The scsnowman package v1.3b

Hironobu Yamashita

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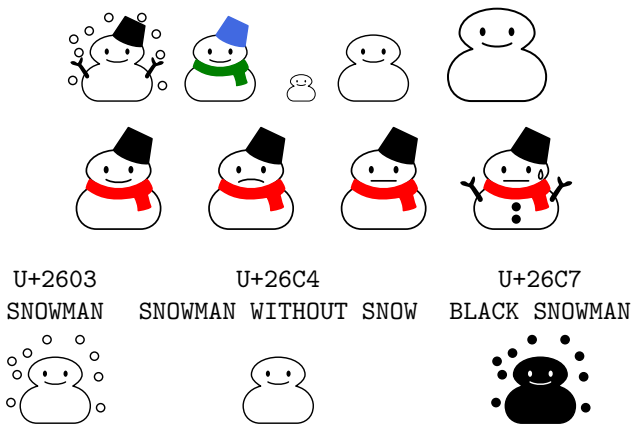
The LaTeX package scsnowman provides a command `\scsnowman`, which can display many variants of snowmen. This package utilizes TikZ for drawing snowmen.



The package is maintained on GitHub:

- https://github.com/aminophen/scsnowman

Contents

1 The History of Snowman in Unicode **3**

2 Variation of Snowman among Actual Fonts **3**

3 Introduction to scsnowman Package **5**

4 Command Options **5**
4.1 Scaling and Adjustment Options 5
4.2 Design Options 5

5 Changing the Default **6**

6 Adding User-defined Snowman Shapes **6**

7 Funny Usages **7**
7.1 Changing Item Labels and QED Symbols 7
7.2 Drawing "*Kagami-mochi*" 7
7.3 Replacing All "8" with Snowmen . . . . . ☃

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;[1]), 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 (ＭＳ 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 1: The variety of “snowman” in actual fonts

	U+2603	U+26C4	U+26C7
IPAex 明朝			
ＭＳ 明朝			
小塚明朝 Pr6N Regular			
ヒラギノ明朝 ProN W3			
VL ゴシック			

3 Introduction to scsnowman Package

The LaTeX package scsnowman provides a command `\scsnowman`, which can display many variants of snowmen. This package depends on Ti*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: ☃. 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

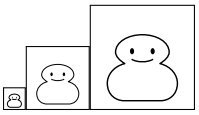
`\scsnowman[`⟨*key-value list*⟩`]`

4.1 Scaling and Adjustment Options

The following *key*s are available:

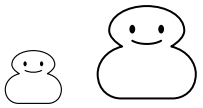
`scale`, `adjustbaseline`

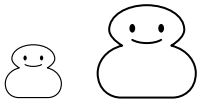
The key `scale` takes a scale factor. The origin of scaling is set at the lower left corner of the bounding box. For example, `\scsnowman`, `\scsnowman[scale=3]` and `\scsnowman[scale=5]` give:

☃  with visualized bounding boxes: 

When the key `adjustbaseline` is specified (or, `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."

```
Text,
\scsnowman[scale=1]%
\scsnowman[scale=4]%
\scsnowman[scale=7],
T.\par
Text,
\scsnowman[adjustbaseline,scale=1]%
\scsnowman[adjustbaseline,scale=4]%
\scsnowman[adjustbaseline,scale=7],
T.
```

Text, ☃  , T.

Text, ☃  , T.

4.2 Design Options

Following *key*s take a *value* which specifies color. When the *value* is omitted, it reacts to the surrounding text color:

`body`, `eyes`, `mouth`, `nose`, `sweat`, `arms`, `hat`, `muffler`, `buttons`, `snow`, `note`, `broom`

The following *key*s 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 *key*s 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 scsnowman provides the following additional commands:

`\makeitemsnowman`:
Change item labels in `itemize` environment to snowmen ☃☃☃☃. The command `\makeitemother` restores the default, usually •–∗·.

`\makeqedsnowman`:
Change the QED symbol in `proof` environment to a snowman ☃. The package amsthm is required. The command `\makeqedother` restores the default, usually □.

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

Here are some examples:

```
\begin{itemize}
  \makeitemsnowman
  \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}
```

- Foo X.
  - Bar A.
    - Baz P.
    - Baz Q.
  - Bar B.
  - Bar C.

```
\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
asuume that the statement is false,
proceed from there and at some point
you will arrive to a contradiction.
\end{proof}
```

Theorem 1. *Given two line segments whose lengths are a and b respectively, there is a real number r such that $b = ra$.*

Proof. To prove it by contradiction try and asuume that the statement is false, proceed from there and at some point you will arrive to a contradiction. ☃

The names of these commands are, of course, named after the LaTeX `\makeatletter` and `\makeatother`;-)

7.2 Drawing "*Kagami-mochi*"

Using 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 *key*s are implemented for this usage:[2]

`mikan`, `leaf`

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

```
\scsnowmandefault{scale=5.5}
\scsnowman[eyes=false,mouth=false,mikan=orange,leaf=green]
```

7.3 Replacing All “8” with Snowmen

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

```
\scsnowmandefault{adjustbaseline}\scsnowmannumeral{18882}
\scsnowmannumeral[muffler=blue,scale=1.5]{4283859}
```

1☃☃☃2
42☃3☃59

You can also replace all “8” inside the page numbering with snowmen ☃ by adding `\pagenumbering{enumsnowman}`. This documentation itself is an example!

[2] Strictly speaking, the orange on top of rice cakes should be “*daidai*”; however, a “*mikan*” is often substituted for the original “*daidai*”.

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`
Version 1.2e	2019-08-12	Fix a bug of possible infinite loop
Version 1.3a	2020-10-10	Update for new LATEX
Version 1.3b	2023-02-14	Fix a bug of upTEX engine detection

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] ヒラギノの雪だるまは、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