Typesetting Bridge via LaTeX[1]

Kees van der Laan
Hunzeweg 57
9893 PB Garnwerd
`cgl@rug.nl`

Abstract

LaTeX macros and a bidding environment for typesetting bridge card distributions and bidding sequences are given. Examples borrowed from bridge literature are supplied.

1 Card deals

In bridge literature diagrams of distribution of cards over the hands are often given in order to demonstrate bidding sequences or to explain play technique. In order to do this systematically and to abstract from layout details I wrote a macro — `crdima` — with six parameters

first parameter: text, especially who is the dealer and what is the vulnerability. For example: N/None, for North dealer and vulnerability none.

second parameter: text, for example indication of play, e.g., number `Play 1` or otherwise, e.g.,

```
\begin{minipage}[t]{\br}
    Play:\\demo
\end{minipage}
```

next four parameters: the four hands in the sequence N, W, E, S. Each hand is a call of the `hand` macro with four parameters: the ♠, ♡, ♢, ♣ cards.

Example

```
\crdima{N/None}{%
  \begin{minipage}[t]{\br}
    Play:\\demo
  \end{minipage}}%
  {\hand{J74}{AJ}{QJT2}{Q874}}%
  {\hand{A3}{K76}{963}{KJ952}}%
  {\hand{K86}{T9542}{874}{T3}}%
  {\hand{QT952}{Q83}{AK5}{A6}}%
```

yields

N/None	♠ J74	Play:
	♡ AJ	demo
	♢ QJT2	
	♣ Q874	
♠ A3	N	♠ K86
♡ K76	W E	♡ T9542
♢ 963	S	♢ 874
♣ KJ952		♣ T3
	♠ QT952	
	♡ Q83	
	♢ AK5	
	♣ A6	

Remarks
By this levelling I circumvented the limit of the number of parameters. Because parameter substitution is done by 'text' replacement there is no '(strong) type checking' as in modern high-level programming languages.
There is no check on the correctness of the cards (correct number, distribution, multiple occurrence or omission), nor on the correct sequence of the parameters. In SGML compliance with the input syntax can be imposed with enhanced user convenience and alleviated proofreading, but at the expense of elaborate coding, [3]. No test on the correctness of the sequence of the hands is possible, except for the mechanism of 'named' parameters.
The `crdima` macro can be used to display all phases of the play. Hands can be suppressed at discretion of the user by empty actual parameters. A void can be supplied via `--`. In the listings of the commands used for the examples the `quote` environment command is omitted.

For tournaments (bridge) plays are often dealt by computer. At the end of tournaments players appreciate

[1]Reprinted from TUGboat 10, 1, 113–116.

prints of the deals. For that purpose my (Pascal) deal program generates ASCII output — for simple display on the PC — as well as LaTeX input, optionally. This input is printed with the aid of `crdima`. Parameter testing is superfluous for LaTeX input generated this way.

2 Bidding

In the context of bidding theory I use a bidding environment. The given card deal takes the following ACOL bidding

West	North	East	South
–	1♣	no	1♠
no	2♠	no	4♠
a.p.			

obtained via

```
\begin{bidding}
-- \> 1\c\> no \> 1\s\\
no \> 2\s\> no \> 4\s\\
a.p.
\end{bidding}
```

Remark The bidding environment is independent of the language of the bidding (West etc. can easily be adapted), the bidding system as well as the number of bid rounds.

3 Macro texts

```
\newcommand{\hand}[4]{
 \begin{minipage}[t]{\br}%I chose \br=8em
 \begin{tabbing}
 %width of parbox depends on the parameters:
 %min{\br, max{string #1, ..., string #4}}
  \(\spadesuit\)  \= #1 \\
  \(\heartsuit\)  \> #2 \\
  \(\diamondsuit\)\> #3 \\
  \(\clubsuit\)   \> #4
 \end{tabbing}
 \end{minipage}     }%end \hand
%
\newsavebox{\NESW}
\savebox{\NESW}[4em]{%
\raisebox{-1.5\baselineskip}%
{\fbox{\small W
   \raisebox{2.6ex}{N}
   \hspace*{-1em}
   \raisebox{-2.6ex}{S}
   {E}
      }
}          }%end \NESW
%
\newcommand{\crdima}[6]{%
\begin{tabular}[t]{lll}
 #1 & #3             & #2\\
 #4 & \usebox{\NESW} & #5\\
    & #6             &
\end{tabular}
}%end \crdima
%
\newenvironment{bidding}%
{\begin{tabbing}
 xxxxxx\=xxxxxx\=xxxxxx\=xxxxxx \kill
 West  \>North \>East  \> South\\
}{\end{tabbing} }%end bidding
%
```

To eliminate data integrity errors the listings of the above macros and the listings of the commands used in the examples are 'included' via a transparent verbatim like environment, [6]; so the same files were used for execution and listing.

4 Some more examples

In order to illustrate general bidding theory from the point of view of one hand only, the `hand` macro can be used. The following layout, heavily used in [2],

♠ AKJ42
♡ AK9
♢ T832
♣ T

West	North	East	South
–	1♠	no	1NT
2♣	?		

is obtained via

```
\hand{AKJ42}{AK9}{T832}{T}\hspace{.5\br}
\begin{minipage}[t]{\br}
\begin{bidding}
-- \> 1\s\> no \> 1NT \\
2\c\> ?
\end{bidding}
\end{minipage}
```

For issues related to defense play one often displays only the dummy hand and your own hand. The following example — layout and text — is from [1].

♠ AJ632
♡ 43
♢ KQ7
♣ A85

N
W E
S

♠ 985
♡ 852
♢ AJ5
♣ KQT3

West	North	East	South
1♠	no	2♡	no
2NT	no	4♡	a.p.

Against 4♡ South starts ♣K, taken with ♣A. Leader continues ♡AKQ. On the third round of ♡'s, partner discards ♢9 (indicates interest in ♠). Leader continues with ♢2, how do you continue?

The example is obtained via

```
\crdima{}{}{}{\hand{AJ632}{43}{KQ7}{A85}}%
          {}{\hand{985}{852}{AJ5}{KQT3}}\\
\begin{bidding}
1\s\> no \> 2\h \> no\\
2NT\> no \> 4\h \> a.p.
\end{bidding}
```

Remark In a similar way W–N, N–E, E–S hands, or W–E, N–S hands, or one hand only, with NESW diagram, can be displayed simply by a suitable call of `crdima`.

Finally, an endplay — positional squeeze — from [4] is given.

	♠ AJ ♡ K ♢ – ♣ –	S leads ♣A
♠ KQ ♡ A ♢ – ♣ –	N W E S	♠ 7 ♡ 9 ♢ T ♣ –
	♠ 2 ♡ 4 ♢ – ♣ A	

The example is obtained via

```
\crdima{}{S leads \c A}%
       {\hand{AJ}{K}{--}{--}}%
       {\hand{KQ}{A}{--}{--}}%
       {\hand{7}{9}{T}{--}}%
       {\hand{2}{4}{--}{A}}
```

5 Variation

An elementary, and in a sense more general, crdima macro is

```
\newcommand{\crdimaele}[9]{%
\begin{tabular}[t]{lll}
#1 & #2 & #3\\
#4 & #5 & #6\\
#7 & #8 & #9
\end{tabular}}%end crdimaele
```

All the given examples can be handled with `crdimaele`. `crdimaele` applied to the original deal without NESW diagram reads

```
\crdimaele{N/None}%
  {\hand{J74}{AJ}{QJT2}{Q874}}%
  {\begin{minipage}[t]{\br}
     Play: demo; no NESW diagram
  \end{minipage}}%
  {\hand{A3}{K76}{963}{KJ952}}%
  {}%
  {\hand{K86}{T9542}{874}{T3}}%
  {}%
  {\hand{QT952}{Q83}{AK5}{A6}}%
  {}
```

with result

N/None	♠ J74 ♡ AJ ♢ QJT2 ♣ Q874	Play: demo; no NESW diagram
♠ A3 ♡ K76 ♢ 963 ♣ KJ952		♠ K86 ♡ T9542 ♢ 874 ♣ T3
	♠ QT952 ♡ Q83 ♢ AK5 ♣ A6	

Remarks
A NESW diagram is obtained with `\usebox{\NESW}` — or something you have designed yourself — as fifth parameter.
An elegant solution to the problem of having a default NESW figure which could be overruled by another figure is the optional parameter mechanism, which — helas — is lacking in the macro facility of LaTeX. The same applies to the bidding environment with the default bid sequence West North East South. Again via the mechanism of optional parameters one could provide another bid sequence order, abbreviations or names suited for other languages. For the hand parameters one could think of the mechanism of 'named parameters' with ultimately complete freedom of the sequence order of the parameters: one could then easily provide the hands in the order N E S W, the deal order. A step in this direction is to use variables, e.g., `\ns` for spades of the North hand and so on. The use of `\hand` for North is then `\hand{\ns}{\nh}{\nd}{\nc}`. Of course one could modify `crdima` into a version with parameter calls replaced by 'global' variables. My case rests.

6 Conclusions

The author claims that bridge publications can be typeset easily with high quality via LaTeX and the given macros. Proofreading of deals not generated and typed by computer is error prone and remains tiresome.
The lack of the facility of optional parameters in the `\newcommand` command and the `newenvironment` environment is felt as an understandable inelegancy.

Acknowledgements

The author is grateful to Victor Eijkhout of the University of Nijmegen and Nico Poppelier of the University of Utrecht for their suggested improvements. With my colleague Jan Luyten I had the pleasure of fruitful discussions.

References

[1] BRIDGE. Monthly of the NBB (Dutch Bridge Union).

[2] Crowhurst, E. (1986): ACOL in competition. Pelham. London.

[3] Grootenhuis, J. (priv. comm.): Kaartverdelingen en biedverloop bij bridgen — Een SGML tutorial. (Dutch).

[4] Kelder, J., B. van der Velde (1986): Dwangposities tegen één tegenstander. Becht. A'dam. (Dutch). Translated from:
Kelsey, H.W. (1985, paperback):
Simple squeezes. Gollancz. London.

[5] Lamport, L. (1986): LaTeX, a document preparation system. Addison-Wesley.

[6] Mulders, H.P.A. (priv. comm.): `\verbinput`.