The package TooYoung

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Abstract

The short package TooYoung (no more than 150 lines) provides an easy way to draw Young tableaux. This passage is to present all the functions of this package.

Contents

1 Boxes

One can make Young tableaux by `\Young` as following.

```
$\Young{1&2&3&4\\5&6&7\\8&9}$
```

1	2	3	4
5	6	7	
8	9		

One can convert it into French convention by using `\FYoung`.

```
$\FYoung{1&2&3&4\\5&6&7\\8&9}$
```

8	9		
5	6	7	
1	2	3	4

If one suddenly wants to convert all young diagrams in his article, use `\Frenchstyletrue` globally.

One can make spaces by using square brackets as following.

```
$\Young{[]&2&3&4\\5&6&[7]\\8&9}$
```

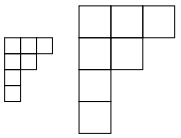
	2	3	4
5	6	7	
8	9		

Exercise 1 *Type this Robinson Schensted Knuth Algorithm*

				←	
1	2	2	3		2
2	3	5	5		
4	4	6			
5	6				

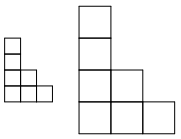
One can also input Young diagrams by its type through `\yng` and `\Yng`.

```
$\yng(3,2,1,1)$$\Yng(3,2,1,1)$
```



So are `\fyng` and `\FYng`.

```
$\fyng(3,2,1,1)$$\FYng(3,2,1,1)$
```



2 Options

The size of boxes and the thickness of lines are customizable.

```
\Youngwidth    1pc
\Youngheight   1pc
\Youngvline    0.2pt
\Younghline    0.2pt
```

Exercise 2 *Type this Young tabloid.*

1	2	3	4
5	6	7	
8	9		

The font in the box can be easily changed by redefining `\Fontinbox`.

```
$\def\Fontinbox#1{\sf#1}
\Young{a&b\\c}$
```

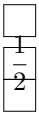
a	b
c	

Exercise 3 *Type this periodic table.*

H							He
Li	B	Be	C	N	O	F	Ne
Na	Mg	Al	Si	P	S	Cl	Ar
K	Ca						

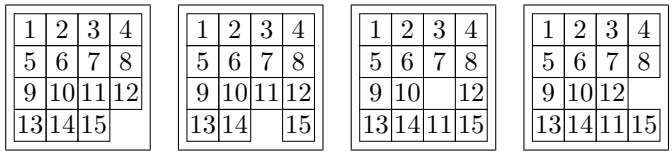
Exercise 4 *How to adjust this ugly tableaux?*

```
$\Young{\\\displaystyle
\frac{1}{2}\\}$
```

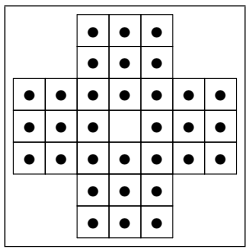


The commends `\Young` and `\FYoung` are protected in the environment `array`, so it adds satisfactory space and adjusts to suitable depth. Sometimes, use more original `\young` and `\fyoung` may be helpful.

Exercise 5 *Type the following 1415 puzzle.*



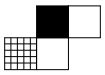
Exercise 6 *Type the following peg solitaire.*



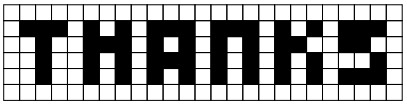
3 Effects

The package provides two effects `\hole` and `\shadow`.

```
$\Young{[]&\hole&\\\shadow&}$
```



Exercise 7 *Thanks for reading and type this*



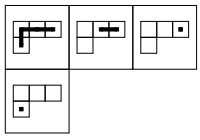
It also provides `\hook` to draw hooks.

```
$\Young{\hook[rd]&\\\hook[c]}$
```

The thickness is parameterized by

```
\Youngvhook  1.6pt
\Younghhook  1.6pt
```

Exercise 8 *Type this hook length formula.*



4 Answers

Exercise 1

```
$$\Young{1&2&2&3&[\leftarrow]&2\\2&3&5&5\\4&4&6\\5&6}$$
```

Exercise 2

```
$$\setlength\Youngvline{0pt}\Young{1&2&3&4\\5&6&7\\8&9}$$
```

Exercise 3

```
$$\setlength\Youngwidth{1.5pc}\setlength\Youngheight{1.5pc
\setlength\Younghline{2pt}\setlength\Youngvline{2pt}
\Young{H&[]&[]&[]&[]&[]&[]&He\\
Li&B&Be&C&N&O&F&Ne\\Na&Mg&Al&Si&P&S&Cl&Ar\\
K&Ca}$$
```

Exercise 5

```
$$\fbox{\young{1&2&3&4\\5&6&7&8\\9&10&11&12\\13&14&15}}
\quad\fbox{\young{1&2&3&4\\5&6&7&8\\9&10&11&12\\13&14&[]&1
\quad\fbox{\young{1&2&3&4\\5&6&7&8\\9&10&[]&12\\13&14&11&1
\quad\fbox{\young{1&2&3&4\\5&6&7&8\\9&10&12&[]\\13&14&11&1
$$
```

Exercise 6

```
$$\fbox{\young{[]&[]& \bullet&\bullet&\bullet\\
[]&[]& \bullet&\bullet&\bullet\\
\bullet&\bullet&\bullet&\bullet&\bullet&\bullet&\bullet\\
\bullet&\bullet&\bullet&&\bullet&\bullet&\bullet\\
\bullet&\bullet&\bullet&\bullet&\bullet&\bullet&\bullet\\
[]&[]& \bullet&\bullet&\bullet\\
[]&[]& \bullet&\bullet&\bullet
}}$$
```

Exercise 7

```
$$\setlength\Youngwidth{0.5pc}\setlength\Youngheight{0.5pc
&\hole&\hole&\hole&&\hole&&\hole&&\hole&\hole&\hole&&\hole
&&\hole&&&\hole&\hole&\hole&&\hole&&\hole&&\hole&&\hole&&\
&&\hole&&&\hole&&\hole&&\hole&\hole&\hole&&\hole&&\hole&&\
&&\hole&&&\hole&&\hole&&\hole&&\hole&&\hole&&\hole&&\hole&
&&&&&&&&&&&&&&&&&&&&&&&&&&}$$
```

Exercise 8

```
$$\setlength{\Youngwidth}{2pc}\setlength{\Youngheight}{2pc
\def\Fontinbox#1{\setlength{\Youngwidth}{0.5pc}\setlength{
\young{\young{\hook[dr]&\hook[lr]&\hook[l]\\\hook[u]}&
\young{&\hook[r]&\hook[l]\\}&
\young{&&\hook[c]\\}\\
\young{&&\\\hook[c]}
}$$
```

5 Comments

In the package, I used a lot of "dirty technique" in coding. If you know some references providing the TEX way which is not dirty, please inform me.

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Comments and criticisms are welcome!