Poorman’s Hangul Jamo Input Method
pmhanguljamo.sty
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1 Introduction

This \LaTeX{} package provides Hangul\textsuperscript{1} transliteration input method, which allows to typeset Korean Letters (Hangul) with the help of proper fonts. The name comes from “Poorman’s Hangul Jamo Input Method.” It is mainly for the people who have a system without Korean keyboard IM, but want to typeset Hangul in their document. Not only

\textsuperscript{1}Hangul is the Korean alphabet to write the Korean language. In both South and North Korea, the standard writing system uses Hangul.
modern Hangul, but so-called “Old Hangul” characters that uses the lost letters such as ‘Arae-A’(ㆍ), ‘Yet Ieung’(ㆁ) or ‘Pan-Sios’(ㅿ) etc. can also be typeset.

XELATEX or LuaLATEX is required. The legacy pdflATEX is not supported. The Korean Language supporting packages such as xetexko and luatexko (in the ko.TE X bundle) or polyglossia package with Korean support are recommended, but without them typesetting Hangul is of no problem with this package pmhanguljamo.

2 Usage

2.1 Loading the package

Put the following line in your preamble:

\usepackage{pmhanguljamo}

The option [RRK] or [rrk] can be given, in which case the Standard Korean Romanization Transliteration input method is activated. In section 6, we will explain about it. Without option, the default input method of this package is used, that is explained in sections 3–5. You are to specify just one of them. Using both methods in one document is not allowed.

2.2 Commands and Environment Provided

The main command to typeset Hangul is \jamoword. 

Input:\jamoword{myec dan/e/ga or su iss/svb/ni/da/.}
Result: 몇 단어가 올 수 있습니다.

The argument of the command consists of roman alphabets and a few marks that represent the transliteration of Hangul Jamo. The transliteration rule will be explained in the section 3 (page 4).

And an environment named jamotext is provided. In the environment, multiple paragraphs can be located. So, it is suitable to typeset longer text stuffs. For example,

\begin{jamotext}
jug/nvn nar/gga/ji ha/nvr/vr u/re/re \\nhan jem bu/ggv/rem ebs/gi/rvr
ip/sai/ei i/nvn ba/ram/ei/do \\na/nvn goi/ro/ue/hai ss/da/.
\end{jamotext}

The result:

죽는 날까지 하늘을 우러러
한 점 부끄럼 없기를
잎새에 이는 바람에도
나는 괴로워했다.
2.3 Setting up in your Preamble

Without any other packages, you can type Hangul. Be sure that proper fonts should be declared for Hangul, utilizing fontspec.

\documentclass{article}
\usepackage{fontspec}
\usepackage{pmhanguljamo}

\begin{document}
\fontspec[Script=Hangul]{UnBatang.ttf}
\jamoword{an/nyex/ha/sei/yo}
\end{document}

UnBatang.ttf is a font shipped in unfonts-core package of \TeX Live. Not all Korean fonts can be available to typeset so-called ‘Old Hangul’, because they happen to lack the feature of composing Korean syllables from conjoining Jamo codes. Fortunately, we have a few more fonts besides UnBatang that are proper and freely available, which are listed in the section 4. In \TeX Live distribution, UnBatang is the only proper one.

The polyglossia package provides Korean language support. This package pmhanguljamo can be used with it. The following is an example.

\documentclass{article}
\usepackage{polyglossia}
\setmainlanguage{english}
\setotherlanguage{korean}
\newfontfamily\hangulfont{UnBatang.ttf}[Script=Hangul]
\usepackage{pmhanguljamo}

\begin{document}
\begin{korean}
\jamoword{han/gvr/vr si/hem/hab/ni/da/.}
\end{korean}
\end{document}

Or the ko.\TeX package bundle can be used together.

\documentclass{article}
\usepackage{kotex}
\usepackage{pmhanguljamo}
\setmainhangulfont{UnBatang.ttf}[Script=Hangul]

\begin{document}
\jamoword{na/ras/mar/ss@/mi}
\end{document}

In any case, the option [Script=Hangul] should be given to the font settings for Hangul. For more information, see section 4.

The Korean writing system does not have hyphenation rules. The line breaking can occur just after almost every syllable. Therefore, without Korean language supporting packages the line breaking and justification of paragraphs will not be satisfactory.
However when just single or a few Hangul characters are needed, for example in the case of typesetting the author’s name in Hangul, this package provides a casual way to print them out.

3 Transliteration Rule of This Package

3.1 Tone Marks and Syllable Separator

This package assumes that every Hangul syllable has Tone Mark which must be explicitly put at the end of it. Table 1 shows the input scheme of them.

<table>
<thead>
<tr>
<th>input</th>
<th>description</th>
</tr>
</thead>
<tbody>
<tr>
<td>/</td>
<td>for PyeongSeong, no dot</td>
</tr>
<tr>
<td>;</td>
<td>for GeoSeong, single dot on the left of a character, [U+302E]</td>
</tr>
<tr>
<td>:</td>
<td>for SangSeong, double dots on the left of a character, [U+302F]</td>
</tr>
</tbody>
</table>

The tone marks were used in the 15th century, but in the modern Korean they are out of use. Nevertheless the / mark in this package is also used in order to depict the completion of composing a syllable — i.e., syllable separator. So DO NOT miss it.

However, it is possible to omit ’/’ mark at the end of a word, i.e., just before <space>, or at the end of the argument of \jamoword. Note that before the punctuation mark — period, comma, etc., omitting / is not permitted.

3.2 Consonants

Table 2 shows the transliteration rule for the consonants which are used in the leading and trailing position of a syllable.

<table>
<thead>
<tr>
<th>g</th>
<th>n</th>
<th>d</th>
<th>s</th>
<th>x</th>
</tr>
</thead>
<tbody>
<tr>
<td>m</td>
<td>b</td>
<td>s</td>
<td>o</td>
<td>z</td>
</tr>
<tr>
<td>j</td>
<td>c</td>
<td>k</td>
<td>t</td>
<td></td>
</tr>
<tr>
<td>p</td>
<td>h</td>
<td>q</td>
<td>z</td>
<td></td>
</tr>
<tr>
<td>f</td>
<td>w</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. The corresponding letters “g, n, d, m, b, s, j, k, t, p, h” are the same as Korean Romanization Method (RRK).\footnote{The Revised Romanization of Korean 1995:2000 is the official Korean language romanization system in South Korea.}

2. The letter for ‘ㅋ’ is allocated to r not l. The latter is reserved for another purpose, cf. item 7.

3. The letter ‘ㅈ’ is for ‘ㅊ’. In the RRK, it is ‘ch’ there.

4. The letter for ‘ㅇ’ is x, which is a bit strange, but commonly accepted ‘ng’ was not to be chosen. It is reserved for another consonant ‘ㆁ’. 

5. The letters 'q, z, f' are more freely selected. These letters are the lost ones in Modern Korean.

6. The letter 'w' is chosen to present Chooseong Filler.

7. The letters 'l' and 'lr' are prepared for very rare case. In the 15th century Korean, '켰' and '.withOpacity' were distinguishable. ' slik' is chosen for the SIOS with left branch being longer, and '훈' means right branch longer. The same is the case 'ssl', 'sslr', 'ㅈ', 'ㅈl' etc.

8. The 'light labial consonants', ㅸ, ㆄ in the Old Hangul can be input as 'bx, px, bbx, mx'.

9. In the Modern Korean, only 'gg, dd, bb, ss, jj' are additionally permitted in the leading consonant position. But in the Old Hangul this limitation was not applied. So Chooseong can have multiple consonants, e.g., 'bsg', 'bsd', 'ss', 'sd' etc.

10. The leading 'zero consonant' can be omitted. So if a syllable begins with vowel, then the leading 'ᄋ' will appear. You can write the leading 'x' of a syllable or not. For example, \texttt{\	extbackslash jamoword{xax}} and \texttt{\	extbackslash jamoword{ax}} will generate the same result '앙'.

3.3 Vowels

Table 3 shows the transliteration rule for vowels.

<table>
<thead>
<tr>
<th>Vowel</th>
<th>i</th>
<th>e</th>
<th>o</th>
<th>u</th>
<th>v</th>
</tr>
</thead>
<tbody>
<tr>
<td>d</td>
<td>a</td>
<td>e</td>
<td>o</td>
<td>u</td>
<td>v</td>
</tr>
<tr>
<td>l</td>
<td>ya</td>
<td>ye</td>
<td>yo</td>
<td>yu</td>
<td>@@</td>
</tr>
<tr>
<td>l</td>
<td>ay, ai</td>
<td>ey, ei</td>
<td>oy, oi</td>
<td>uy, ui</td>
<td>@i</td>
</tr>
<tr>
<td>l</td>
<td>yay, yai</td>
<td>ey, yei</td>
<td>yoi</td>
<td>yui</td>
<td></td>
</tr>
<tr>
<td>l</td>
<td>oay, oai</td>
<td>ey, yae</td>
<td>uy, uai</td>
<td>uy, uel</td>
<td>*</td>
</tr>
</tbody>
</table>

1. The rule for vowels may look a bit unfamiliar. But it is simple and easily rememberable.

2. The letter 'v' is never considered to be a vowel. But this package determined it to stand for the vowel 'ㅡ'. In fact, the roman alphabets fall short of the vowels. This allocation is arbitrary.

3. The lost 'Arae-A' is allocated to '@', and the rare 'Double Arae-A' to '@@', which are forgotten vowels in Modern Korean.

4. The Jungseong Filler ([U+1160]) can be input with *@. For example, \texttt{\	extbackslash jamoword{h*n}} renders 'ㅢ'.

5.
3.4 Compatibility Jamos

The compatibility Jamo block in Unicode contains several Hangul Jamo characters, which cannot be used to compose Hangul syllables, and are considered independent Jamo characters respectively.

To input the compatibility Jamos in the arguments of \jamoword or jamotext, you are to type them in their capital letters (upper cases). And every compatibility Jamo has to be separated with syllable separator — /. Because the @ character has no upper case, write W instead of @ to display compatibility ‘Arae-A’.

Here is an example:

\jamoword{W/nvn a/rai/a/ra/go bu/rv/go A/oa
bi/svs/ha/gei irg/nvn/da}

・는 아래아라고 부르고 ․와 비슷하게 읽는다

4 Proper Fonts

In order to typeset Hangul characters successfully with the input method of this package, the help of the proper font is crucial. What we call proper font is the font that has the Opentype feature of ‘Script Hangul’, that is, the feature of conjoining jamo characters. A Truetype font may have this Opentype feature. Otherwise, it is regarded as an improper font.

Not so many fonts are proper. The fonts or font families listed in the following lines are what we know proper. They can be downloaded from the url and used freely. And note that UnBatang is already installed in your TEX Live installation.

Hamchorom LVT Hamchorom fonts by Hancom Inc., and their variants with GSUB tables by KTS (the Korean TEX Society). https://github.com/dohyunkim/hcr-lvt


Malgun Gothic One of Windows 10 system font.


Noto CJK or Source Han Google’s Noto CJK fonts. Or Adobe’s Source Han fonts. https://www.google.com/get/noto/help/cjk/

Un Batang UnBatang.ttf. on CTAN. https://ctan.org/pkg/unfonts-core

To use one of these fonts, do not forget to provide the [Script=Hangul] option.

For example, you can specify Hamchorom Batang LVT font as:

\newfontfamily\pmjamofont{HCR Batang LVT}[Script=Hangul]

\[the\ option\ should\ be:\\]
[Script=Hangul,Renderer=Harfbuzz]
\or
[Script=Hangul,Renderer=OpenType],
\when\ the\ document\ is\ processed\ with\ LuaLaTeX.
and then issue \texttt{\pm jamofont} command in the scope of Hangul to be typeset. It is recommended that the proper font should be used consistently.

In case the font you take is not proper, you are to meet the warning message at the console and log file,

Package fontspec Warning: (fontspec)  
Font "batang" does not contain requested Script "Hangul".

However, when \LaTeX is concerned, it is known that the Modern Korean Characters \textit{(Hangul Precomposed Syllables} in the Unicode block [U+AC00] – [U+D7A3]) can be rendered with this kind of font, in spite of the warning message.

5 Examples

Now, we will show a few practical examples, where the \textit{korean} environment of \textit{polyglossia} package is used. The preamble is like this:

\begin{verbatim}
\usepackage{pmhanguljamo}  
\usepackage{polyglossia}  
\setotherlanguage{korean}  
\newfontfamily\hangulfont{UnBatang.ttf}[Script=Hangul]
\end{verbatim}

5.1 Modern Hangul

\begin{verbatim}
\begin{verse}  
\begin{korean}  
\begin{jamotext}  
na bo/gi/ga yeg/gye/ue \ \  
ga/sir ddai/ei/nvn \ \  
m\ar ebs/i go/i bo/nai dv/ri/u/ri/da/.
\end{jamotext}  
\end{korean}  
\end{verse}
\end{verbatim}

\begin{verbatim}
나 보기가 역겨워
가실 때에는
말 없이 고이 보내 드리우리다.
영변에 약산
\end{verbatim}
진달래 꽃
아름다 가실 길에 뿌리우리다.
가시는 걸음 걸음
높인 그 꽃을
사뿐히 즐려밟고 가시옵소서
나 보기가 역겨워
가실 때에는
죽어도 아니 눈물 흘리우리다.

5.2 pre-1933 Hangul
A 15th century text with tone marks (BangJeom).

\begin{korean}
\begin{jamotext}
나/랏/말〮미 中듀ᇰ國〮 gü〮에 달〮아 文문字〮ᄍᆞᆼ〮와〮로 서르 百〮姓〮셔ᇰ〮이 니르〮고〮져 〮호ᇙ 〮배 이〮셔〮도 〮.SOCK〮들 시〮러 펴〮디 〯 sóc〮용〮내 제〮들 〮dff〮들 〮하〮라
\end{jamotext}
\end{korean}

And another example of 17th century, from 두시언해, Selected Translations of Du Fu’s Poems, without tone marks.

\begin{verse}
\begin{korean}
\begin{jamotext}
g@/r@/mi p@/r@/ni sai de/ug h@i/o/,\ \moy/hi pe/re/h@/ni gos/ bi/ci bvr bvd/n@n d@s/do/da/.\ \ors bo/mi bon/d@in sdo di/na/ga/n@/ni \\ e/nv na/ri i do/ra/gar h@i/o/.
\end{jamotext}
\end{korean}
\end{verse}

6 The RRK Input Method: An Alternative Way
In chapter 3 section 8 of Revised Romanization of Korean (2000), the ‘transliteration method’ of Hangul romanization is declared. It is exceptionally permitted when it is
required to restore the original Hangul writings, while standard is the phonetic transcription one. So we can make use of the former as an input method.

If the package option [RRK] or [rrk] is given, the RRK method is activated. In this case, only 'Modern Hangul' can be available.

6.1 Transliteration Rule of RRK

Table 4 and 5 show the RRK transliteration rule.

Table 4: RRK Consonants

<table>
<thead>
<tr>
<th>ᄀ</th>
<th>ᄁ</th>
<th>ᄂ</th>
<th>ᄃ</th>
<th>ᄄ</th>
<th>ᄅ</th>
<th>ᄆ</th>
<th>ᄇ</th>
</tr>
</thead>
<tbody>
<tr>
<td>ᄀ</td>
<td>ᄁ</td>
<td>ᄂ</td>
<td>ᄃ</td>
<td>ᄄ</td>
<td>ᄅ</td>
<td>ᄆ</td>
<td>ᄇ</td>
</tr>
</tbody>
</table>

Table 5: RRK Vowels

<table>
<thead>
<tr>
<th>ᄀ</th>
<th>ᄁ</th>
<th>ᄂ</th>
<th>ᄃ</th>
<th>ᄄ</th>
<th>ᄅ</th>
<th>ᄆ</th>
<th>ᄇ</th>
</tr>
</thead>
<tbody>
<tr>
<td>ᄀ</td>
<td>ᄁ</td>
<td>ᄂ</td>
<td>ᄃ</td>
<td>ᄄ</td>
<td>ᄅ</td>
<td>ᄆ</td>
<td>ᄇ</td>
</tr>
</tbody>
</table>

1. When the leading consonant ‘ᄋ’ is placed at the head of a word, it can be omitted. Otherwise the hyphen character (−) should be put. For example, \jamoword{annyeonghase-yo} 안녕하세요
   \jamoword{jung-ang jungang} 중앙 준강
   \jamoword{ha-yeossseubnida} 하였습니다

2. The hyphen character – can be used to forcibly separate syllables. And the special character / is taken as another syllable separator. They are exchangeable.
   \jamoword{haeb/ssal haeb-ssal} 햅쌀 햅쌀

3. The six punctuation marks, . , ! ? ; : can be located in the Hangul scope. The others are not allowed.
   \jamoword{a! malg-eun haneul, si-wonhan baram.} 아! 맑은 하늘, 시원한 바람.
   The EBCP X quotes, ` `, ' ' , and ' cannot be used within Hangul input scope. They should be located outside. However you can use unicode quotes, “ and ”, which can be input with syllable separator. For example, \jamoword{"/hanug-eoleul jeognun geul-ida.} “한글”이란 한국어를 적는 글이다.
   In this case, the syllable separator / cannot be replaced by hyphen character.

4. The leading consonant ‘ GLES’ is written with either l or r, while the trailing one should be l.
   \jamoword{noraereul nolaeleul} 노래를 노래를

5. We made it possible to use ‘Arae-A’ with the RRK method. Though it is not present in Modern Hangul writing system, typesetting ‘Jeju language’ or some
pre-1933 Korean texts will be made easy with this. The ‘Arae-A’ is to be input as ‘@’ character, and the ‘Double Arae-A’ ‘@@’. There is one exception. The one word with one letter that has only leading ‘@’, i.e., © should be input by ‘x@’. If the syllable has trailing consonants or is part of a word, just © is good.

\texttt{\begin{verse}\begin{korean}\begin{jaomotext}나 보기가 역겨워가실 때에는
말 없이 고이 보내 드리우리다.
영변에 약산진달래 꽃아름 따다 가실 길에 뿌리우리다.
가시는 걸음 걸음놓인 그 꽃을사뿐히 절려햇고 가시옵소서
나 보기가 역겨워가실 때에는
죽어도 아니 눈물 흘리우리다.\end{jaomotext}\end{korean}\end{verse}}

\texttt{4}An English translation of this poem can be read in Wikipedia, \url{https://en.wikipedia.org/wiki/Kim_Sowol}.

\section{Example of RRK method}

The text is one of the most famous poem in Korean, 진달래꽃 Azalea by Kim So-wol.\texttt{4}

In section 5.1, we showed default way of inputting the poem. The \texttt{korean} environment and font settings are the same as in section 5.

\begin{verse}
\begin{korean}
\begin{jaomotext}
나 보기가 역겨워가실 때에는
말 없이 고이 보내 드리우리다.
영변에 약산진달래 꽃아름 따다 가실 길에 뿌리우리다.
가시는 걸음 걸음
놓인 그 꽃을 사뿐히 절려햇고 가시옵소서
나 보기가 역겨워가실 때에는
죽어도 아니 눈물 흘리우리다.
\end{jaomotext}
\end{korean}
\end{verse}
7 Further Information

For more examples and information about this package, please read the documentation pmhanguljamo-kdoc.pdf (in Korean).

8 Acknowledgement

Thanks go to yihoze at the KTUG board, there he commented, “The IM apps I’ve tried such as Korean Windows Old Hangul IM or Saenaru IM were all somewhat inconvenient. . . . In my opinion, for the foreign scholar who studies Korean language, especially Middle Age Korean language, this kind of transliteration method may be much more convenient and confident way of typesetting Korean than the keyboard IM solutions.”

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