or `\uccode` primitives in combination with `\lowercase` or `\uppercase`. The following solution is a bit optimized in the sense that we expand the temporary variable before we end the group. An alternative is to define `\temp` globally and to omit the first `\expandafter`. Watch how we apply `\lowercase` to the whole definition; using the `\lowercase` inside an `\edef` would not work. Instead of using a loop and some calculations, we directly assign the codes. The 0/J case is an exception anyway.

```
\long\def\Name#1#2#3%
  {\bgroup
   \lccode'1='A \lccode'6='F
   \lccode'2='B \lccode'7='G
   \lccode'3='C \lccode'8='H
   \lccode'4='D \lccode'9='I
   \lccode'5='E \lccode'0='J
   \lowercase{\def\temp{#2}}%
   \expandafter\egroup\expandafter\def\csname#1\temp\endcsname{#3}}

\Name{test}{1}{Hello}
\Name{test}{2}{World!}
\testA\ \testB
```

Of course we don't need such a remapping at all, which is demonstrated by the alternative posted by Piet van Oostrum at TEX-NL:

```
\long\def\Name#1#2#3%
  {\expandafter\def\csname #1\ifcase#2\relax\or A\or B\or C\or
   D\or E\or F\or G\or H\or I\or J\or K\fi\endcsname{#3}}
```

A better variant is the following. This one takes care of the zero case:

```
\long\def\Name#1#2#3%
  {\expandafter\def\csname #1\ifcase#2 J\or A\or B\or C\or D\or
   E\or F\or G\or H\or I\else#2\fi\endcsname{#3}}
```

The next one is even better because it also takes care of non digits:

```
\long\def\Name#1#2#3%
  {\expandafter\def\csname#1\ifx#20J\else\ifcase0#2\or A\or B\or
   C\or D\or E\or F\or G\or H\or I\else#2\fi\fi\endcsname{#3}}
```

Now we can say:

```
\Name{test}{0}{zero}
\Name{test}{1}{one}
\Name{test}{x}{xxx}
\testJ \testA \testx
```