Typesetting Crosswords via TeX, revisited

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Abstract

An alternative macro, to van der Laan (1992b), is provided for typesetting crosswords via TeX.

Keywords: Crosswords, games, plain TeX.

1 Introduction

The previous version has been published in the proceedings of EuroTeX '92, and in MAPS92.1. A TUGboat referee suggested not to use `\halign`, et voilà. The differences of this version with the previous version are: `\halign` is not used, and therefore there is no mark-up phase, and `\data` is hidden. The nested FIFO paradigm is directly applied to `\data`, van der Laan (1992a). The control sequence `\data` is created in `\store` with as replacement text the data provided between `\bdata...\edata`. Alternative sizes of the crossword can be obtained via appropriate (re)definition of `\usersize`.

2 Example of use
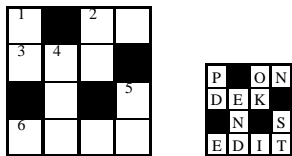
is obtained via[1]

```
\input crwrev.tex
\bdata%
P*On
DEk*
*n*S
Edit
\edata$$\crw\qquad
\def\usersize{\fiverm\csize=3ex}\sol$$
```

Conventions for `\bdata` ⟨*data*⟩ `\edata`[2]
- cell descriptions have to be given line by line
- * denotes crossed out cell

- capitals denote marked open cells (with reference numbers to the clues), and letters of the solution
- lower case letters, denote empty cells, and letters of the solution.

The explicit number of cells is not needed to specify, nor used.

3 Programming

Crossword diagrams consist of (marked) empty cells, crossed out cells, and for the solution cells with (capital) letters. I parameterized each cell into the size `\csize` by `\csize`, with height `.8\csize`. Cells are typeset per row in a `\hbox` and these boxes are stacked in a `\vbox`. All is framed via `\boxit`. The carriage return, `^^M`, and space are active characters between `\bdata` and `\edata`, allowing WYSIWYG input. The numbering of the marked cells is done automatically, row-wise and hidden. I adopted the convention to use reversed words for end-parameter separators, except for the `\edata` separator.

Furthermore, I assumed that no diacritical marks are used in crosswords, and restricted myself to the roman alphabet.

3.1 The file `crwrev.tex`

```
\let\ea=\expandafter \newif\ifpuzzle
\newcount\cnt \puzzletrue
\newdimen\csize\csize=3ex
%
\def\bdata{\bgroup\obeylines\obeyspaces%
\store}
\def\store#1\edata{\egroup\def\data{#1}}
{\obeyspaces\global\let =\relax}
\def\usersize{}
%
```

---

[1] The sides seem to wiggle. Is this optical illusion, a driver bug, or caused by the properties of ink-blocks on paper? Electronic previewing did not suffer from this. The framing was added via `\boxit` to enhance a straight frame.

[2] A 'white lie,' spaces are also allowed for crossed out cells, see the Appendix.

```
{\catcode`\^^M=13 %local scope
\gdef\crw{\cnt=0\relax\boxit{\usersize%
\hrule\ea\fifol\data\lofif^^M}}
\gdef\sol{\boxit{\def\num{}\puzzlefalse%
\usersize\hrule\ea\fifol\data\lofif^^M}}
\gdef\fifol#1^^M{\ifx\lofif#1\lofif\fi%
\processl{#1}\fifol}}%end local scope
%
\def\lofif#1\fifol{\fi}
\def\processl#1{\hbox{\fifo#1\ofif}\hrule}
\def\fifo#1{\ifx\ofif#1\ofif\fi%
\process#1\fifo}  \def\ofif#1\fifo{\fi}
%
\def\process#1{\if*#1\cc\else%
\ifx\relax#1\cc\else%
\ifnum`#1=\uccode`#1\cap#1\else%
\low#1\fi\fi\fi}
\def\low#1{\hbox to\csize{\vrule
height.8\csize depth.2\csize\relax%
\ifpuzzle\null\else\hss\uppercase{#1}%
\fi\hss\vrule}}
\def\cap#1{\hbox to\csize{\vrule
height.8\csize depth.2\csize\relax%
\num\ifpuzzle\null\else\hss#1\fi%
\hss\vrule}}
\def\cc{\vrule height.8\csize depth%
.2\csize width\csize}
%
\def\num{\global\advance\cnt1\relax%
\vbox to.8\csize{\rlap{\kern1pt%
\fiverm\the\cnt\hss}\vfil}}
%
\def\boxit#1{\vbox{\hrule\hbox{\vrule%
\vbox{#1}\vrule}\hrule}}%  cgl, oct92
```

3.2　\crw, \sol

The crossword, respectively the solution are typeset (as \vbox-es) by these macros. \data is used.

3.3　\process

This macro typesets each cell contents according to the \data. \if*#1 etc. tests whether a crossed-out cell has to be typeset, and if so a copy is inserted. For the other situation according to the case of the letter \low(er case letter) or \cap(ital letter), is invoked. How the cell contents will be typeset depends upon \ifpuzzle. The letters are typeset in upper case and centered.

3.4　\num

Generates and typesets the reference numbers. The numbers are set in the left upper corners of the cells marked by capitals in the puzzle representation.

3.5　\bdata, \store

These store the user provided information between \bdata and \edata in \data, with the carriage re-

turn and space as active characters. (The \bgroup after \gdef must be an *explicit* brace, because \bgroup can be equally well a parameter separator.)

References

[1] Hamilton Kelley, B (1990): Some macros to draw crosswords. *TUGboat* 11, no. (1), 103–119.
[2] Knuth, D.E (1986): The TEXBook. Addison-Wesley.
[3] Laan, C.G van der (1992a): FIFO and LIFO sing the BLUes. MAPS92.2.
[4] Laan, C.G van der Laan (1992b): Typesetting Crosswords via TEX. EuroTEX '92, 217–224. Also in MAPS92.1.

Appendix

Hamilton Kelley's puzzle
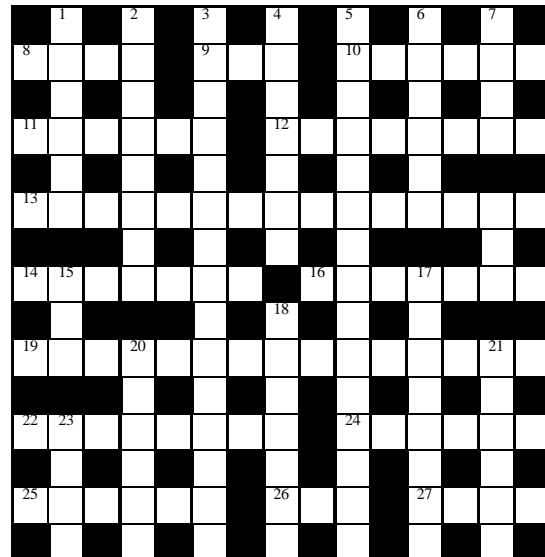
is obtained—after \input crwrev.tex—via

```
\bdata%BHK's example
 S  I  C  T  D  S  P*
Swam Oho Icecap
 o  p  m  r  t  n  l*
Bopeep Schedule
 s  l  a  i  y  u  *
Thalassographer
    e  s  n  a   r*
HAirpin UmbRage
 r   o Sbi   *
ScaLenetriangLe
    o  a  u  c  g  e*
AMounted Allege
 a  v  e  e  l  e  a*
Floral Nil Tace
 l  e  y  t  y  s  y*
\edata$$\crw$$
```