Critical editions and arabic typesetting:
the ledarab and afoot packages*

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Abstract

The ledmac package, which is based on the Plain TEX set of EDMAC macros, has been used for some time for typesetting critical editions, and the ArabTeX system enables the typesetting of arabic texts.

The afoot package is an extension to the arabtex package to enable footnotes in arabic texts and the ledarab package provides an interface between arabtex and ledmac (also ledpar) for arabic text in critical editions.

Please, for all bug’s report, open a ticket on https://github.com/maieul/ledmac/issues/

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*This file (ledarab.dtx) has version number v0.1, last revised 2005/03/24.
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The \TeX\ macros \cite{LW90} for typesetting critical editions of texts have been available for use with TeX for some years, and the arabtex package \cite{Lag99} provides for arabic typesetting. These two works are interfaced by the aedpatch package provided as part of the ArabTeX distribution.

Following the introduction of EDMAC there had been a small but constant demand for a version that could be used with LaTeX. The ledmac package \cite{Wil04a} was introduced in 2003 in an attempt to satisfy that request. This was extended in 2004 by the ledpar package \cite{Wil04b} to allow the typesetting of parallel critical texts. The ledarab package provides an interface between the arabtex and the ledmac (and ledpar) packages. The package has to try and coerce TeX into paths it was not designed for. Use of the package, therefore, may produce some surprising results.

I initially used version 3.10 (2001/09/16) of the arabtex package but when I moved to version 3.11 (2003/08/22) I found that the code for footnotes (in afoot.sty) no longer worked. The afoot package provided here is based on the obsolete 3.10 version, until a working version of afoot.sty is provided in the ArabTeX distribution.

The \LaTeX\ package automatically calls the afoot package. If you want to use my version of afoot just make sure that it is found by LaTeX before the ArabTeX’s version, for example by having a copy in your working directory.

The \texttt{\footnote{⟨text⟩}} produces a numbered footnote. Unlike the usual LaTeX \texttt{\footnote{⟨text⟩}} macro there is no optional argument for specifying the number.

Inside an arabtext environment the \texttt{\LRfootnotes} declaration causes follow...
ing footnotes to be in normal left to right (LtoR) roman text, left adjusted and with the number at the left.

Inside an \texttt{arabtext} environment the \texttt{RLfootnotes} or \texttt{arabfootnotes} declaration causes any following footnotes to be in right to left (RtoL) arabic script, right adjusted and with the number at the right. In normal text the footnotes are normal.

To get an arabic footnote in normal text try:

\ldots \texttt{roman\footnote{\RL{arabic}}} \ldots

The footnote will be left adjusted but the note’s text will be arabic.

3 The ledarab package

The \texttt{ledarab} package\footnote{I offered an earlier version to Prof. Lagally towards the end of 2003 for possible addition to his \texttt{arabtex} package but got no response to my messages.} is partially based on Klaus Lagally’s \texttt{aedpatch.sty} and lets the \texttt{ledmac} package’s critical apparatus be applied to arabic texts. The packages must be used in the following order:

\begin{verbatim}
\usepackage{ledmac}
\usepackage{ledpar} % if you need parallel texts.
\usepackage{arabtex}
\usepackage{ledarab}
\end{verbatim}

The package is very limited — only the basic numbering and critical footnotes are supported. Even then, all critical notes are left adjusted with the lemma and note in left to right order, although the lemma and/or note may be in RtoL arabic script. Items like familiar footnotes, endnotes, tabulars and so on are left to you the user.

In normal numbered text you can use the \texttt{RL} macro within the critical aparatus for short pieces of arabic.

\begin{verbatim}
\begin{numbering}
\pstart
\edtext{latin}{\Cfootnote{roman}} text.
\edtext{\RL{latin}}{\Cfootnote{\RL{roman}}} text.
\end{numbering}
\end{verbatim}

In the first line above the lemma and footnote will both be in latin script while in the second line they will both be in arabic script; in each case, though, the lemma is at the left and the note follows on the right.

\begin{verbatim}
\begin{numbering}
\pstart
\edtext{script}{\Afootnote{roman}} text.
\edtext{script}{\Afootnote{\LR{roman}}} text.
\end{numbering}
\end{verbatim}
Arabic \edtext{script}{\Afootnote{RL{arabic}}} text.
Arabic \edtext{\LR{error}}{\Afootnote{roman}} text.
\end{arabtext}
\pend
...

In the first and second lines above the lemma is in arabic script and the note in
latin script, while in the third line both the lemma and the note are in arabic
script. Using \text{LR} as part of the lemma, as in the last line causes errors.

\beginnumbering
\begin{arabtext}
\pstart
Arabic \edtext{script}{\Afootnote{messy}} text.
Arabic \edtext{script}{\Afootnote{LR{messy}}} text.
Arabic \edtext{script}{\Afootnote{RL{arabic}}} text.
\pend
\end{arabtext}
\end{arabtext}
...

In the first two lines above the lemma is in arabic and the note is in what looks
like (to me at least) arabic, but it is all messed up. In the last line both the lemma
and the note are in arabic.

\arablnumrep
\restorelnumrep

Line numbers are normally typeset in latin script arabic numerals and LtoR.
Following the \arablnumrep declaration they will be typeset in arabic script
numerals and RtoL. The \restorelnumrep ensures the regular line numbers. Use
the declarations like:

\arablnumrep
\begin{arabtext} ... \end{arabtext}
\restorelnumrep

\latinarabic \arabiclatin

Arabic script naturally has a greater height or leading (larger \baselineskip) than latin text. Parallel normal texts and parallel arabic texts align naturally, as
do parallel columns of latin/arabic or arabic/latin texts. However, left to their
own devices pages of parallel arabic and normal text will not align.

If you are setting normal text on the left pages and arabic script on the right
using the \latinarabic declaration should align them. Similarly when you have
arabic script on the left and latin script on the right use the \arabiclatin decla-
ration.

The \ledarabstrut strut is the height of a line of arabic script and is used to
increase the height of latin text lines to match arabic script lines. The definition
is:
\newcommand*{\ledarabstrut}{\rule[-1ex]{0pt}{4ex}}
If it does not quit match the arabic script in your case then change the 4ex
appropriately.
The macro \savestruts saves the current definitions of the struts used in the left and right texts (\latinarabic and \arabiclatin change these). The macro \restorestruts set the definitions of the left and right struts to match those stored by the last \savestruts. The package calls \savestruts itself to store the default struts.

For example, with regular text on the left and arabic on the right then the general scheme is:

\savestruts
\begin{pages}
\begin{Leftside}
\beginnumbering
\pstart
normal text
\end{Leftside}
\begin{Rightside}
\begin{arabtext}
\beginnumbering
\pstart
arabic text
\end{arabtext}
\end{Rightside}
\end{pages}

In the above, if it had been:
\begin{arabtext}
\Pages
\end{arabtext}

Then a redefinition of \ledarabstrut as:
\renewcommand*{\ledarabstrut}{\rule[-1ex]{0pt}{3.75ex}}
might provide better alignment of the latin text with the arabic.

Life gets complicated regarding lemmas and notes when there are parallel latin and arabic texts. Consider that there are the following left (latin) and right (arabic) texts

\begin{Leftside}
\end{Leftside}
\begin{Rightside}
\end{arabtext}
4 The afoot implementation

The afoot package is effectively an extraction from the \texttt{alatex} package of \texttt{ArabTeX}, v3.10, 2000/05/08.

Announce the name and version of the package, which is targetted for LaTeX2e.

\begin{verbatim}
\NeedsTeXFormat{LaTeX2e}
\ProvidesPackage{afoot}[2005/03/24 v0.1 PW's version of ArabTeX's afoot.sty]
\end{verbatim}

The package redefines the internals of the LaTeX \texttt{footnote} macro along the lines of the \texttt{vfootnote} macro in Plain TeX. It also does some things a bit differently if the \texttt{fnpara} package has been used.

I don't know why this is here as it is also defined as part of the \texttt{@footnotetext} macro below.

\begin{verbatim}
\makefntext I\nfix \ifx \footglue \undefined \% normal case \else \% fnpara.sty is present \long\def@makefntext#1{\protect$\text{\@thefnmark}$#1
obreak }
\fi
\end{verbatim}
\@footnotetext

\%\% Make the LaTeX \cs{footnote} catcode-safe, like in Plain TeX.
\def \@footnotetext {% new, do not yet read footnote text
  \insert \footins \bgroup
  \ifx \footglue \undefined % prepare normal footnote
    \interlinepenalty \interfootnotelinepenalty \floatingpenalty \@MM
    \splittopskip \footnotesep \splitmaxdepth \dp \strutbox
  \else
    \global \long \def \@makefntext ##1{${^\@thefnmark }$}##1\nobreak %
    \setbox0=\hbox \bgroup \fnparastyle is present
    \floatingpenalty=20000 \footnotesize
    \fi
  \edef \@currentlabel {\csname p@footnote\endcsname\@thefnmark}\
  \a@fntext }

\@mpfootnotetext The version for \minipage environments.
\def \@mpfootnotetext {%
  \global \setbox \@mpfootins \vbox \bgroup
  \edef \@currentlabel {\csname p@mpfootnote\endcsname \@thefnmark}\
  \unvbox \@mpfootins \reset@font \a@fntext }

\a@fntext A common portion of the code for the footnote text in both normal and \minipage environments.
\def \a@fntext {% common part for footnote text
  \footnotesize \hsize \columnwidth \@parboxrestore \\clubpenalty 5000 \\@makefntext {
\rule {\z@ }{\footnotesep }}\futurelet \next \fo@t }

The next set of macros are from the \vfootnote macro (The Te\TeX book, Appendix B)

\fo@t Copy from Te\TeX book.
\def \fo@t {%
  \ifcat \\
  \bgroup \noexpand \next \\
  \let \next \fo@t \\
  \else
  \let \next \fo@t \\
  \fi
  \next }

\f@t Copy from Te\TeX book.
\def \f@t {\bgroup \aftergroup \foot \let \next}
\f@t  Copy from *TeXbook*.
\@@foot

\@foot  This has a bit more to it than the *TeXbook* macro.
\@@foot

\a@footnote  These macros are for normal footnotes from within an arabic environment.
\@@foot
\@footnotemark

\af@fm  This saves some tokens as the code is used in several places.
\@@foot
\@footnotemark
\a@fntext

\a@footnotemark  These are also for normal footnotes from within an arabic environment.
\@@foot
\@footnotemark

\a@fntext  This is also for arabic footnotes, being the common portion of the code for footnote
text in both normal and minipage texts.
\@@foot
As are these.

Inside an \texttt{arabtext} environment the \texttt{\LRfootnotes} declaration results in normal footnotes, left adjusted.

Inside an \texttt{arabtext} environment the \texttt{\RLfootnotes} declaration results in arabic footnotes, right adjusted. In normal text the footnotes are normal.

\texttt{\arabfootnotes} is an alias for \texttt{\RLfootnotes}.

Make \texttt{\LRfootnotes} the default.

The end of the package

\section{The \texttt{ledarab} implementation}

The \texttt{ledarab} package is based on the original \texttt{aedpatch} from the \texttt{ArabTeX} distribution.

Announce the name and version of the package, which is for \LaTeX{}2e.
I think, but don’t know, that by appropriate (re)definitions of these you can get arabtex to produce some tracing of what is going on, perhaps by setting \tracingmacros to 1 instead of 0.

\providecommand*{\tr@ce@n}{\tracingmacros 0}
\providecommand*{\tr@ce@ff}{\edef \tr@ce@n{\nxp\tracingmacros \the\tracingmacros }\tracingmacros 0}
\let \tr@ce@n \relax

We need a flag for knowing if ledpar is being used.

\if@l@dparpack
\@l@dparpacktrue
\@l@dparpackfalse
\fi

5.1 Adjusting the baselines

Arabic lines are taller than roman lines, so add some height to numbered lines.

\renewcommand*{\do@linehook}{\advance\baselineskip 1ex}

If the ledpar package is loaded we have to change several of its macros. We can’t do this simply within an \if@l@dparpack because of the internal \ifs. Hence, we define a macro whose expansion is the necessary changes.

%%%%%%%%%%%%%%%%%%%%% ledpar fix %%%%%%%%%%%%%%%%%%%%%%%%%%%%
\newcommand{\arabledparfixi}{\do@linehook \do@lineRhook Increase the height of numbered lines.

\renewcommand*{\do@lineLhook}{\advance\baselineskip 1ex}
\renewcommand*{\do@lineRhook}{\advance\baselineskip 1ex}

Variations on \a@parparams from ArabTeX’s aoutput.sty. These are required to take account of the differing widths, by setting \a@hsizze appropriately.

\newcommand*{\a@parparamsL}{\ifnum \parshape = \z@
\a@hsizze \Lcolwidth \a@leftmargin \z@
\else
\a@hsizze \Lcolwidth \a@leftmargin \@totalleftmargin
\fi
\newcommand*{\a@parparamsR}{\ifnum \parshape = \z@
\a@hsizze \Rcolwidth \a@leftmargin \@totalleftmargin
\else
\a@hsizze \Lcolwidth \a@leftmargin \@totalleftmargin
\fi

5.2 Lemmas

This is the internal version of \edtext. The parameters have their original catcodes.
\a@@edtext An auxiliary routine to kill leading blanks and remove spurious braces from \edtext’s second argument.

\a@edger@text Get flags and lemma.

\a@edend@lemma Another utility routine.

\a@edput@text Unpack \Linsertb@x.

\a@edappend \a@edappend\{\arg\} adds its argument to the \lineb@x.

\a@edtext The meat of it all
5.3 Line numbering

\showlemma Modify \showlemma{⟨lemma⟩} so that its argument is set RtoL in arabic text, otherwise as normal. The setting of the ⟨lemma⟩ in the notes is controlled independently.
\showlemma{#1}\edendlemma \@@% GOOD ONE
\arabcodes
\spacetrue
\tr@ce@ff \test@token}
\showlemma Modify \showlemma{⟨lemma⟩} so that its argument is set RtoL in arabic text, otherwise as normal. The setting of the ⟨lemma⟩ in the notes is controlled independently.
\renewcommand{\showlemma}{%\ifin@arab\RL{#1}\else #1\fi} % arabic in text, but roman in notes

5.3 Line numbering
\beginnumbering Enable \beginnumbering and \endnumbering to be used directly in arabic text, though I don’t know if this is useful.
\beginnumberingR Similarly, if ledpar is used, for numbering in parallel Right texts.
\endnumberingR
\if@l@dparpack
\beginnumberingR
\endnumberingR
\fi
\autopar Arabic(?) form of \autopar (but the original \autopar has some limitations and can cause unexpected problems).
5.4 More critical commands in arabic text

Allow more ledmac commands in Arabic text. These take no parameters.
And more, taking one parameter.
\typeout
\edmakelabel
\xxref
\Columns
\Pages
Also enable \Columns and \Pages as arabic text commands.
6 The End
This is the end of the package code, but first use \ ledgerabpatch.sty if it exists.
\InputIfFileExists{ledarabpatch.sty}

A Examples
This section presents some sample documents.
The figures are from processed versions of the files. Having latexed a file I used \dvips to get Encapsulated PostScript, then the \epstopdf script to get a PDF version as well. For example:
> latex egarab
> latex egarab
> latex egarab
> dvips -E -o egarab.eps egarab % produces egarab.eps
> epstopdf egarab.eps % produces egarab.pdf
For those who aren’t fascinated by LaTeX code I show the typeset results first, then the code that produced them. I know nothing about arabic so these are not part of any publishable work and are unlikely to have any connection with the arabic language.
Can we have non-arabic text in `\edtext`?

In roman text you can have critical notes.

In arabic text you can have critical notes.

In latin you can have critical notes.

Here the order is `\beginnumbering \pstart \begin{arabtext} ...`

Here the order is `\beginnumbering \pstart \begin{arabtext} \pstart...`

---

1 roman | not arabic
2  |  
3 latin |  
4 |  

1 Arabic text — footnote
2  

---

Figure 1: Output from `egarab.tex`
Here is an example pair of texts. The Arabic version is on the right.

1 gUyand kasAn behe st bA .hUr hOs
2 ast
3 man mIgUyam keh ’Ab-i angUr hOs
4 ast
5 In naqd begIr wa-dast az ’An ne-
6 siyeh bedAr
7 k-'AwAz-i dohol sanIdan az dUr
8 hOs ast.

The same texts but more oriented towards Arabic.

9 gUyand kasAn behe st bA .hUr hOs
10 ast
11 man mIgUyam keh ’Ab-i angUr hOs
12 ast
13 In naqd begIr wa-dast az ’An ne-
14 siyeh bedAr
15 k-'AwAz-i dohol sanIdan az dUr
16 hOs ast.

1 st | Western side
11 keh | واسِرَن بِئِد
1r | Eastern side
11 keh | واسِرَن بِئِد

Figure 2: Output from egarabpar.tex
A.1 General example

The result of the following code is shown in Figure 1. The arabic script is non-sensical to anyone who can read Arabic as it is just the English text represented using the arabic script.

The example illustrates a variety of critical notes, including one that is all messed up just to show that some things do not work.
Here the order is \verb?\begin{arabtext} \pstart...

The result of the following code for parallel typesetting is shown in Figure 2. The left and right inputs are the same. In this case the arabic script should make sense to an Arabic reader while the English text is the input that would produce the arabic if it were inside the \texttt{arabtex} environment. The text for the example is from \texttt{omar.tex} in the \texttt{ArabTeX} distribution; I do not know what it means.

The two examples are virtually the same except that in the second the numbering is in arabic script instead of latin script. Note that the usual variety of footnotes can be used for arabic texts as well as western texts.
A.2 Parallel example

Here is an example pair of texts. The Arabic version is on the right.

\begin{document}
\begin{pairs}
\begin{Leftside}
\beginnumbering
\pstart
\noindent
\text{gUYand kasAn behe \edtext{st}{\Afootnote{Western side}} bA .hUr hOs ast} \\
\text{man mIgUYam keh 'Ab-i angUr hOs ast} \\
\text{In naqd begIr wa-dast az 'An nesiye hBedAR} \\
\text{k-'AwAz-i dohol sanIdan az dUr hOs ast.}
\pend
\end{Leftside}
\renewcommand{\Rlineflag}{r} % writes r in latin
\begin{Rightside}
\firstlinenum{2} \linenumincrement{2}
\begin{arabtext}
\beginnumbering
\pstart
\noindent
\text{gUYand kasAn behe \edtext{st}{\Bfootnote{Eastern side}} bA .hUr hOs ast} \\
\text{man mIgUYam keh 'Ab-i angUr hOs ast} \\
\text{In naqd begIr wa-dast az 'An nesiye hBedAR} \\
\text{k-'AwAz-i dohol sanIdan az dUr hOs ast.}
\pend
\end{arabtext}
\end{Rightside}
\Columns
\end{pairs}
\end{document}
The same texts but more oriented towards arabic.

\begin{pairs}
\begin{Leftside}
\pstart
\noindent
gUyand kasAn behe st bA .hUr hOs ast \\[\]
man mIgUyam \texttt{\texttt{Afootnote{RL{Western side}}}} 'Ab-i angUr hOs ast \\[\]
In naqd begIr wa-dast az 'An nesiyeh bedAr \\[\]
k-'AwAz-i dohol sanIdan az dUr hOs ast.
\pend
\end{Leftside}
\renewcommand{\Bfootfmt}{%\let\printlines\printlinesAR}
\renewcommand{\Rlineflag}{\RL{r}} % writes r in arabic
\begin{Rightside}
\firstlinenum{1} \linenumincrement{1} \arablnumrepR % changes the number to arabic
\begin{arabtext}
\pstart
\noindent
gUyand kasAn behe st bA .hUr hOs ast \\[\]
man mIgUyam \texttt{\texttt{Afootnote{RL{Eastern side}}}} 'Ab-i angUr hOs ast \\[\]
In naqd begIr wa-dast az 'An nesiyeh bedAr \\[\]
k-'AwAz-i dohol sanIdan az dUr hOs ast.
\pend
\end{arabtext}
\end{Rightside}
\end{pairs}
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Numbers written in italic refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; numbers in roman refer to the code lines where the entry is used.

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General: First public release

Maëul Rouquette new maintainer