The \texttt{scsnowman} package provides a command \texttt{scsnowman}, which can display many variants of snowmen. This package utilizes Ti\texttt{kZ} for drawing snowmen.

The package is maintained on GitHub:

- \url{https://github.com/aminophen/scsnowman}
1 The History of Snowman in Unicode

In October 1991, the first volume of the Unicode standard was published. Since then, there was a code point assigned to a character “snowman”; U+2603.

U+2603 SNOWMAN
= snowy weather

It seems that the shape of its reference glyph in Unicode 1.0.0 was taken from “Ryumin”, which was developed by Morisawa (a famous font vendor in Japan). A few years later, the reference glyph has sometimes been changed to another; however, there had been only one “snowman” in Unicode until 2009.

In October 2009, Unicode 5.2 was published. In this volume, two “snowman” code points were added; U+26C4 and U+26C7.

U+26C4 SNOWMAN WITHOUT SNOW
= light snow
U+26C7 BLACK SNOWMAN
= heavy snow

According to the code chart, the origin of these two characters is ARIB STD-B24 (Data Coding and Transmission Specification for Digital Broadcasting), which was established by Association of Radio Industries and Business in Japan. Since then, it can be said that the old code point U+2603 has been given an implicit meaning of “SNOWMAN WITH SNOW”. The reference glyphs were also changed at that time.

2 Variation of Snowman among Actual Fonts

Since the shapes of the reference glyphs used in the Unicode code charts are not prescriptive, the actual fonts have a wide variety of glyph designs. However, when it comes to snowmen, the variation between fonts is enormous. This variation is very interesting, however, on the other hand, problematic.

Table 1 shows the variety of “snowman” in actual fonts. The snowman in “IPA Mincho (IPA 明朝)” from Information-technology Promotion Agency is very similar to the one in “Ryumin (リュウミン)” from Morisawa. However, in “MS Mincho (M S 明朝)” from Microsoft, the snowman wears a black hat instead of white one. In “Kozuka Mincho (小塚明朝)” from Adobe Systems Inc., he/she wears a muffler instead of a hat. Moreover, it doesn’t snow in “Hiragino Mincho (ヒラギノ明朝)” from SCREEN Graphic and Precision Solutions Co., Ltd. It is natural that some fonts developed before 2009 have a “snowman without snow” glyph in the code point U+2603, however, it can be a problem when we have to transfer the exact information to others.

1 http://www.arib.or.jp/tyosakenkyu/kikaku_hoso/hoso_std-b024.html Abstract in PDF format (both Japanese and English) are available.
<table>
<thead>
<tr>
<th>Font Style</th>
<th>U+2603</th>
<th>U+26C4</th>
<th>U+26C7</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPAex 御朝</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
</tr>
<tr>
<td>MS 御朝</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
</tr>
<tr>
<td>小塚明朝 Pr6N Regular</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
</tr>
<tr>
<td>ヒラギノ明朝 ProN W3</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
</tr>
<tr>
<td>VL ゴシック</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
</tr>
</tbody>
</table>

Table 1: The variety of “snowman” in actual fonts
3 Introduction to scsnowman Package

The \LaTeX{} package `scsnowman` provides a command `\scsnowman`, which can display many variants of snowmen. This package depends on \texttt{Ti\textsc{k}Z} package for drawing snowman images.

To use this package, load it in preamble:

```
\usepackage{scsnowman}
```

In the main document, use `\scsnowman` command to print a snowman: \snowman. By default, the snowman is “plain” style, without any decoration such as snow, a hat or a muffler.

4 Command Options

You can customize the style of a snowman using the optional argument. The syntax is

```
\scsnowman[⟨key-value list⟩]
```

4.1 Scaling and Adjustment Options

The following keys are available:

- \texttt{scale}, \texttt{adjustbaseline}

The key \texttt{scale} takes a scale factor. The origin of scaling is set at the lower left corner of the bounding box. For example, `\scsnowman`, `\scsnowman[scale=3]` and `\scsnowman[scale=5]` give:

\begin{itemize}
  \item \snowman with visualized bounding boxes:
  \end{itemize}

When the key \texttt{adjustbaseline} is specified (or, \texttt{adjustbaseline=true}), the base line of the in-line snowman will be adjusted to that of the surrounding texts. This will be helpful when a snowman appears to be “floating in the air.”

\begin{itemize}
  \item \snowman\; Text, \par
  \item \texttt{\scsnowman[adjustbaseline,scale=1]}\% \texttt{\scsnowman[adjustbaseline,scale=4]}\% \texttt{\scsnowman[adjustbaseline,scale=7]},
  \item \texttt{T.\;par}
  \item Text, \snowman\; T.
\end{itemize}

4.2 Design Options

Following keys take a value which specifies color. When the \texttt{value} is omitted, it reacts to the surrounding text color:

\begin{itemize}
  \item \snowman\; T.
\end{itemize}
body, eyes, mouth, nose, sweat, arms, hat, muffler, buttons, snow, note, broom

The following keys require one specific value:

shape, mouthshape

The key shape specifies the outline shape of the snowman body. Currently, only shape=normal is officially available, but you can define and use other shapes using \usescsnowmanlibrary command (described later, section 6).

The key mouthshape takes one of the followings: smile, tight or frown.

Here are some examples:
\scsnowman[scale=2, body, hat=red, muffler=blue]
\scsnowman[scale=3, hat, snow, arms, buttons, note]
\scsnowman[scale=2, muffler=red, arms, broom=brown]
\scsnowman[scale=2, mouthshape=frown, hat=green]
\color{blue}
\scsnowman[scale=2, body, hat=red, muffler=blue]
\scsnowman[scale=2, hat, snow, arms, buttons, note]
\scsnowman[scale=3, muffler=red, arms, broom=brown]
\scsnowman[scale=2, mouthshape=frown, hat=green]}

5 Changing the Default

The package default is the “plain” style snowman. This default can be changed by using \scsnowmandefault command. The syntax is
\scsnowmandefault{(key-value list)}

The available keys are the same as those in \scsnowman. Here are some examples:
\scsnowmandefault{scale=5, hat=red}
\scsnowman
\scsnowman[body, muffler=blue, arms]
\scsnowman[hat=green, snow, nose=orange]

6 Adding User-defined Snowman Shapes

Any users can define and use custom snowman shape definitions. Here is a description of adding a shape named myfavorite.

1. Prepare a snowman definition file scsnowman-myfavorite.def and put it into $TEXMF tree (e.g. texmf-local/tex/latex/scsnowman/). For the format of snowman definition files, please refer to scsnowman-normal.def.

2. Use \usescsnowmanlibrary command (don’t forget sc!) to load it.
\usepackage{scsnowman}
\usescsnowmanlibrary{myfavorite}

3. You can use the shape by \scsnowman[shape=myfavorite] command.

If you have created a fancy snowman, please contact me, so that I can incorporate it into the official release!
7 Funny Usages

7.1 Changing Item Labels and QED Symbols

For those who want more snowmen in the documents, currently \texttt{scsnowman} provides the following additional commands:

\makeitemsnowman: Change item labels in \texttt{itemize} environment to snowmen $\ddot{s}s\ddot{s}s$. The command \texttt{\makeitemother} restores the default, usually $\bullet$.

\makeqedsnowman: Change the QED symbol in \texttt{proof} environment to a snowman $\ddot{s}$. The package \texttt{amsthm} is required. The command \texttt{\makeqedother} restores the default, usually $\square$.

These commands can be used wherever you want, and are effective within the current group.

Here are some examples:

\begin{itemize}
    \item Foo X.
    \begin{itemize}
        \item Bar A.
        \begin{itemize}
            \item Baz P.
            \item Baz Q.
        \end{itemize}
        \item Bar B.
        \item Bar C.
    \end{itemize}
\end{itemize}

\makeqedsnowman
\begin{theorem}
    Given two line segments whose lengths are $a$ and $b$ respectively, there is a real number $r$ such that $b=ra$.
\end{theorem}
\begin{proof}
    To prove it by contradiction try and assume that the statement is false, proceed from there and at some point you will arrive to a contradiction.
\end{proof}

The names of these commands are, of course, named after the L\TeX\ \texttt{\makeatletter} and \texttt{\makeatother}:-)

7.2 Drawing “Kagami-mochi”

Using \texttt{scsnowman} package, you can also draw “kagami-mochi” (mirror rice cake). It is a traditional Japanese New Year decoration, which usually consists of two round “mochi” (rice cakes), the smaller placed atop the larger, and a “daidai” (a Japanese bitter orange) with an attached leaf on top.
Following *keys* are implemented for this usage:\footnote{Strictly speaking, the orange on top of rice cakes should be "daidai"; however, a "mikan" is often substituted for the original "daidai".}

mikan, leaf

The *key leaf* is effective only when *mikan* is specified. Here is an example:

\snowmandefault{scale=5.5} \snowman[eyes=false,mouth=false,mikan=orange,leaf=green]

\section{Replacing All “8” with Snowmen}

You can replace all “8” inside an arabic number expression with snowmen ８ by using \snowmannumeral. Here is an example:

\snowmandefault{adjustbaseline}\snowmannumeral{18882} １８８８２
\snowmannumeral[muffler=blue,scale=1.5]{4283859} ４２８３８５９

You can also replace all “8” inside the page numbering with snowmen ８ by adding \pagENUMBERING{enumSNOWMAN}. This documentation itself is an example!
Version History

This is the summary of changes. For more detail, see GitHub repository.

Version 0.1 2015-12-13 First public version on GitHub
Version 0.8 2016-08-08 Second public version on GitHub:
new variants buttons, mouthshape, sweat are added
Version 1.0 2016-12-22 First CTAN release
Version 1.1 2017-01-22 Add a new key adjustbaseline
Update documentation
Version 1.2 2017-08-08 Default color reacts to surrounding text color
Support vertical writing on (u)pTeX and LuaTeX-ja
Add a new key shape
Add a new command \usescsnowmanlibrary
Version 1.2a 2017-11-25 Fix a bug in scaling with adjustbaseline
Version 1.2b 2018-01-05 Add new keys mikan, leaf for drawing ‘kagami-mochi’
Stopped loading amsthm by default
Version 1.2c 2018-01-15 Add a new key broom
Version 1.2d 2018-06-07 Add new keys nose, note
Add a new command \scsnowmannumeral

References

[1] 雪だるまの親子関係 — Mac OS X の文字コード問題に関するメモ
[2] ヒラキノの雪だるま、なぜ寂しそうなのか — Mac OS X の文字コード問題
に関するメモ
[3] いろいろなゆきだるま — TeX Alchemist Online
[4] 「TeX でゆきだるま」をもっとたくさん — Acetaminophen’s diary
[5] Unicodeの例の雪だるまは多分アレ — マクロツイーター
[6] TeX でゆきだるまを“もっともっと”たくさん — Acetaminophen’s diary
[7] 夏といえば、やっぱり「ゆきだるま」！ — Acetaminophen’s diary
[8] How do I redefine the QED symbol to be a Unicode character? — TeX –
\LaTeX Stack Exchange

9