

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

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## Abstract

The **ledmac** package, which is based on the PLAIN T<sub>E</sub>X set of EDMAC macros, has been used for some time for typesetting critical editions, and the ArabT<sub>E</sub>X 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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## 1 Introduction

The EDMAC macros [LW90] for typesetting critical editions of texts have been available for use with TeX for some years, and the `arabtex` package [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 [Wil04a] was introduced in 2003 in an attempt to satisfy that request. This was extended in 2004 by the `ledpar` package [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 T<sub>E</sub>X 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<sup>1</sup> of `afoot.sty` is provided in the ArabTeX distribution.

## 2 The afoot package

The `arabtex` 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.

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

`\LRfootnotes`      Inside an `arabtext` environment the `\LRfootnotes` declaration causes follow-

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<sup>1</sup>I made queries about this on the `comp.text.tex` newsgroup on 2005/01/06 but got no responses.

ing footnotes to be in normal left to right (LtoR) roman text, left adjusted and with the number at the left.

`\RLfootnotes`  
`\arabfootnotes` Inside an `arabtext` environment the `\RLfootnotes` or `\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:

```
...roman\footnote{\RL{arabic}}...
```

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

### 3 The ledarab package

The `ledarab` package<sup>2</sup> is partially based on Klaus Lagally's `aedpatch.sty` and lets the `ledmac` package's critical apparatus be applied to arabic texts. The packages must be used in the following order:

```
\usepackage{ledmac}
\usepackage{ledpar} % if you need parallel texts.
\usepackage{arabtex}
\usepackage{ledarab}
```

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 `\RL` macro within the critical apparatus for short pieces of arabic.

```
\beginnumbering
\pstart
Normal \edtext{latin}{\Cfootnote{roman}} text.
Normal \edtext{\RL{latin}}{\Cfootnote{\RL{roman}}}} text.
...
```

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.

```
\beginnumbering
\pstart
\begin{arabtext}
Arabic \edtext{script}{\Afootnote{roman}} text.
Arabic \edtext{script}{\Afootnote{\LR{roman}}}} text.
```

---

<sup>2</sup>I offered an earlier version to Prof. Lagally towards the end of 2003 for possible addition to his `arabtex` package but got no response to my messages.

```

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 \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}
...

```

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.

`\arabnumrep`  
`\restorelnumrep`

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

```

\arabnumrep
\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` declaration.

`\ledarabstrut`  
`\savestruts`  
`\restorestruts`

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 (`\lathinarabic` 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{Rightside}
\lathinarabic
\Pages
\restorestruts
\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}
  ...
  1) \edtext{latin}{\Afootnote{roman}}...
  2) \edtext{\RL{latin}}{\Afootnote{\RL{roman}}}}...
  3) \edtext{\LR{latin}}{\Afootnote{\LR{roman}}}}...
  ...
\end{Leftside}
\begin{Rightside}
\begin{arabtext}
```

```

...
A) \edtext{script}{\Bfootnote{arabic}}...
B) \edtext{script}{\Bfootnote{\RL{arabic}}}\dots
C) \edtext{script}{\Bfootnote{\LR{arabic}}}\dots
...
\end{Rightside}

```

and they are to be output as matching pages. If they are output simply as:

```
\Pages
```

then the lemmas and notes for the marked lines are:

- 1) latin lemma, latin note
- 2) arabic lemma, arabic note
- 3) latin lemma, latin note
- A) arabic lemma, latin note
- B) arabic lemma, arabic note
- C) arabic lemma, latin note

On the otherhand, if they are output via:

```
\begin{arabtext} \Pages \end{arabtext}
```

then the lemmas and notes for the marked lines are:

- 1) latin lemma, messed arabic note
- 2) arabic lemma, arabic note
- 3) latin lemma, messed arabic note
- A) arabic lemma, messed arabic note
- B) arabic lemma, arabic note
- C) arabic lemma, messed arabic note

## 4 The afoot implementation

The afoot package is effectively an extraction from the `alateX` package of ArabTeX, v3.10, 2000/05/08.

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

```

1 (*afoot)
2 \NeedsTeXFormat{LaTeX2e}
3 \ProvidesPackage{afoot}[2005/03/24 v0.1 PW's version of ArabTeX's afoot.sty]
4

```

The package redefines the internals of the LaTeX `\footnote` macro along the lines of the `\vfootnote` macro in PLAIN TEX. It also does some things a bit differently if the `fnpara` package has been used.

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

```

5 \ifx \footglue \undefined % normal case
6 \else % fnpara.sty is present
7 \long\def\@makefntext#1{{\theftnmark}$}#1\nobreak }
8 \fi
9

```

`\@footnotetext`

```

10 %% Make the LaTeX \cs{footnote} catcode-safe, like in Plain TeX.
11
12 \def \@footnotetext {%          new, do not yet read footnote text
13   \insert \footins \bgroup
14   \ifx \footglue \undefined %  prepare normal footnote
15     \interlinepenalty \interfootnotelinepenalty \floatingpenalty \@MM
16     \splittopskip \footnotesep \splitmaxdepth \dp \strutbox
17   \else
18     \global\long\def \@makefntext ##1{${\@thefnmark }$}##1\nobreak }%
19     \setbox0=\hbox \bgroup % fnpara.sty is present
20     \floatingpenalty=20000 \footnotesize
21   \fi
22   \edef\@currentlabel{\csname p@footnote\endcsname\@thefnmark}%
23   \a@fntext }
24

```

`\@mpfootnotetext` The version for minpages.

```

25 \def \@mpfootnotetext {%
26   \global \setbox \@mpfootins \vbox \bgroup
27   \edef \@currentlabel {\csname p@mpfootnote\endcsname \@thefnmark }%
28   \unvbox \@mpfootins \reset@font \a@fntext }
29

```

`\a@fntext` A common portion of the code for the footnote text in both normal and minipage environments.

```

30 \def \a@fntext {% common part for footnote text
31   \footnotesize \hsize \columnwidth \@parboxrestore \clubpenalty 5000
32   \@makefntext {\rule {\z@ }{\footnotesep }}\futurelet \next \fo@t }
33

```

The next set of macros are from the `\vfootnote` macro (*The TeXbook*, Appendix B)

`\fo@t` Copy from *TeXbook*.

```

34 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%% \footnote, parts from Plain %%%%%%%%%
35
36 \def \fo@t{%
37   \ifcat
38     \bgroup \noexpand\next
39     \let\next\fo@t
40   \else
41     \let\next\fo@t
42   \fi
43   \next }

```

`\f@@t` Copy from *TeXbook*.

```

44 \def \f@@t{\bgroup\aftergroup\@foot\let\next}

```

```

\foot Copy from TeXbook.
45 \def\foot#1{#1\@foot}

\@foot This has a bit more to it than the TeXbook macro.
46 \def\@foot{\unskip \strut \lineskiplimit -20pt \endgraf \egroup }
47

\@footnote These macros are for normal footnotes from within an arabic environment.
\@foot 48 %%%%%%%%% footnote inside an Arabic environment, Roman document style
\@footnotemark 49
50 \def\@footnote{%
51   \def\@foot{% ArabTeX-LaTeX version
52     \ifx \footglue \undefined % normal case
53       \unskip \strut
54     \else % fnpara.sty is present
55       \penalty-10 \hskip\footglue \egroup % box 0
56       \dp0=0pt \ht0=\fudgefactor\wd0 \box0
57       \fi
58     \egroup \arab@codes \set@arabfont \test@token }%
59 \def\@footnotemark{\af@fnmarkb@x \a@spacetrue}%
60 \rmfamily \parindent \a@parindent \unarab@codes \footnote }
61

\af@fnmarkb@x This saves some tokens as the code is used in several places.
62 \def\af@fnmarkb@x{%
63   \a@spacefalse \putword@box \@makefnmark}
64

\@footnotemark These are also for normal footnotes from within an arabic environment.
\@footnotemark 65 \def\@footnotemark{%
66   \def\@footnotemark{\af@fnmarkb@x \a@spacefalse \arab@codes \test@token}%
67   \unarab@codes \footnotemark }
68

\@@footnote These macros are for arabic footnotes from within an arabic environment.
\@footnotemark 69 %%%%%%%%% footnote inside an Arabic environment, Arabic document style
\@fntext 70
71 \def\@@footnote{% ArabTeX-LaTeX version
72   \def\@footnotemark{\af@fnmarkb@x \a@spacetrue}%
73   \def\@fntext{\@@fntext }%
74   \footnote }
75

\@@fntext This is also for arabic footnotes, being the common portion of the code for footnote
text in both normal and minipage texts.
76 \def\@@fntext#1{% some common code for footnote text
77   \def\end{%
78     \a@par \egroup \test@token }%
79   \hsize \columnwidth \@parboxrestore

```



```

80 \initlineb@x \@footnotemark \test@token #1 \end }
81
\@@footnotemark As are these.
\@footnotemark 82 \def\@@footnotemark{%
83 \def\@footnotemark{\af@fnmarkb@x \@spacetrue \test@token}%
84 \footnotemark }
85

\LRfootnotes Inside an arabtext environment the \LRfootnotes declaration results in normal
footnotes, left adjusted.
86 \def \LRfootnotes {% left to right, Arabic document
87 \let \a@c@footnote \a@footnote
88 \let \a@c@footnotemark \a@footnotemark }
89 \all@wcmd \LRfootnotes
90

\RLfootnotes Inside an arabtext environment the \RLfootnotes declaration results in arabic
footnotes, right adjusted. In normal text the footnotes are normal.
91 \def \RLfootnotes {% right to left, Arabic document
92 \let \a@c@footnote \a@@footnote
93 \let \a@c@footnotemark \a@@footnotemark }
94 \all@wcmd \RLfootnotes

\arabfootnotes \arabfootnotes is an alias for \RLfootnotes.
95 \let \arabfootnotes \RLfootnotes
96 \all@wcmd \arabfootnotes
97

Make \LRfootnotes the default.
98 \LRfootnotes
99

The end of the package
100 </afoot>

```

## 5 The ledarab implementation

The ledarab package is based on the original aedpatch from the ArabTeX distribution.

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

```

101 (*ledarab)
102 \NeedsTeXFormat{LaTeX2e}
103 \ProvidesPackage{ledarab}[2005/03/24 v0.1 Cooperation between arabtex and ledmac]
104

```

`\tr@ce@n` I think, but don't know, that by appropriate (re)definitions of these you can  
`\tr@ce@ff` get `arabtex` to produce some tracing of what is going on, perhaps by setting  
`\tracingmacros` to 1 instead of 0.

```
105 \providecommand*\tr@ce@n{\tracingmacros 0}
106 \providecommand*\tr@ce@ff{\edef \tr@ce@n
107 {\nxp\tracingmacros \the\tracingmacros }\tracingmacros 0}
108 \let \tr@ce@n \relax
109
```

`\if@l@dparpack` We need a flag for knowing if `ledpar` is being used.  
`\@l@dparpacktrue` 110 `\newif\if@l@dparpack`  
`\@l@dparpackfalse` 111 `\@l@dparpackfalse`  
112 `\@ifpackageloaded{ledpar}{\@l@dparpacktrue}{\@l@dparpackfalse}`  
113

## 5.1 Adjusting the baselines

`\do@linehook` Arabic lines are taller than roman lines, so add some height to numbered lines.

```
114 \renewcommand*\do@linehook{%
115 \advance\baselineskip 1ex}
116
```

`arabledparfixi` 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.

```
117 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%% ledpar fix %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
118 \newcommand{\arabledparfixi}{%
```

`\do@lineLhook` Increase the height of numbered lines.

```
\do@lineRhook 119 \renewcommand*\do@lineLhook){%
120 \advance\baselineskip 1ex}
121 \renewcommand*\do@lineRhook){%
122 \advance\baselineskip 1ex}
```

`\a@l@dparparamsL` Variations on `\a@parparams` from ArabTeX's `aoutput.sty`. These are required to  
`\a@l@dparparamsR` take account of the differing widths, by setting `\a@hsize` appropriately.

```
123 \newcommand*\a@l@dparparamsL){%
124 \ifnum \parshape = \z@
125 \a@hsize \Lcolwidth
126 \a@leftmargin \z@
127 \else
128 \a@hsize \Lcolwidth \a@leftmargin \@totalleftmargin
129 \fi
130 \a@leftmargin \z@
131 \a@prevgraf \z@ \spreadfalse }
132 \newcommand*\a@l@dparparamsR){%
133 \ifnum \parshape = \z@
134 \a@hsize \Rcolwidth
```

```

135     \a@leftmargin \z@
136   \else
137     \a@hsize \Rcolwidth \a@leftmargin \@totalleftmargin
138   \fi
139   \a@leftmargin \z@
140   \a@prevgraf \z@ \spreadfalse }

\Leftsidehook
\Rightsidehook 141 \renewcommand*{\Leftsidehook}{%
142   \let\a@parparams\a@l@dparParamsL}
143 \renewcommand*{\Rightsidehook}{%
144   \let\a@parparams\a@l@dparParamsR}

\ledarabstrut In order to get parallel arabic and normal texts to line up a strut has to be
  \ledstrutL added to each latin line to hide their different heights; this is \ledarabstrut.
  \ledstrutR The commands \savestruts and \restorestruts save and restore the original
  \savestruts left/right strut definitions. The declaration \latinarabic is for left and right
\restorestruts texts being latin and arabic, and for left arabic and right latin use \arabiclatin.
  \latinarabic 145 \newcommand*{\ledarabstrut}{%
  \arabiclatin 146   \rule[-1ex]{0pt}{4ex}
147   \newcommand*{\savestruts}{%
148     \let\oldl@dstr@tL\ledstrutL
149     \let\oldl@dstr@tR\ledstrutR}
150 \newcommand*{\restorestruts}{%
151   \let\ledstrutL\oldl@dstr@tL
152   \let\ledstrutR\oldl@dstr@tR}
153 \newcommand*{\latinarabic}{%
154   \def\ledstrutL{\ledarabstrut}%
155   \def\ledstrutR{}}
156 \newcommand*{\arabiclatin}{%
157   \def\ledstrutL{}}
158   \def\ledstrutR{\ledarabstrut}}
159

At last, the end of \arabledparfixi.
160 }% end of \newcommand{\arabledparfixi}{...
161

Perform the fix for ledpar if necessary.
162 \if@l@dparpack
163   \arabledparfixi
164   \savestruts
165 \fi
166 %%%%%%%%% end major ledpar fix %%%%%%%%%
167

```

## 5.2 Lemmas

`\a@c@edtext` This is the internal version of `\edtext`. The parameters have their original cat-codes.

```

168 \newcommand*{\a@c@edtext}{%
169   \tr@ce@n \leavea@vmode \unarab@codes
170 \begingroup
171   \tr@ce@ff \rmfamily \tr@ce@n \a@edtext}
172

```

`\a@@edtext` An auxiliary routine to kill leading blanks and remove spurious braces from `\edtext`'s second argument.

```

173 \newcommand*{\a@@edtext}[1]{%
174   %% \def\next@command{\a@@edtext {\RL{#1}}}% causes errors
175   \def\next@command{\a@@edtext {#1}}%
176   \futurelet \next@token \test@space }
177

```

`\a@edget@text` Get flags and lemma.

```

178 \def\a@edget@text #1\@{%
179   \a@edappend{\flag@start}\a@@Linsert{#1}}
180

```

`\a@edend@lemma` Another utility routine.

```

181 \newcommand*{\a@edend@lemma}{%
182   \ifx\end@lemmas\empty \else
183     \gl@p\end@lemmas\to\x@lemma
184     \x@lemma
185     \global\let\x@lemma=\relax
186   \fi}
187

```

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

```

188 \newcommand*{\a@edput@text}{%
189   \a@Lunpack \putwordb@x {\ins@skip }}
190

```

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

```

191 \newcommand*{\a@edappend}[1]{%
192   \setbox \lineb@x \hbox {\unhbox \lineb@x #1}}
193

```

`\a@@@edtext` The meat of it all

```

194 \newcommand{\a@@@edtext}[2]{
195   \no@expands
196   \def\next@command{\test@special}%
197   %% \xdef \@tag{#1}\set@line % the original produces roman in notes
198   %% \def\@@@tag{\RL{#1}} \xdef \@tag{\@@@tag}\set@line % produces errors
199   \xdef \@tag{\RL{#1}}\set@line% produces arabic in notes GOOD ONE!!
200   \global\insert@count=0
201   \aftergroup \a@edget@text
202   \ignorespaces #2\relax
203 \endgroup

```

```

204 %% #1\@edend@lemma \@@ %% gives roman in arabic text
205 \showlemma{#1}\@edend@lemma \@@% GOOD ONE
206 \@edput@text \@edappend {\flag@end }%
207 \arab@codes
208 \a@spacetrue
209 \tr@ce@ff \test@token}
210

```

`\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.

```

211 \renewcommand{\showlemma}[1]{%
212 \ifin@arab\RL{#1}\else #1\fi} % arabic in text, but roman in notes
213

```

### 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.

```

214 \all@wcmd{\beginnumbering}
215 \all@wcmd{\endnumbering}
216

```

`\beginnumberingR` Similarly, if `ledpar` is used, for numbering in parallel Right texts.

```

\endnumberingR 217 \if@l@dparpack
218 \all@wcmd{\beginnumberingR}
219 \all@wcmd{\endnumberingR}
220 \fi
221

```

`\a@par`

```

\@@par 222 %%%%%%%%%%%
223
224 \let\a@par=\a@@par % save for \@everypar in \@c@autopar
225

```

`\pstart` Arabic(?) forms for `\pstart` and `\pend`.

```

\pend 226 \def\@c@pstart{\pstart \test@token}
227 \def\@c@pend{\a@par \pend \a@par \test@token}
228

```

`\a@c@autopar` Arabic(?) form of `\autopar` (but the original `\autopar` has some limitations and can cause unexpected problems).

```

229 \def\@c@autopar{% use inside Arabic environment
230 \ifnumbering \else \errmessage
231 {\string\autopar\space must be used within a numbered section}%
232 \beginnumbering
233 \fi

```

```

234 \a@@everypar= {\setbox0 = \box \linebox \let \next \test@token
235 \a@par \pstart % starts a group
236 \def \a@@par {\a@par \pend \a@par }%
237 \def \end {\a@par \pend \test@token \end }%
238 \a@@everypar= {} \arab@indent }%
239 \a@spacefalse \test@token}
240

\@arabic Provide \@arabic (for setting numbers to be typeset as arabic numerals in the
\arablinenumr@p latin script) as an arabic macro. \arablinenumr@p{<num>} typesets {<num>} as
arabic numerals in the arabic script (and RtoL).
241 \all@w@ne{\@arabic}
242 \newcommand*{\arablinenumr@p}[1]{\RL{\@arabic{#1}}}
243

\linenumrep Ensure that \linenumrep and \sublinenumrep typeset (sub)line numbers as nor-
\sublinenumrep mal LtoR arabic in latin script. The declaration \arablnumrep causes line num-
\arablnumrep bers to be typeset RtoL in arabic script and \restorelnumrep puts them back to
\restorelnumrep LtoR in latin script.
244 \def\linenumrep#1{\LR{\@arabic{#1}}}
245 \let\oldlinenumrep\linenumrep
246 \def\sublinenumrep#1{\LR{\@arabic{#1}}}
247 \let\oldsublinenumrep\sublinenumrep
248 \newcommand*{\arablnumrep}{\global\let\linenumrep\arablinenumr@p
249 \global\let\sublinenumrep\arablinenumr@p}
250 \newcommand*{\restorelnumrep}{\global\let\linenumrep\oldlinenumrep
251 \global\let\sublinenumrep\oldsublinenumrep}
252 \all@wcmd{\arablnumrep}
253 \all@wcmd{\restorelnumrep}
254

\linenumrepR If ledpar is used, similarly for Right texts.
\sublinenumrepR 255 \if@l@dparpack
\arablnumrepR 256 \def\linenumrepR#1{\LR{\@arabic{#1}}}
\restorelnumrepR 257 \let\oldlinenumrepR\linenumrepR
258 \def\sublinenumrepR#1{\LR{\@arabic{#1}}}
259 \let\oldsublinenumrepR\sublinenumrepR
260 \newcommand*{\arablnumrepR}{\global\let\linenumrepR\arablinenumr@p
261 \global\let\sublinenumrepR\arablinenumr@p}
262 \newcommand*{\restorelnumrepR}{\global\let\linenumrepR\oldlinenumrepR
263 \global\let\sublinenumrepR\oldsublinenumrepR}
264 \all@wcmd{\arablnumrepR}
265 \all@wcmd{\restorelnumrepR}
266 \fi
267

```

#### 5.4 More critical commands in arabic text

```

\edlabel Allow more ledmac commands in Arabic text. These take no parameters.
\edpageref
\xpageref
\lineref
\xlineref
\sublineref
\xsublineref

```

```

268 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
269 \all@w@ne{\edlabel}
270 \all@w@ne{\edpageref}
271 \all@w@ne{\xpageref}
272 \all@w@ne{\lineref}
273 \all@w@ne{\xlineref}
274 \all@w@ne{\sublineref}
275 \all@w@ne{\xsublineref}

```

`\edindex` And more, taking one parameter.

```

\typeout 276 \all@w@ne{\edindex}
          277 \all@w@ne{\typeout}

```

`\edmakelabel` And more, taking two parameters.

```

\xxref 278 \all@wtw@{\edmakelabel}
        279 \all@wtw@{\xxref}
        280

```

`\Columns` Also enable `\Columns` and `\Pages` as arabic text commands.

```

\Pages 281 \if@l@dp@pack
        282 \all@wcmd{\Columns}
        283 \all@wcmd{\Pages}
        284 \fi
        285

```

## 6 The End

This is the end of the package code, but first use `ledarabpatch.sty` if it exists.

```

286 \InputIfFileExists{ledarabpatch.sty}
287
288 </ledarab>

```

## 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. 1

In اَرَبِيحِ تَحْتِ you can have critical notes. 2

In latin you can have critical notes. 3

In اَرَبِيحِ تَحْتِ you can have critical notes. 4

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

لِدَعِ اس وُنْدِرْفُلْ اند سُ اَرَبِيحِ تَحْتِ اس اَرَبِيحِ 1

اند اَرَبِيحِ تَحْتِ يَا عَن دُ عَرِ تَحَلُّ نَتِس هِرِ 2

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

لِدَعِ اس وُنْدِرْفُلْ اند سُ اَرَبِيحِ تَحْتِ اس اَرَبِيحِ ١

اند اَرَبِيحِ تَحْتِ يَا عَن دُ عَرِ تَحَلُّ نَتِس هِرِ ٢

---

1 roman] not arabic

2 اَرَبِيحِ تَحْتِ] not roman

3 latin] فُتَنْدِتْ - اَرَبِيحِ تَحْتِ

4 اَرَبِيحِ تَحْتِ - فُتَنْدِتْ] اَرَبِيحِ تَحْتِ

---

1 اَرَبِيحِ تَحْتِ] Arabic text — footnote

2 اَرَبِيحِ تَحْتِ - فُتَنْدِتْ] اَرَبِيحِ تَحْتِ

---

١ اَرَبِيحِ تَحْتِ] اَرَبِيحِ تَحْتِ

٢ اَرَبِيحِ تَحْتِ - فُتَنْدِتْ] اَرَبِيحِ تَحْتِ

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	گویند کسان به ست با حور هوس	
2	ast	است	2r
3	man mIgUyam keh 'Ab-i angUr hOs	من میگویم که آب انگور هوس	
4	ast	است	4r
5	In naqd begIr wa-dast az 'An ne-	این نقد بگیر و دست از آن نسیه	
6	siyeh bedAr	بذار	6r
7	k-'AwAz-i dohol sanIdan az dUr	کاواز دهل سنیدن از دور هوس	
8	hOs ast.	است.	8r

The same texts but more oriented towards arabic.

9	gUyand kasAn behe st bA .hUr hOs	گویند کسان به ست با حور هوس	9
10	ast	است	10r
11	man mIgUyam keh 'Ab-i angUr hOs	من میگویم که آب انگور هوس	11r
12	ast	است	12r
13	In naqd begIr wa-dast az 'An ne-	این نقد بگیر و دست از آن نسیه	13r
14	siyeh bedAr	بذار	14r
15	k-'AwAz-i dohol sanIdan az dUr	کاواز دهل سنیدن از دور هوس	15r
16	hOs ast.	است.	16r

---

1 st] Western side

11 keh] واسِترِن سِد ]

---

1r ست] Eastern side ] کِه ر ۱۱ یاسِترِن سِد ]

## A.1 General example

The result of the following code is shown in Figure 1. The arabic script is nonsensical 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.

```

289 (*egarab)
290 %%% egarab.tex
291 \documentclass[12pt]{article}
292 \addtolength{\textheight}{-10\baselineskip}
293 \usepackage{ledmac}
294 \setcounter{firstlinenum}{1} \setcounter{linenumincrement}{1}
295 \linenummargin{right}
296
297 \usepackage{arabtex}
298 \usepackage{ledarab}
299
300 \begin{document}
301
302 Can we have non-arabic text in \verb?\edtext?
303
304 \beginnumbering
305 \pstart
306 \noindent
307 In \edtext{roman}{\Afootnote{not arabic}} text you
308 can have critical notes. \\
309 In \edtext{\RL{Arabic text}}{\Afootnote{not roman}} you
310 can have critical notes. \\
311 In \edtext{latin}{\Afootnote{\RL{Arabic text --- footnote}}} you
312 can have critical notes. \\
313 In \edtext{\RL{Arabic text}}{\Afootnote{\RL{Arabic text --- footnote}}} you
314 can have critical notes.
315 \pend
316 \endnumbering
317
318 Here the order is \verb?\beginnumbering \pstart \begin{arabtext} ...?
319
320 \beginnumbering
321 \pstart
322 \begin{arabtext}
323 ledmac is wonderful and so
324 %%% arabic lemma, latin note
325 \edtext{Arabic text}{\Bfootnote{Arabic text --- footnote}} is arabtex\\
326 %%% arabic lemma, arabic note
327 and \edtext{Arabic text}{\Bfootnote{\RL{Arabic text --- footnote}}} you
328 can do critical notes here.
329 \end{arabtext}
330 \pend

```

```

331 \endnumbering
332
333 Here the order is \verb?\beginnumbering \begin{arabtext} \pstart...?
334
335 \arablnumrep
336 \beginnumbering
337 \begin{arabtext}
338 \pstart
339 ledmac is wonderful and so
340 %%% arabic lemma, screwed up arabic note
341 \edtext{Arabic text}{\Cfootnote{Arabic text --- footnote}} is arabtex\
342 %%% arabic lemma, arabic note
343 and \edtext{Arabic text}{\Cfootnote{\RL{Arabic text --- footnote}}} you
344 can do critical notes here.
345 \pend
346 \end{arabtext}
347 \endnumbering
348 \restorelnumrep
349
350 \end{document}
351 \eagarab)

```

## A.2 Parallel example

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 produceds the arabic if it were inside the `arabtex` environment. The text for the example is from `omar.tex` in the `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.

---

```

352 (*egarabpar)
353 %%% egarabpar.tex ledmac & parallel arabic text
354 \documentclass[12pt]{article}
355 \addtolength{\textheight}{-4\baselineskip}
356 \usepackage{ledmac}
357 \usepackage{ledpar}
358 \setcounter{firstlinenum}{1} \setcounter{linenumincrement}{1}
359 \usepackage{arabtex}
360 \usepackage{ledarab}
361 %%%
362 % simple right text arabic script numbering version of \printlines
363 \makeatletter
364 \def\printlinesAR#1|#2|#3|#4|#5|#6|#7|{\begingroup
365 \setprintlines{#1}{#2}{#3}{#4}{#5}{#6}%
366 \ifl@d@pnum #1\fullstop\fi
367 \ifledplinenum \RL{#2}\Rlineflag\else \symplinum\fi

```

```

368 \endgroup}
369 \makeatother
370
371 %%% We will use the Bfootnote series for the arabic right texts,
372 %%% in paragraph style
373 \footparagraph{B}
374
375 %%% right text numbering
376 \let\oldBfootfmt\Bfootfmt
377 \renewcommand{\Bfootfmt}[3]{%
378 \let\printlines\printlinesR
379 \oldBfootfmt{#1}{#2}{#3}}
380
381 \begin{document}
382
383 Here is an example pair of texts. The arabic version is on the right.
384
385 \vspace{\baselineskip}
386
387 \begin{pairs}
388
389 \begin{Leftside}
390 \beginnumbering
391 \pstart
392 \noindent
393 gUyand kasAn behe \edtext{st}{\Afootnote{Western side}} bA .hUr h0s ast \\
394 man mIgUyam keh 'Ab-i angUr h0s ast \\
395 In naqd begIr wa-dast az 'An nesiyeH bedAr \\
396 k-'AwAz-i dohol sanIdan az dUr h0s ast.
397 \pend
398 \end{Leftside}
399
400 \renewcommand{\Rlineflag}{r} % writes r in latin
401 \begin{Rightside}
402 \firstlinenum{2} \linenumincrement{2}
403 \begin{arabtext}
404 \beginnumbering
405 \pstart
406 \noindent
407 gUyand kasAn behe \edtext{st}{\Bfootnote{Eastern side}} bA .hUr h0s ast \\
408 man mIgUyam keh 'Ab-i angUr h0s ast \\
409 In naqd begIr wa-dast az 'An nesiyeH bedAr \\
410 k-'AwAz-i dohol sanIdan az dUr h0s ast.
411 \pend
412 \end{arabtext}
413 \end{Rightside}
414
415 \Columns
416
417 \end{pairs}

```

```

418
419 \vspace{\baselineskip}
420
421 The same texts but more oriented towards arabic.
422
423 \vspace{\baselineskip}
424
425 \begin{pairs}
426
427 \begin{Leftside}
428 \pstart
429 \noindent
430 gUyand kasAn behe st bA .hUr h0s ast \\
431 man mIgUyam \edtext{keh}{\Afootnote{\RL{Western side}}}'Ab-i angUr h0s ast \\
432 In naqd begIr wa-dast az 'An nesiyeh bedAr \\
433 k-'AwAz-i dohol sanIdan az dUr h0s ast.
434 \pend
435 \endnumbering
436 \end{Leftside}
437
438 %%% right full arabic note numbering
439 \renewcommand{\Bfootfmt}[3]{%
440 \let\printlines\printlinesAR
441 \oldBfootfmt{#1}{#2}{#3}}
442 \renewcommand{\Rlineflag}{\RL{r}} % writes r in arabic
443
444 \begin{Rightside}
445 \firstlinenum{1} \linenumincrement{1}
446 \arablnumrepR % changes the number to arabic
447 \begin{arabtext}
448 \pstart
449 \noindent
450 gUyand kasAn behe st bA .hUr h0s ast \\
451 man mIgUyam \edtext{keh}{\Bfootnote{\RL{Eastern side}}}'Ab-i angUr h0s ast \\
452 In naqd begIr wa-dast az 'An nesiyeh bedAr \\
453 k-'AwAz-i dohol sanIdan az dUr h0s ast.
454 \pend
455 \endnumbering
456 \end{arabtext}
457 \end{Rightside}
458
459 \begin{arabtext}
460 \Columns
461 \end{arabtext}
462
463 \end{pairs}
464
465 \end{document}
466 \eagarabpar

```

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