The `firstindexletter` package

Zsolt Bihari `info@tengerikajak.net`

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Abstract

The `firstindexletter` package visually emphasizes the first entry of each index letter group by enlarging its initial letter. It is intended primarily for indexes generated with `xindy`/`texindy`, where the generated `.ind` file contains `\lettergroup` information.

The package provides configurable size, color and font family for the enlarged initial. It also includes a simple three-level optical kerning mechanism that helps compensate for visually awkward gaps between a large initial and the following letter.

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1 Introduction

Traditional indexes often place a separate letter-group heading, such as **A**, **B**, ... **Z**, before each alphabetic group. Instead of using such separate headings, this package highlights the initial letter of the first real entry in each group.

Editing the generated `.ind` file by hand is tedious and error-prone.
The `firstindexletter` package automates this task at LaTeX macro level: it changes the behavior of the index environment while the index is being typeset, rather than rewriting the `.ind` file externally.

2 Usage and requirements

Loading the package alone does not change the index. To enable the special initial-letter index style, use:

```
\usepackage{firstindexletter}
\FirstIndexLetterEnable
```

The package loads `imakeidx` with the `xindy` option and also loads `xcolor`. The generated `.ind` file should contain `\lettergroup{...}` information, because the package uses that information to determine when a new effective group starts. The `\indexspace` command is handled in a delayed way so that merged groups such as `D`, `Dz` and `Dzs` do not produce unwanted extra vertical space.

2.1 Recommended use for Hungarian indexes

For Hungarian documents the package is best used together with the Hungarian sorting rules of `texindy`. A minimal setup is:

```
\usepackage{firstindexletter}
\FirstIndexLetterEnable
\makeindex[
  name=places,
  title=Place names,
  columns=3,
  noautomatic,
  program=texindy,
  options=-L hungarian -M hungarian-utf8
]
```

The command `\FirstIndexLetterEnable` enables the package behavior. Without it, the index is printed according to the original structure of the generated `.ind` file.

The following Hungarian multi-character initials are always treated as multi-character initials by the package:

`Cs, Gy, Ly, Ny, Sz, Ty, Zs`

The treatment of `Dz` and `Dzs` can be configured separately. By default, entries beginning with `Dz` or `Dzs` are merged into the effective `D` group.

To treat `Dz` as a separate group:

```
\FirstIndexLetterSeparateDz
```

To treat `Dzs` as a separate group as well:

```
\FirstIndexLetterSeparateDzs
```

The command `\FirstIndexLetterSeparateDzs` automatically enables the separate treatment of `Dz` too.

2.2 Using the package on Overleaf

The document itself can be compiled with `pdflatex` on Overleaf, but running `texindy` may depend on the project settings and environment. This is especially relevant for Hungarian sorting or for projects that require custom `.xdy` modules.

The index of this manual is generated locally with:

```
pdflatex firstindexletter-doc.tex
texindy -L english  places.idx
pdflatex firstindexletter-doc.tex
pdflatex firstindexletter-doc.tex
```

A reliable Overleaf workflow is to generate the `places.ind` file locally and then upload that file to the Overleaf project. Overleaf can then read the finished `.ind` file when `\printindex` is executed.

This ensures that the same index structure is used both locally and on Overleaf. This matters because `firstindexletter` uses the `\lettergroup{...}` information in the generated index.

3 Customizing the appearance

The physical appearance of the enlarged first letter can be configured with three `\renewcommand` instructions in the preamble.

3.1 Size

The initial size is controlled by `\IndexInitialSize`. The package default is `\LARGE`.

```
\renewcommand\IndexInitialSize{\Huge}
```

3.2 Font family

The macro `\IndexInitialFamily` stores the font family and style used for the enlarged initial. Built-in font switches can be used, or a specific font family may be selected.

The package default is `\fontfamily{cmr}\selectfont`.

```
% Example: bold sans-serif initials
\renewcommand\IndexInitialFamily{\sffamily\bfseries}
```

3.3 Color

The color is set by redefining `\IndexInitialColor`. It accepts color names understood by `xcolor`. The package default is `black`. This manual uses blue:

```
\renewcommand\IndexInitialColor{blue}
```

4 Optical kerning

Because the highlighted initial is much larger than the remaining letters of the word, visually awkward gaps may appear between the first and second letter. This is especially visible with letters such as **F**, **P**, **T**, **V**, **W** and **Y**. The package therefore provides a simple three-level negative-spacing mechanism.

Another typographic issue occurs when the second letter has an ascender, for example *h*, *l*, *b* or *t*. With strong negative spacing the second letter can get too close to the large initial. For this reason each kerning group has a normal value and a separate, milder value for ascender second letters.

4.1 Ascender list

The ascender list contains lowercase letters that rise above the x-height.

```
\renewcommand\IndexKerningAscenders{hlbkdti}
```

This list may be changed for other scripts or typographic conventions. The following demonstration shows different left shifts for the letters *h* and *l*.

4.2 Group 1: strongest negative spacing

The first group is typically used for **T** and **Y**, because these letters often leave a large optical gap after the initial.

```
\renewcommand\IndexKerningGroupOneLetters{TY}
\renewcommand\IndexKerningGroupOneValue{-.5ex}
\renewcommand\IndexKerningGroupOneAscenderValue{-0.2ex}
```

4.3 Group 2: medium negative spacing

The second group is intended for letters such as **V**.

```
\renewcommand\IndexKerningGroupTwoLetters{V}
\renewcommand\IndexKerningGroupTwoValue{-.4ex}
\renewcommand\IndexKerningGroupTwoAscenderValue{-0.1ex}
```

4.4 Group 3: small negative spacing

The third group is suitable for letters such as **P**, **F** and **W**.

```
\renewcommand\IndexKerningGroupThreeLetters{PFW}
\renewcommand\IndexKerningGroupThreeValue{-0.3ex}
\renewcommand\IndexKerningGroupThreeAscenderValue{0ex}
```

5 Technical background

Within the `theindex` environment the package temporarily redefines `\lettergroup`, `\indexspace` and `\item`. The beginning of a new visual group is detected from the effective group name derived from `\lettergroup{...}`, not from `\indexspace` alone.

When the first real `\item` of an effective group is found, the package uses TeX parameter scanning to isolate the first and second tokens of the entry. The first token is wrapped in the configured formatting, and the second token is used to select an optical kerning value.

This macro-level solution is more portable than rewriting the generated `.ind` file with shell scripts such as `sed` or `awk`.

6 Full reference

This section describes the internal logic of `firstindexletter.sty` in a readable way. The aim is not only to explain how to use the package, but also to make later maintenance and modification safer.

The main idea is that the first real entry of every effective index group gets a visually enlarged initial. The package does not modify the source `\index{}` entries and does not rewrite the generated `.ind` file. Instead, it changes the run-time behavior of the LaTeX index environment.

6.1 Package header and dependencies

The package begins with:

```
\NeedsTeXFormat{LaTeX2e}
\ProvidesPackage{firstindexletter}[2026/06/13 First item initial
    in each index group]
\RequirePackage[xindy]{imakeidx}
\RequirePackage{xcolor}
```

The `\NeedsTeXFormat{LaTeX2e}` line declares that the package requires a LaTeX2e environment.

The `\ProvidesPackage` line gives the package name and a short version description. This information also appears in the log file, which makes it easier to identify the loaded package version.

The package loads `imakeidx` with the `xindy` option and loads `xcolor`. `imakeidx` is used for index declaration and printing; `xcolor` is used to color the enlarged initial.

6.2 The role of `\makeatletter`

The line

```
\makeatletter
```

allows the package to define and use internal command names containing the `@` character. This is a standard LaTeX convention: user-level commands usually avoid `@`, while internal helper commands often include it.

6.3 Enabling the package and processing `lettergroup`

The following block introduces the main enable switch:

```
\newif\iffil@enabled
\fil@enabledfalse

\newcommand{\FirstIndexLetterEnable}{%
  \global\fil@enabledtrue
}
```

The `\newif\iffil@enabled` line creates a new conditional switch. It is false by default, so loading the package alone does not modify the index.

The user command

```
\FirstIndexLetterEnable
```

sets the switch to true. When the switch is true, the package redefines `\lettergroup`, `\indexspace` and `\item` inside the `theindex` environment.

The `\lettergroup` command is not simply discarded. Its argument is converted into an effective group name, and this effective group is used to decide whether a real new visual group has started. This is important for `D`, `Dz` and `Dzs`, which can be kept separate or merged depending on the package settings.

6.4 Default appearance settings

The default style settings are:

```
\providecommand\IndexInitialSize{\LARGE}
\providecommand\IndexInitialFamily{\fontfamily{cmr}\selectfont}
\providecommand\IndexInitialColor{black}
```

The use of `\providecommand` means that an already defined command is not overwritten. If the command does not yet exist, the default is created.

The three user-level commands are:

- `\IndexInitialSize`: size of the enlarged initial;
- `\IndexInitialFamily`: font family and style of the initial;
- `\IndexInitialColor`: color of the initial.

They can be redefined in the document preamble, for example:

```
\renewcommand\IndexInitialSize{\Huge}
\renewcommand\IndexInitialFamily{\sffamily\bfseries}
\renewcommand\IndexInitialColor{blue}
```

6.5 The kerning system

The enlarged initial and the following letter can produce an unpleasant optical gap. This is most visible after initials such as `T`, `Y`, `V`, `W`, `P` and `F`. The package therefore uses three configurable negative-spacing groups:

```
\providecommand\IndexKerningAscenders{hlbkdti}

\providecommand\IndexKerningGroupOneLetters{TY}
\providecommand\IndexKerningGroupOneValue{-1.2ex}
\providecommand\IndexKerningGroupOneAscenderValue{-0.2ex}

\providecommand\IndexKerningGroupTwoLetters{VW}
\providecommand\IndexKerningGroupTwoValue{-0.8ex}
\providecommand\IndexKerningGroupTwoAscenderValue{-0.1ex}

\providecommand\IndexKerningGroupThreeLetters{PF}
\providecommand\IndexKerningGroupThreeValue{-0.4ex}
\providecommand\IndexKerningGroupThreeAscenderValue{0ex}
```

For each group there is a normal negative-spacing value and a separate value for cases where the second letter belongs to `\IndexKerningAscenders`.

Ascender exceptions.

The list `\IndexKerningAscenders` contains second letters with ascenders: `h, l, b, k, d, t, i`. When such a letter follows the large initial, the package uses the milder ascender-specific spacing value.

First group.

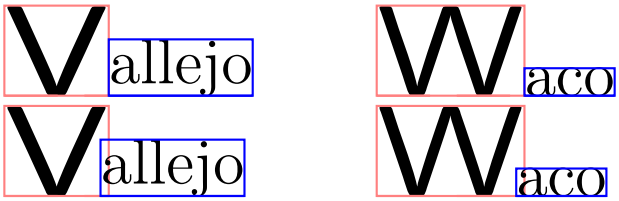
This group applies the strongest negative spacing. By default it contains `T` and `Y`.

If the rest of the word is placed immediately after the large initial, the result looks like this:

With a `-.5ex` left shift, the visual relation becomes more compact:

Second group.

This group applies medium negative spacing. By default it contains `V` and `W`.



Third group.

This group applies milder negative spacing. By default it contains `P` and `F`.

All these settings may be changed with `\renewcommand`, as shown in this manual.

6.6 Detecting the start of a group

The line

```
\newif\iffil@indexgroupstart
```

creates a conditional switch that marks whether the next index item is the first item of a new effective group.

The package does not try to interpret alphabetical order by itself. It does not compare words lexicographically. Instead it relies on the structure of the generated index: `\lettergroup` provides the group name, and the package compares the effective group names derived from those lettergroups.

6.7 The `\fil@grabfirst` macro

The key internal macro is `\fil@grabfirst`. It takes the first two tokens following the next `\item`. The macro stores these tokens as a pair and compares the pair with known Hungarian multi-character initials using `\ifx`.

1. The first two tokens are stored in `\fil@currentpair`.
2. The pair is compared with Hungarian two-character initials such as `Cs`, `Gy`, `Ly`, `Ny`, `Sz`, `Ty` and `Zs`.
3. If a match is found, the package calls `\fil@doublepair`.
4. The special case is `Dzs`. When the first two tokens are `Dz`, the package reads one more token with `\fil@grabthirdforDzs`.
5. If the third token is `s`, the package can treat the beginning as `Dzs`; otherwise the word beginning is treated as `Dz`.

6.8 Redefining the `theindex` environment

The central hook is:

```
\let\fil@oldtheindex\theindex
\renewcommand\theindex{...}
```

The original definition of `theindex` is saved as `\fil@oldtheindex`; the package then defines a wrapper around it. This preserves the normal index layout and applies only the extra local behavior needed by the package.

The new definition does four important things.

1. Check whether the package is enabled.

At the beginning of the environment the package checks `\iffil@enabled`.
If `\FirstIndexLetterEnable` has not been used, the package does not interfere with index processing.

2. Process `lettergroup`.

In enabled mode the package redefines `\lettergroup` so that its argument is passed to `\fil@handlelettergroup`. That helper macro decides whether the received group name represents a new effective group.

3. Mark the first item.

When a real new effective group is detected, the package marks the next `\item` as the first item of that group.

4. Delay `\indexspace`.

The original `\indexspace` definition is saved. The new definition does not insert the space immediately; it sets a pending-space flag. After the next `\lettergroup` has been processed, the package decides whether the original spacing is really needed.

This avoids unnecessary vertical space when `Dz` or `Dzs` are merged into another effective group.

6.9 Local redefinition of `\item`

Inside `theindex`, `\item` is redefined as follows:

```
\let\fil@olditem\item
\def\item{%
  \fil@olditem
  \iffil@indexgroupstart
    \global\fil@indexgroupstartfalse
    \expandafter\fil@grabfirst
  \fi
}%
```

First the original `\item` behavior is executed, so the normal index-list structure remains intact. Then the package checks whether the item is the first item of an effective group. If so, the flag is reset and the following tokens are passed to `\fil@grabfirst`.

The `\expandafter` is needed so that the first tokens after `\item` are consumed by `\fil@grabfirst`. This is a low-level TeX technique and is one reason why multi-character initials require careful handling.

6.10 Why not rewrite the `.ind` file?

One possible approach would be to post-process the generated `.ind` file with a script written in `sed`, `awk` or Python. This package does not use that approach.

The macro-level approach has several advantages:

- it is more platform-independent;
- it does not require a separate shell-level post-processing step;
- it is contained in a single `.sty` file;
- it can work in online systems when the necessary index generation itself is available;
- typographic parameters can be controlled directly from LaTeX.

The drawback is that TeX token scanning makes multi-character language units more complex to handle than simple one-character initials.

6.11 Recommended Hungarian setup

For Hungarian text, especially when multi-character initials occur, a typical index declaration is:

```
\usepackage{firstindexletter}
\FirstIndexLetterEnable
\makeindex[
  name=places,
  title=Place names,
  columns=3,
  noautomatic,
  program=texindy,
  options=-L hungarian -M hungarian-utf8
]
```

The `noautomatic` option means that the index-generation program is run manually. The initial-letter index style itself is created by `\FirstIndexLetterEnable` together with a suitable `texindy`-generated `.ind` structure.

6.12 Mathematical and special index entries

Some index entries containing mathematical material may be problematic if the sort key and the printed form are not clearly separated. A stable practice is to keep the sort key as simple text and put the mathematical form only after the `@` separator, in the printed part.

For example:

```
\index[places]{deviation xi@\(D^2\xi\)}
```

The sort key is plain text, while the mathematical notation appears only in the printed index entry.

6.13 What can be customized safely?

The following settings are intended for user-level customization:

- the size of the highlighted initial;
- the font family and style of the highlighted initial;
- the color of the highlighted initial;
- the ascender list;
- the letter lists of kerning groups 1, 2 and 3;
- the normal and ascender-specific negative spacing values;
- separate or merged effective treatment of `Dz` and `Dzs`.

The following parts should not be changed without solid TeX knowledge:

- the parameter structure of `\fil@grabfirst`;

- the redefinition logic of `\item`;
- the use of `\expandafter`;
- the internal handling of two- and three-character Hungarian initials.

6.14 Technical limitations

1. The package expects an index structure that contains `\lettergroup` information.
2. The spacing correction is not font-level OpenType/TrueType kerning. It is a static, configurable optical correction based on negative `\hspace`.
3. Group handling relies on the generated index structure, not on linguistic or semantic analysis.
4. The package is primarily intended for Latin-script indexes with a conventional index structure.

6.15 Final note

The `firstindexletter` package offers a compact typographic solution for indexes where separate letter-group headings are replaced by a visually emphasized initial letter in the first entry of each group. It is small, simple to use, and provides configurable optical correction.

7 Example section

The following list of place names is used to generate the sample index in this manual. The entries are inserted with commands such as:

```
Amsterdam\index[places]{Amsterdam}
Austin\index[places]{Austin}
...
```

For the english sorting rules used in this example, run `texindy` as follows:

```
pdflatex firstindexletter-doc.tex
texindy -L english places.idx
pdflatex firstindexletter-doc.tex
pdflatex firstindexletter-doc.tex
```

The first LaTeX run creates the `.idx` file. The `texindy` run turns it into a sorted `.ind` file. The final LaTeX runs include and typeset that formatted index.

Amsterdam Austin Atlanta Athens Accra Adelaide Albany Anchorage Boston Baltimore Brisbane Belfast Berlin Birmingham Buffalo Boise Chicago Cleveland Cairo Calgary Colombo Charlotte Cincinnati Columbus Dallas Denver Detroit Dublin Dakar Darwin Dayton Dover Edmonton Eugene Elpaso Erie Evansville Everett Entebbe Europe Frankfurt Florence Fargo Fresno Flint Fremont Fukuoka Freetown Geneva Glasgow Galveston Gary Genoa Georgetown Glendale Guangzhou Houston Honolulu Halifax Havana Hartford Helsinki Hobart Hanoi Indianapolis Islamabad Irvine Ithaca Incheon Ibadan Iquique

Izmir Jacksonville Juneau Jakarta Johannesburg Jeddah Jersey Joliet Juba Kansas Kyoto Kingston Knoxville Kampala Kobe Karachi Kabul London Lisbon Lagos Lima Lincoln Lansing Laredo Lubbock Miami Memphis Milwaukee Manila Melbourne Mumbai Madison Mobile Nairobi Naples Nashville Newark Norfolk Norman Nagoya Niamey Orlando Omaha Oakland Osaka Oslo Odessa Ostrava Oxford Paris Portland Phoenix Philadelphia Pittsburgh Perth Pretoria Peoria Queens Quito Quebec Quanzhou Qingdao Quetta Quilmes Quimper Rome Reno Richmond Raleigh Riverside Rochester Rockford Roswell Seattle Sydney Seoul Savannah Spokane Syracuse Springfield Tokyo Toronto Tampa Tucson Tulsa Toledo Tacoma Utah Utica Uppsala Ulaanbaatar Ulsan Ufa Ushuaia Vancouver Venice Vienna Victoria Vallejo Verona Varna Washington Wichita Waco Wilmington Winston Warsaw Wuhan Xiamen Xuzhou Xining Xian Xanthus Xalapa Xingu York Yokohama Yonkers Yakima Yantai Yuma Ypsilanti Zurich Zagreb Zhengzhou Zaria Zamboanga Zinder Zibo

Zibo Zinder Zamboanga Zaria Zhengzhou Zagreb Zurich Ypsilanti Yuma Yantai Yakima Yonkers Yokohama York Xingu Xalapa Xanthus Xian Xining Xuzhou Xiamen Wuhan Warsaw Winston Wilmington Waco Wichita Washington Varna Verona Vallejo Victoria Vienna Venice Vancouver Ushuaia Ufa Ulsan Ulaanbaatar Uppsala Utica Utah Tacoma Toledo Tulsa Tucson Tampa Toronto Tokyo Springfield Syracuse Spokane Savannah Seoul Sydney Seattle Roswell Rockford Rochester Riverside Raleigh Richmond Reno Rome Quimper Quilmes Quetta Qingdao Quanzhou Quebec Quito Queens Peoria Pretoria Perth Pittsburgh Philadelphia Phoenix Portland Paris Oxford Ostrava Odessa Oslo Osaka Oakland Omaha Orlando Niamey Nagoya Norman Norfolk Newark Nashville Naples Nairobi Mobile Madison Mumbai Melbourne Manila Milwaukee Memphis Miami Lubbock Laredo Lansing Lincoln Lima Lagos Lisbon London Kabul Karachi Kobe Kampala Knoxville Kingston Kyoto Kansas Juba Joliet Jersey Jeddah Johannesburg Jakarta Juneau Jacksonville Izmir Iquique Ibadan Incheon Ithaca Irvine Islamabad Indianapolis Hanoi Hobart Helsinki Hartford Havana Halifax Honolulu Houston Guangzhou Glendale Georgetown Genoa Gary Galveston Glasgow Geneva Freetown Fukuoka Fremont Flint Fresno Fargo Florence Frankfurt Europe Entebbe Everett Evansville Erie Elpaso Eugene Edmonton Dover Dayton Darwin Dakar Dublin Detroit Denver Dallas Columbus Cincinnati Charlotte Colombo Calgary Cairo Cleveland Chicago Boise Buffalo Birmingham Berlin Belfast Brisbane Baltimore Boston Anchorage Albany Adelaide Accra Athens Atlanta Austin Amsterdam

Amsterdam Atlanta Accra Albany Boston Brisbane Berlin Buffalo Chicago Cairo Colombo Cincinnati Dallas Detroit Dakar Dayton Edmonton Elpaso Evansville Entebbe Frankfurt Fargo Flint Fukuoka Geneva Galveston Genoa Glendale Houston Halifax Hartford Hobart Indianapolis Irvine Incheon Iquique Jacksonville Jakarta Jeddah Joliet Kansas Kingston Kampala Karachi London Lagos Lincoln Laredo Miami Milwaukee Melbourne Madison Nairobi Nashville Norfolk Norman Orlando Oakland Oslo Ostrava Paris Phoenix Pittsburgh Pretoria Queens Quebec Qingdao Quilmes Rome Richmond Riverside Rockford Seattle Seoul Spokane Springfield Tokyo Tampa Tulsa Tacoma Utah Uppsala Ulsan Ushuaia Vancouver Vienna Vallejo Varna Washington Waco Winston Wuhan Xiamen Xining Xanthus Xingu York Yonkers Yantai Ypsilanti Zurich Zhengzhou Zamboanga Zibo Austin Athens Adelaide Anchorage Baltimore Belfast Birmingham Boise Cleveland Calgary Charlotte Columbus Denver Dublin Darwin Dover Eugene Erie Everett Europe Florence Fresno Fremont Freetown Glasgow Gary Georgetown Guangzhou Honolulu Havana Helsinki Hanoi Islamabad Ithaca Ibadan Izmir Juneau Johannesburg Jersey Juba Kyoto Knoxville Kobe Kabul Lisbon Lima Lansing Lubbock Memphis Manila Mumbai Mobile

Naples Newark Nagoya Niamey Omaha Osaka Odessa Oxford Portland Philadelphia Perth Peoria Quito Quanzhou Quetta Quimper Reno Raleigh Rochester Roswell Sydney Savannah Syracuse Toronto Tucson Toledo Topeka Tehran Vancouver Venice Victoria Verona Wichita Wilmington Warsaw Xuzhou Xian Xalapa Yokohama Yakima Yuma Zagreb Zaria Zinder

Tyukfalva Tyukmajor Tyukos Tyukod Tyukostanya Tyukospuszta

Lyukfalva Lyukos Lyukasd Lyukostanya Lyukospatak Lyukvolgy

Csongrád Csikszereda Csorna

Zsámbék Zsira Zsombolya

Szada Szarvas Szeged Szeghalom Szentendre Szekszard Szentes Szigetvar Szolnok Szombathely

Dzsungelfalva Dzsunka-tó Dzeta-függvény-tó

Mathematical index-entry examples:

The symbol $D^2\xi$ denotes a variance-like expression.

The Γ distribution is indexed with a plain textual sort key.

The variance symbol is $D^2\xi$.

The Γ distribution is a Γ distribution.

Place names