scrambledenvs – Create and print scrambled environments

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Abstract

The scrambledenvs package allows you to create scrambled environments and print them out later, such as scrambled hints or solutions.

1 Overview

This package was designed to mark hints at a location[1] and print them out later in a random order.[2]

There is an outer environment which typesets the label. Inside it you should place the inner environment **and only the inner environment**. Inside this inner environment, you write the contents of your hint. This will typeset the hint number. Finally, you may print the hints at some later location in a randomized order.

2 Usage

If you want your solutions to be scrambled, call

```
\usepackage{scrambledenvs}
```

If you want to disable all scrambling for any reason, call

```
\usepackage[noscramble]{scrambledenvs}
```

`\newscrambledenv` In order to create a new scrambled environment, one should call `\newscrambledenv{envname}`. This requires that the macros `\envname` and `\envnames` be undefined, as well as the counters envnamecount and envnametempcount be undefined, as `\newscrambledenv` will define these.

[1] It can generalize beyond hints, but I thought it best to start off with a specific example..

[2] Though you do have the ability to make the order not random: pass in `noscramble` to the package.

This defines the environments `‘envname‘s` and `‘envname‘`, and the macro `\print‘envname‘`, where `‘envname’` denotes the value passed in to `\newscrambledenv`. Because this will get confusing fast, we will just assume that `‘envname’` is `hint`, since this generalizes quite easily.

Thus in this example, the environments `hints` and `hint` are defined, and the macro `\printhint` is defined.

If any of these macros or counters are defined, the package will throw a custom error.

`hints` This is the outer environment. Depending on how many `hint` environments are put inside it, it will either typeset **Hints:** or **Hint:** with the numerical labels of the passed in hints following it. You should put in nothing but the inner environment `hint`. (See the examples for a correct usage.)

`hint` This is the inner environment. The inner environment `hint` **must** be inside the outer environment `hints`.

`\printhint` To print out the hints (either in a random or fixed order, depending on whether the option `noscramble` is passed in), just write `\printhint`.

Only hints that have not been printed before will be printed. Therefore, in a book, you could write `\printhint` at the end of each chapter to get end-of-chapter hints.

2.1 Formatting

There are five pieces of configurable formatting. They are roughly ordered by the order they would appear in a document.

`\hintlabel` First is the label “Hint(s)” which gets printed by the outer environment `hints`. Capitalization and singular/plural form is automatically taken care of. To change it, write `\hintlabel{new label}` to get “New label(s)” as the new label.

By default the label is the environment name capitalized. This may be useful if your environment names are shortened: for instance, you could change the label of `solu` to “Solution(s)” instead.

`\hintlabelfont` Second is the font of the label. To change it, write `\hintlabelfont{new label font}` to apply the new font. By default the font applied is `\bfseries`.

Because this macro only takes in one argument, it is advisable to use `\bfseries` instead of `\textbf`, for instance.

`\hintreffont` Sets the font of the numerical references the follows the label.

If you are using hyperref and you are using the `colorlinks` option: because the references are generated with `\ref`, you must change hyperref colors in order to change the color. `\color` will not work. Otherwise `\color` will work.

`\hintprintenv` When the randomized hints are printed at the end, the actual printed contents are wrapped around an environment. By default the beginning of the environment is `\begin{enumerate}` and the end is `\end{enumerate}`.

To change these, write `\hintprintenv{new env beginning}{new env ending}`.

`\hintprintitem` Each item of the randomized hints is printed with `\hintprintitem` at the beginning. By default it is `\item`.

The way this is defined also allows for changing the font of the output. So if you want to bold the hint text, you could write `\hintprintitem{\bfseries\item}`.

You may also change the defaults of all these pieces **except the label** with the following macros. (The names of these macros make it impossible to pass in `\newscrambledenv{default}`, but there is no reason to do such a thing anyway.)

If, at any point, you change the defaults, **all** fonts/formats that have not been custom-set will be changed, including those of previously defined scrambled environments.

Usage is identical to configuring formatting for specific scrambled environments.

`\defaultlabelfont` Changes the default label font.

`\defaultreffont` Changes the default reference font.

`\defaultprintenv` Changes the default print environment.

`\defaultprintitem` Changes the formatting of the default print item.

3 Examples

In all of the examples, we use `hint` as our generic scrambled environment.

3.1 A barebones example

```
\documentclass{article}
\usepackage{scrambledenvs}
\newscrambledenv{hint}

\begin{document}
This is a really hard problem, so we provide hints.\begin{hints}
\begin{addhint}
This is a helpful hint.
\end{addhint}
\begin{addhint}
And another one!
\end{addhint}
\end{hints}

\section{Hints printed}

\printhint

\end{document}
```

3.2 Changing hint formatting

Changing default formatting is identical, except there is no way to change the label. (We do not include the document body since we have already shown how that works.)

```
\documentclass{article}
\usepackage{scrambledenvs}
\usepackage{xcolor}
```

```
\newscrambledenv{hint}
\hintlabel{tip}
\hintlabelfont{\textit}
\hintreffont{\color{blue}\bfseries}
\hintprintenv{\begin{enumerate}\small}{\end{enumerate}}
\hintprintitem{\bfseries\item}
```

3.3 Changing hintreffont color: hpyerrefs colorlink

Since we are using `\ref` to typeset labels (which are set with `\label`), if we use `colorlinks` from package `hyperref` we must locally change the linkcolor in order to change the color the numbers are typeset in.

```
\documentclass{article}
\usepackage{scrambledenvs}
\usepackage{xcolor}
\usepackage{hyperref}
\hypersetup{colorlinks}
\newscrambledenv{hint}
\hintreffont{\hypersetup{linkcolor=blue}}
```

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Numbers written in italic refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; numbers in roman refer to the code lines where the entry is used.

Change History