

# The `tikzpeople` package

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## Abstract

This package provides people shaped pgf-shapes to be used in `TikZ` pictures. Given that the the only thing this package does is providing new node shapes for `TikZ`, it should probably be a `TikZ` library. It isn't, it's a package instead, so deal with it.

The package probably has many problems and is nowhere near optimal, but if you find it useful, feel free to use it anyway.

## 1 Introduction

Let me start with a word of warning: The node-shapes defined by this package are heavily influenced by a type of clip art included in the `Microsoft Visio` software. I am by no means an expert on copyright law and as such can make no claim under which circumstances using these shapes might infringe on Microsoft's copyright. I do not expect that there are any problems, but be aware of this. Let's consider this package an homage to the great design of those `Visio` clip arts and get on with our lives.

### 1.1 Intended Usecase

If you are confused about any of the packages design choices, the original use-case the package was written for might serve as an explanation. The package was originally written to provide me with shapes of people to depict parties in cryptographic protocols and security definitions on beamer slides. An example of this can be seen in Figure 1. If this intended use-case does not resolve your confusion with any weird behavior or design choice, then chances are good that I made a mistake or just did not know any better. If you spot a mistake or know how to do something in a saner way, shoot me a message to let me know.

### 1.2 Installation

To install the package just drop the `tikzpeople.sty` file and all the shape files, i.e. `tikzpeople.shape.<shapename>.sty`, somewhere `LATEX` can find them. You might for example put them in your local `texmf` tree at `~/texmf/tex/latex/tikzpeople/`.

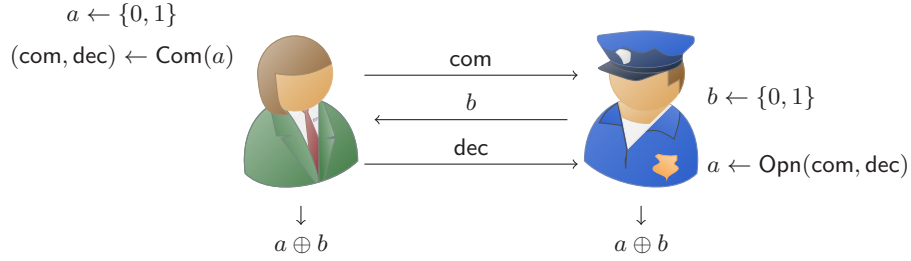


Figure 1: A secure coin flipping protocol constructed from bit commitment.

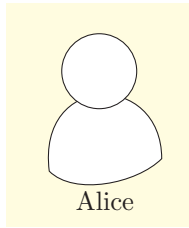
Alternatively simply drop all the files into the folder where your main .tex file resides.<sup>1</sup>

## 2 Usage

To use the `tikzpeople` shapes, just write `\usepackage[⟨/⟩options]{tikzpeople}` somewhere in the preamble of your document.

### 2.1 Package Options

**draft** The package has three global options. Compiling a document with many `tikzpeople` nodes can be very slow. This is especially true for some of the node shapes that make heavy use of `TikZ` decorations. To make documents compile faster during the drafting stage, the **draft** option is available. In draft mode all `tikzpeople` nodes are only drawn as simple outlines.



```
\node[alice,minimum size=1.5cm] {Alice};
```

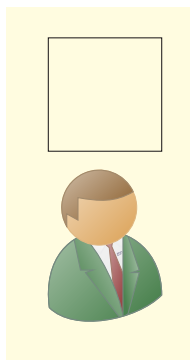
**demo** The **demo** option loads the package in demo mode, introducing additional commands. These commands `\alltikzpeople` and `\tikzpeoplecolors` explained below are not meant for productive use. They are useful for showcasing the available shapes with different node options and getting information for customizing colors.

**nobeards** The **nobeards** option removes all beards from `tikzpeople` nodes. In particular, `tikzpeople` marked as evil no longer have goatees. This option exists because I have been informed that having evil `tikzpeople` with goatees is very insensitive and discriminatory against people with goatees. For a little bit of petty defiance, this option also removes Santa's beard.

<sup>1</sup>Do not use a subfolder. While you can refer to the package itself in a hackish way using a relative path, `LATEX` won't be able to find the shape files.

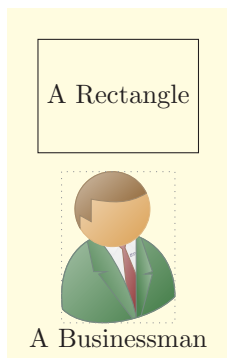
## 2.2 Available Shapes

Once the package is loaded, any of the defined shapes can be used as the shape of any TikZ node just like any other predefined shape.



```
\node[draw,rectangle,minimum size=1.5cm] at (0,2) {};  
\node[businessman,minimum size=1.5cm] at (0,0) {};
```

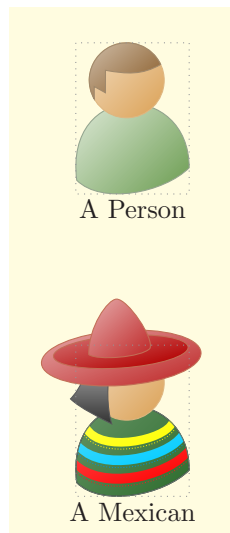
However, it should be noted that in many respects the nodes behave quite differently from standard node shapes. First, the nodes are drawn and filled, whether `draw` and `fill` are specified or not, because – quite frankly – if you do not want to draw the node, then the `tikzpeople` are quite useless to you. Another area where the behavior might be unexpected to the experienced TikZ user is concerning the node text.



```
\node[draw,rectangle,minimum size=1.5cm] at (0,2) {A  
  Rectangle};  
\node[businessman,minimum size=1.5cm] (B) at (0,0) {A  
  Businessman};  
\draw[gray,dotted] (B.north west) rectangle (B.south  
  east);
```

The text appears below the actual node, not within and the width of the text influence neither the drawn shape nor any of the border anchors. The reason for this is that in the intended usecase, the node text – if present at all – is simply a label and is not supposed to influence the size or behavior of the node.

Another oddity of the `tikzpeople` shapes is that the border anchors and size of the node only takes into consideration the underlying shape of a person, and nothing of the – sometimes much larger – stuff such as hats added by some of the shapes.



```
\node[person,minimum size=1.5cm] (B) at (0,4) {A
  Person};
\draw[gray,dotted] (B.north west) rectangle (B.south
  east);
\node[mexican,minimum size=1.5cm] (M) at (0,0) {A
  Mexican};
\draw[gray,dotted] (M.north west) rectangle (M.south
  east);
```

Again, the reason for this is that two shapes specified to have the same size, should behave like two people of same size. If for example `minimum width` would take the actual width into consideration, then the Mexican would be much smaller than the person.

While all of these oddities are useful to me and in my specific usecase, they may cause problem for you in any number of ways. So if you don't think you will be able to cope with them, I suggest you stop reading and look elsewhere for people-shaped TikZ nodes.

## 2.3 The Available Shapes

`\alltikzpeople` If the package is loaded with the `demo` option, all provided shapes can easily be viewed using the `\alltikzpeople{<width>}{<options>}` command. The command takes two arguments. The first argument specifies the `minimum size` of the drawn nodes in centimeters, the second argument is a comma separated list of options passed to each node. The command then produces figures such as Figure 2 and Figure 3, which were produced using the command `\alltikzpeople{1.5}{}`. The starred version of the command does exactly the same but omits the name of the shapes.

`\alltikzpeople*`

## 2.4 General Node Options

A number of options can be used to influence the appearance of `tikzpeople`. These options are explained here in alphabetical order. Not all nodes are affected by all options. This is the case if the option is either simply not applicable or if I have not found a way to make it look not weird.

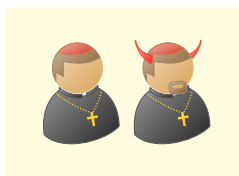
`evil` The `evil` option is supposed to make nodes look more evil than usual. For most `tikzpeople` this is accomplished by adding horns and a goatee.

 alice	 bob	 bride	 builder
 businessman	 charlie	 chef	 conductor
 cowboy	 criminal	 dave	 graduate
 groom	 guard	 jester	 judge

Figure 2: All available characters with minimum width=1.5cm and no additional options. (Part 1 of 2)

 mexican	 nun	 nurse	 physician
 pilot	 police	 priest	 sailor
 santa	 surgeon		

Figure 3: All available characters with minimum width=1.5cm and no additional options. (Part 2 of 2)



```
\node[priest,minimum size=1cm,xshift=-1.2cm]{};
\node[priest,evil,minimum size=1cm]{};
```

This is especially useful to depict attackers in a cryptographic or security setting. Unaffected by this option are: **guard**, **santa**.

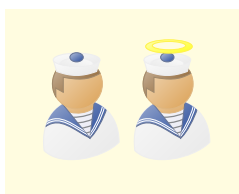
**female** The **female** option is supposed to make stereotypically male nodes look just a tad more feminine. For most tikzpeople this is accomplished by adding longer hair and losing the beard – though surprisingly, evil women still tend to have a goatee.



```
\node[conductor,minimum size=1cm,xshift=-1.2cm]{};
\node[conductor,female,minimum size=1cm]{};
```

This is useful to avoid being called sexist for not having women in you figures. On the other hand people can now accuse you of enforcing gender stereotypes. So have fun. Unaffected by this option are: **alice**, **bride**, **guard**, **judge**, **nun**, **pilot**.

**good** The **good** option is supposed to make nodes look extraordinarily good. For most tikzpeople this is accomplished by adding a halo.



```
\node[sailor,minimum size=1cm,xshift=-1.2cm]{};
\node[sailor,good,minimum size=1cm]{};
```

This could be useful to, e.g., depict a trusted party in a security context. Unaffected by this option are: **guard**, **mexican**, **santa**.

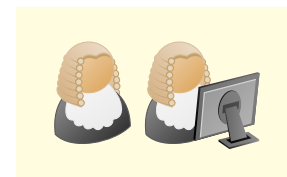
**mirrored** The **mirrored** option makes nodes face to the left instead of the right.



```
\node[graduate,minimum size=1cm,xshift=-1.2cm]{};
\node[graduate,mirrored,minimum size=1cm]{};
```

I'm sure you will figure out the usefulness of this option on you own.

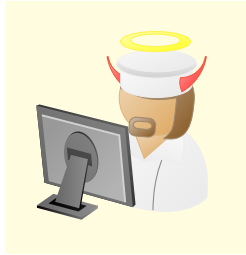
**monitor** The **monitor** option draws a monitor in front of the node.



```
\node[judge,minimum size=1cm,xshift=-1.2cm]{};
\node[judge,monitor,minimum size=1cm]{};
```

This could be useful to emphasize that parties are actually using a computer and not doing complex computations in their head.

All of these options can be arbitrarily combined. So, e.g., good `tikzpeople` can very well be `evil` at the same time.



```
\node[chef,evil,female,good,mirrored,monitor,
      minimum size=1.5cm]{};
```

## 2.5 Color Options

Almost all the colors used in the `tikzpeople` shapes can be specified separately. So if you feel, that you do not need a simple priest, but a cardinal instead, just take the priest, make the shirt and hat red and give him gray hair and we have a decent approximation of a cardinal.<sup>2</sup>



```
\node[priest, shirt=red, hat=red, hair=gray, minimum
      size=1.5cm]{};
```

Similarly, maybe what we actually need is a monk.<sup>3</sup>



```
\node[priest,shirt=brown, hat=skin, cross=gray,
      collar=brown, minimum size=1.5cm]{};
```

What I'm trying to get across is, using changes in coloring, we get tons of additional options for different kinds of `tikzpeople` we can draw.

`\tikzpeoplecolors`

If the package is loaded with the `demo` option, you can use the command `\tikzpeoplecolors{<shapename>}` to produce a figure giving you an idea, which color keys can be used for which shape. For your convenience, all of those figures are included in Appendix A.

<sup>2</sup>In my defense, I'm not catholic, so I might be missing something crucial about cardinals. Rest assured that I meant no disrespect.

<sup>3</sup>Again, I do not know much about monks...



### 2.5.1 Known Problems

There is some weird behaviour if you try to mix colors when setting color options. Say we want a policeman with a light purple jacket<sup>4</sup> and we mix purple from 25% blue and 50% red by setting `shirt=red!50!blue!50`. Here we get some cryptic error messages, that seem to have to do with the fact that the colors are once again mixed for the style of the jacket to produce a nice shading. I'm unsure why it fails. If we set `shirt=red!50!blue!100` to get a deep purple, we do not get an error, but there is no shading. Whatever the cause, in both cases we get the expected result by adding an additional exclamation mark to the end, though I'm not sure why.



```
\node[police,shirt=red!50!blue!50!,  
      hat=red!50!blue!50!, minimum size=1.5cm]{};
```



```
\node[police,shirt=red!50!blue!100!,  
      hat=red!50!blue!100!, minimum size=1.5cm]{};
```

## 2.6 Anchors

Basically all standard anchors for nodes exist also for `tikzpeople` nodes. However, as mentioned before, most of them are not influenced by the node text. Basically the only anchors that depend on the node text are the `text`, `base`, and `mid` anchors. Furthermore, the anchors only take into account the basic shape of the person, not any of the – possibly much larger – additions such as hats. As a reference, Figure 4 and Figure 5 show all the anchors of `businessman` and `guard` nodes.

A special anchor is the `mouth` anchor. In conjunction with TikZ's `callout` shapes this anchor allows to easily depict talking `tikzpeople`.

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<sup>4</sup>Wouldn't those guys seem much more approachable and friendly? Just think about it.





```
\node[name=a,shape=police,minimum
      size=1cm,xshift=-1.25cm] {};
\node[name=b,shape=criminal,minimum
      size=1cm,mirrored,xshift=1.25cm] {};
\node[ellipse callout, draw,yshift= .3cm,
      callout absolute pointer={a.mouth},
      font=\tiny] {Hey!};
\node[ellipse callout, draw, yshift=-.3cm,
      callout absolute pointer={b.mouth},
      font=\tiny] {What?};
```

## 2.7 Messing with PGF Internals

When using several of the `decoration` heavy `tikzpeople`, the package runs into errors in the internals of `pgf`. Namely into “Dimension too large” errors in the `\pgfmath@function@veclen` command. Apparently this happens because we are working with numbers that are too small. As per this [TeX-stackexchange](http://tex.stackexchange.com/a/20888/15636) answer <http://tex.stackexchange.com/a/20888/15636>, `tikzpeople` redeclares `\pgfmath@function@veclen` with a fixed version.

## Appendix A Color Options

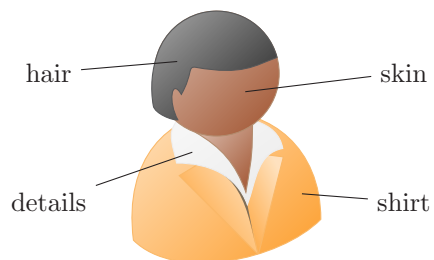


Figure 6: The available color-keys for `alice tikzpeople`.

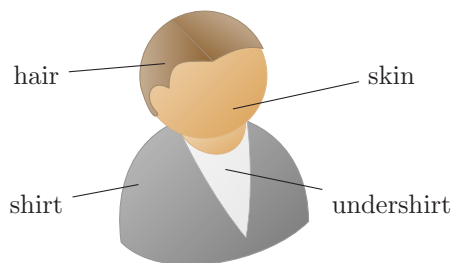


Figure 7: The available color-keys for `bob tikzpeople`.

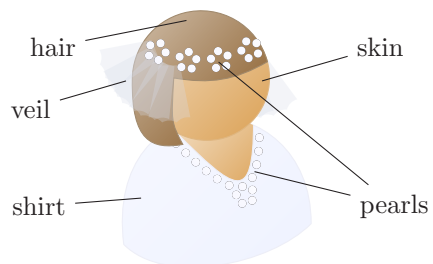


Figure 8: The available color-keys for `bride tikzpeople`.

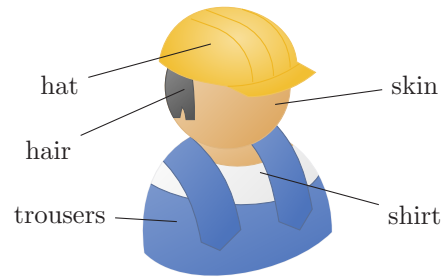


Figure 9: The available color-keys for **builder** tikzpeople.

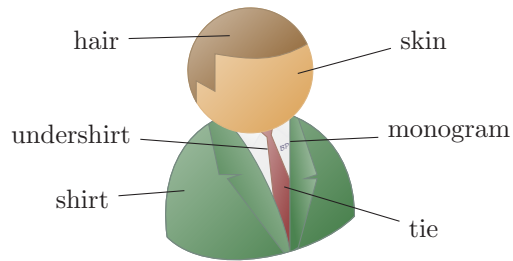


Figure 10: The available color-keys for **businessman** tikzpeople.

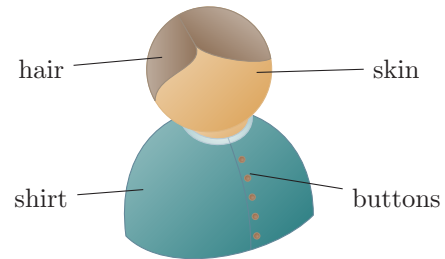


Figure 11: The available color-keys for **charlie** tikzpeople.

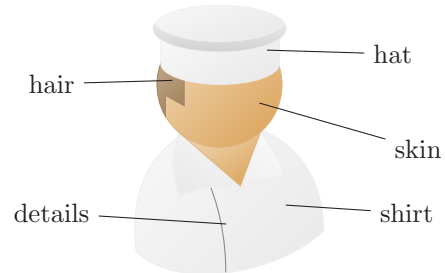


Figure 12: The available color-keys for **chef** tikzpeople.

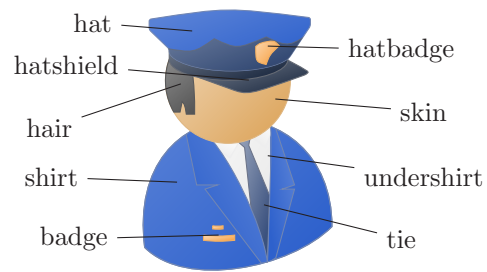


Figure 13: The available color-keys for **conductor** tikzpeople.

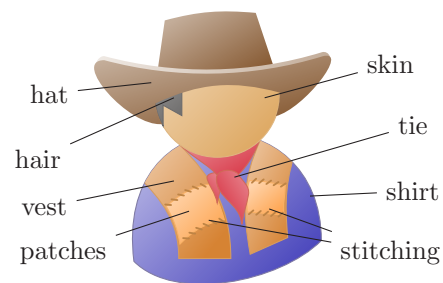


Figure 14: The available color-keys for **cowboy** tikzpeople.

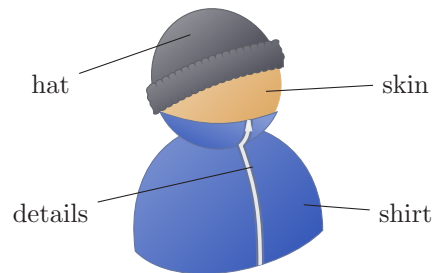


Figure 15: The available color-keys for **criminal** tikzpeople.

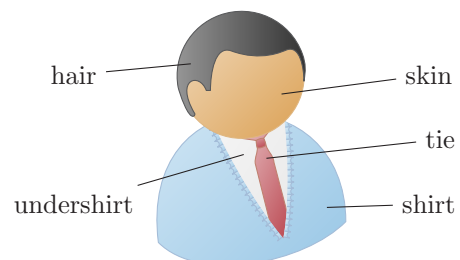


Figure 16: The available color-keys for **dave** tikzpeople.

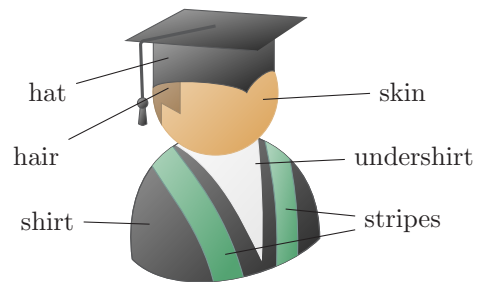


Figure 17: The available color-keys for **graduate** tikzpeople.

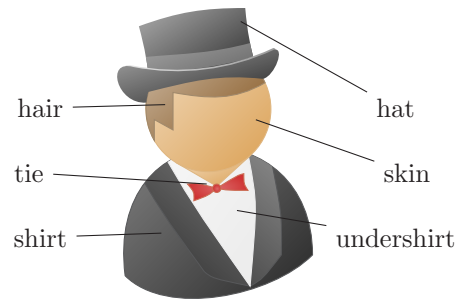


Figure 18: The available color-keys for **groom** tikzpeople.

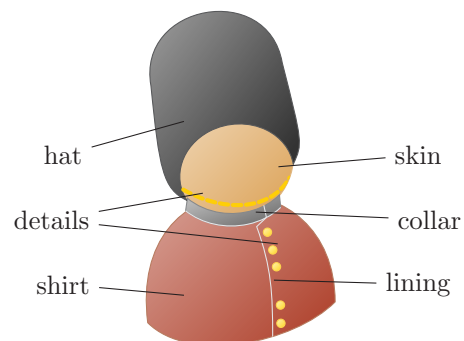


Figure 19: The available color-keys for **guard** tikzpeople.

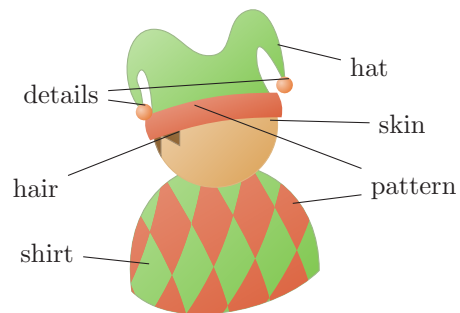


Figure 20: The available color-keys for `jester` tikzpeople.

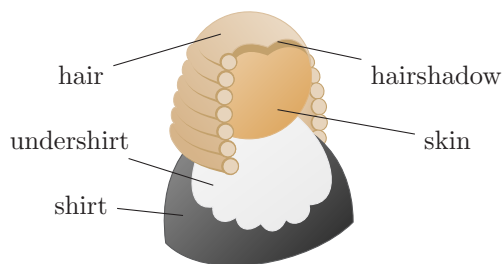


Figure 21: The available color-keys for `judge` tikzpeople.

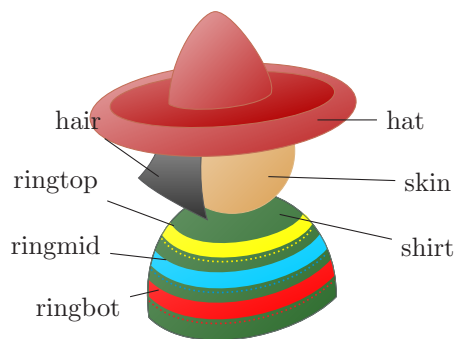


Figure 22: The available color-keys for `mexican` tikzpeople.



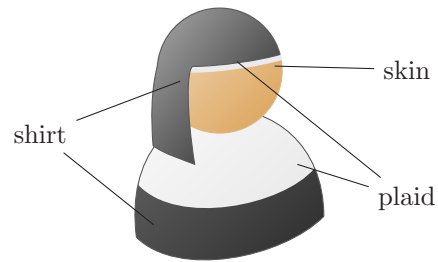


Figure 23: The available color-keys for `nun` tikzpeople.

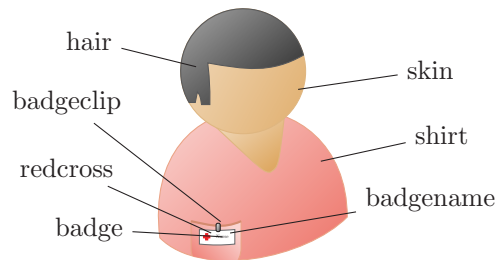


Figure 24: The available color-keys for `nurse` tikzpeople.

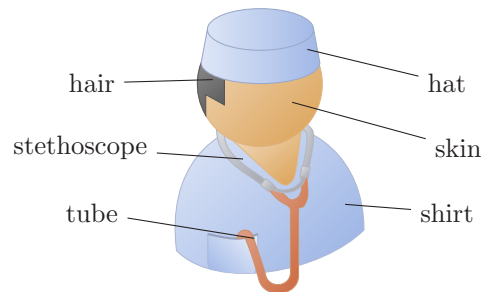


Figure 25: The available color-keys for `physician` tikzpeople.

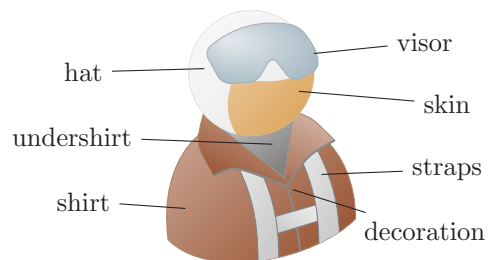


Figure 26: The available color-keys for `pilot` tikzpeople.

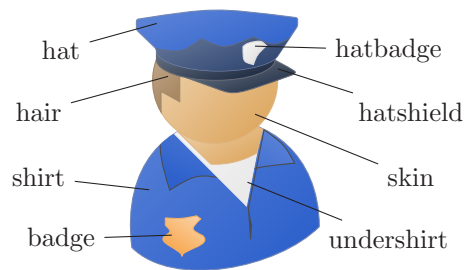


Figure 27: The available color-keys for **police** tikzpeople.

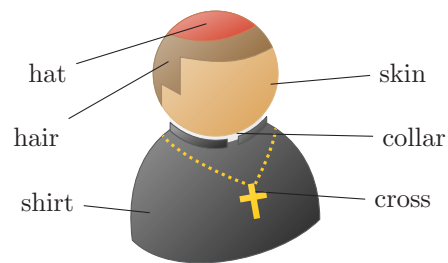


Figure 28: The available color-keys for **priest** tikzpeople.

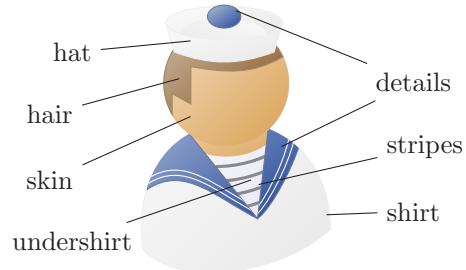


Figure 29: The available color-keys for **sailor** tikzpeople.

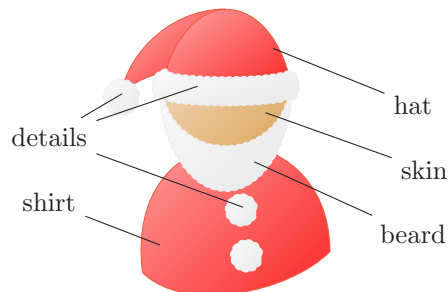


Figure 30: The available color-keys for **santa** tikzpeople.

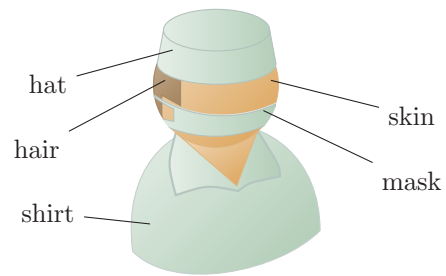


Figure 31: The available color-keys for `surgeon tikzpeople`.