

PixelArtTikz [en]

PixelArts, with TikZ,
with solution and colors.

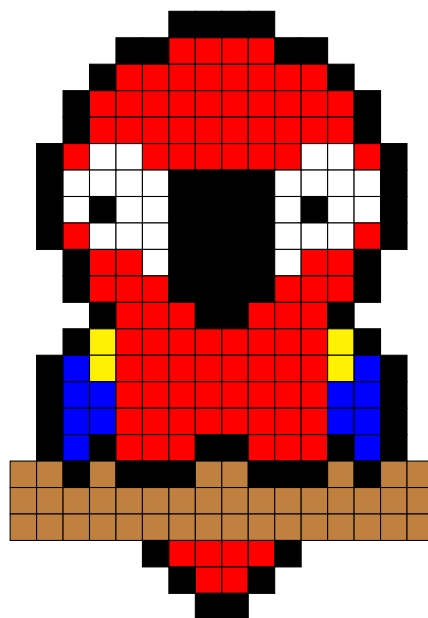
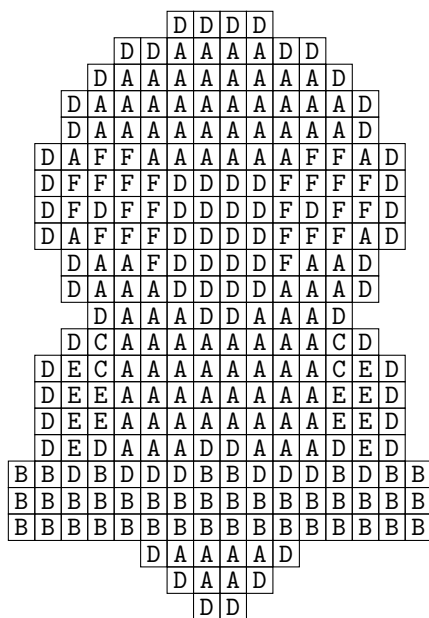
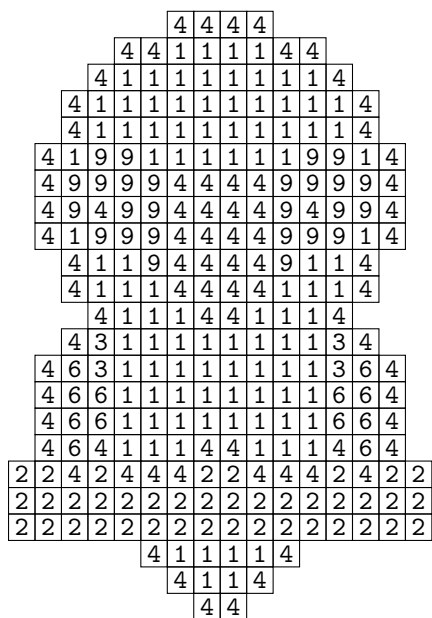
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<https://github.com/cpierquet/latex-packages/tree/main/pixelarttikz>

- Commands to display PixelArts.
- Environment to complete the PixelArt.



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Part I

Introduction

1 The package PixelArtTikz

1.1 Introduction

The idea is to *propose*, within a *TikZ* environment, a macro to generate PixelArt.

The data is *read* from a *csv* file, already existing in the folder of the *tex* file, or created on-the-fly by *filecontents*.

Some advices about the *csv* file:

- the *csv* file must use `"`,`"` as separator;
- empty cells are coded by `"-"`.

```
\begin{filecontents*}{filename.csv}
A,B,C,D
A,B,D,C
B,A,C,D
B,A,D,C
\end{filecontents*}
```

Code *LaTeX*

While compiling, the file *filename.csv* will be created, and the option `<[overwrite]>` will propagate the modifications!

1.2 Loading of the package, and option

The package *csvsimple* is necessary in order to read the *csv* file.

The package is available in two versions, one written in *LaTeX 2_ε* and the other in *LaTeX 3*. By default, *PixelArtTikz* loads the *LaTeX 3* version, but an *option* is available to work with the *LaTeX 2_ε* version.

The option `<[csvii]>` forces the usage of the *LaTeX 2_ε* version.

```
\usepackage{PixelArtTikz}           %package latex3
%which loads
%\RequirePackage{expl3}
%\RequirePackage[13]{csvsimple}

\usepackage[csvii]{PixelArtTikz}    %package latex2
%which loads
%\RequirePackage[legacy]{csvsimple}
```

Code *LaTeX*

1.3 Used packages

It's fully compatible with usual *LaTeX* engines, such as *latex*, *pdflatex*, *lualatex* or *xelatex*.


It loads the following packages and libraries:

- *tikz*, *xintexpr* et *xinttools*;
- *xstring*, *xparse*, *simplekv* and *listofitems*.

1.4 Macros and environment

There are two ways to create PixelArt:

- with an independent macro;
- with a TikZ environment in order to add code afterwards.

Code 

```
%Independent macro
\PixelArtTikz[keys]<options tikz>{file.csv}

%Semi-independent macro, in a tiks environment
\PixelArtTikz*[keys]{file.csv}

%environment
\begin{EnvPixelArtTikz}[keys]<options tikz>{file.csv}
  %tikz code
\end{EnvPixelArtTikz}
```

2 Colors

Concerning colors: the user can use all colors provided by loaded packages!

Without extra packages, the available colors are:

magenta	cyan	blue	green	red	darkgray	olive	lime	brown	lightgray
white	gray	black	yellow	violet	teal	purple	pink	orange	

Part II

Macros and environment

3 Main macro

3.1 Example

The macro `\PixlArtTikz` needs:

- the file `csv`;
- the list (by a string) of codes used in the file `csv` (e.g. 234679 or ABCDJK...);
- the list of symbols (if needed) to print in the cells, e.g. 25,44,12 or AA,AB,AC;
- the list of colors (for the correction), same order as the codes.

We can begin by creating the file `csv`, directly within the `tex` code, or with a external file.

```
%creation of the csv
\begin{filecontents*}[overwrite]{base.csv}
  A,B,C,D
  A,B,D,C
  B,A,D,C
  C,A,B,D
\end{filecontents*}
```

Code \LaTeX

```
%instructions and pixelarts
\begin{center}
  \begin{tblr}{colspec={*{4}{Q[1.25cm,c,m]}};hlines,vlines,rows={1.15em}}
    \SetCell[c=4]{c} Instructions & & & \\
    A & B & C & D \\
    45 & 22 & 1 & 7 \\
    Black & Green & Yellow & Red \\
  \end{tblr}
\end{center}

\PixlArtTikz[Codes=ABCD,Style=\large\sffamily,Unit=0.85]{base.csv}
~~
\PixlArtTikz[Codes=ABCD,Symbols={45,22,1,7},Symb,Style=\large\sffamily,Unit=0.85]{base.csv}
~~
\PixlArtTikz[Codes=ABCD,Colors={black,green,yellow,red},Correction,Unit=0.85]{base.csv}
~~
\PixlArtTikz[Codes=ABCD,Colors={black,green,yellow,red},Correction,Border=false,Unit=0.85]{base.csv}
```

Code \LaTeX

Instructions			
A	B	C	D
45	22	1	7
Black	Green	Yellow	Red

A	B	C	D
A	B	D	C
B	A	D	C
C	A	B	D

45	22	1	7
45	22	7	1
22	45	7	1
1	45	22	7

3.2 Options and keys

```
\PixelArtTikz[keys]<options tikz>{file.csv}
```

Code \LaTeX

The first argument, *optional* and between [...] proposes the keys:

- the key **<Codes>** with the *string* of *simple* codes of the csv file;
- the key **<Colors>** with the *list* of colors;
- the key **<Symbols>** with the *optional list* of alt. symbols for the cells;
- the boolean **<Correction>** to color the PixelArt; default false
- the boolean **<Symb>** to print the symbols; default false
- the boolean **<Border>** to print borders of the cells; default true
- the key **<Style>** to specify the style of the text. default \scriptsize

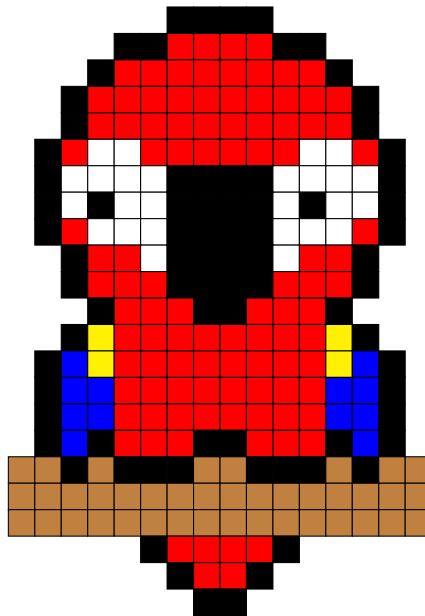
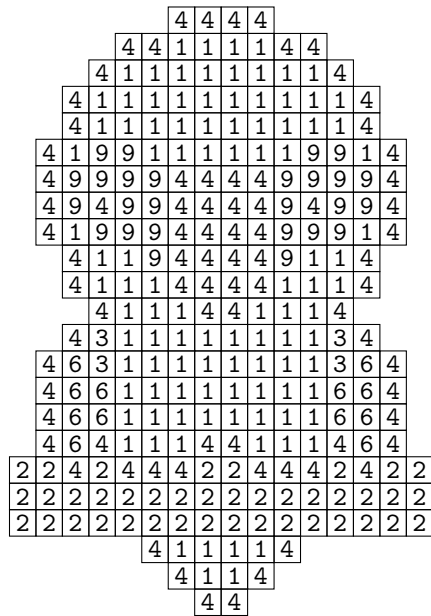
The second argument, *optional* and between <...>, are TikZ options to pass on to the environment which creates the PixelArt.

The third argument, *mandatory*, is the filename of the csv.

```
%creation of the csv
\begin{filecontents*}[overwrite]{test1.csv}
-, -, -, -, -, 4, 4, 4, 4, -, -, -, -, -
-, -, -, -, 4, 4, 1, 1, 1, 1, 4, 4, -, -, -, -
-, -, -, 4, 1, 1, 1, 1, 1, 1, 1, 1, 4, -, -, -
-, -, 4, 1, 1, 1, 1, 1, 1, 1, 1, 1, 4, -, -
-, -, 4, 1, 1, 1, 1, 1, 1, 1, 1, 1, 4, -, -
-, -, 4, 1, 1, 1, 1, 1, 1, 1, 1, 1, 4, -, -
-, 4, 1, 9, 9, 1, 1, 1, 1, 1, 1, 9, 9, 1, 4, -
-, 4, 9, 9, 9, 9, 4, 4, 4, 4, 9, 9, 9, 9, 4, -
-, 4, 9, 4, 9, 9, 4, 4, 4, 4, 9, 4, 9, 9, 4, -
-, 4, 1, 9, 9, 9, 4, 4, 4, 4, 9, 9, 9, 1, 4, -
-, -, 4, 1, 1, 9, 4, 4, 4, 4, 9, 1, 1, 4, -, -
-, -, 4, 1, 1, 1, 4, 4, 4, 4, 4, 1, 1, 1, 4, -, -
-, -, -, 4, 1, 1, 1, 4, 4, 1, 1, 1, 4, -, -, -
-, -, 4, 3, 1, 1, 1, 1, 1, 1, 1, 1, 3, 4, -, -
-, 4, 6, 3, 1, 1, 1, 1, 1, 1, 1, 1, 3, 6, 4, -
-, 4, 6, 6, 1, 1, 1, 1, 1, 1, 1, 1, 1, 6, 6, 4, -
-, 4, 6, 6, 1, 1, 1, 1, 1, 1, 1, 1, 1, 6, 6, 4, -
-, 4, 6, 4, 1, 1, 1, 4, 4, 1, 1, 1, 1, 4, 6, 4, -
2, 2, 4, 2, 4, 4, 4, 2, 2, 4, 4, 4, 2, 4, 2, 2
2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2
2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2
-, -, -, -, 4, 1, 1, 1, 1, 4, -, -, -, -, -
-, -, -, -, 4, 1, 1, 4, -, -, -, -, -
-, -, -, -, 4, 4, -, -, -, -, -, -
\end{filecontents*}
```

Code \LaTeX

```
%simple codes
%empty case with -
\PixelArtTikz[Codes=123469,Style=\ttfamily,Unit=0.35]{test1.csv}
~~
\PixelArtTikz[Codes=123469,Colors={red,brown,yellow,black,blue,white},Correction,Unit=0.35]{test1.csv}
~~
\PixelArtTikz[Codes=123469,Colors={red,brown,yellow,black,blue,white},Correction,Unit=0.35,Border=false]{test1.csv}
```



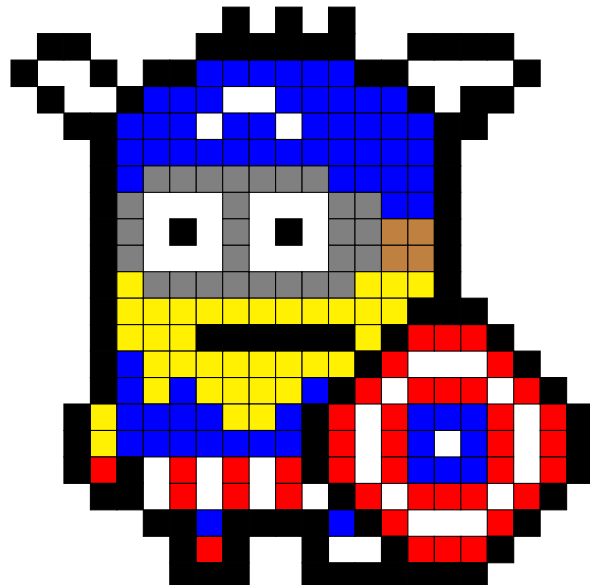
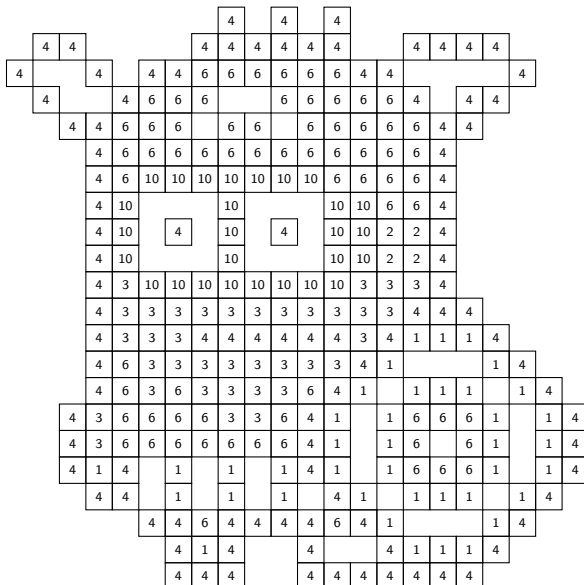
In the following example, the *symbols* to print can't be used for the *codes*, so we can use the keys **⟨Symbols⟩** and **⟨Symb⟩** to bypass this limitation.

Code \LaTeX

```
%symbols associated to codes
```

```
\begin{filecontents*}[overwrite]{cap.csv}
-, -, -, -, -, -, -, D, -, D, -, D, -, -, -, -, -, -, -, 
-, D, D, -, -, -, -, D, D, D, D, D, D, -, -, D, D, D, D, -, -, 
D, -, -, D, -, D, D, F, F, F, F, F, F, D, D, -, -, -, D, -, 
-, D, -, -, D, F, F, F, -, -, F, F, F, F, F, D, -, D, D, -, -, 
-, -, D, D, F, F, F, -, F, F, -, F, F, F, F, F, D, -, -, -, 
-, -, -, D, F, F, F, F, F, F, F, F, F, F, F, D, -, -, -, 
-, -, -, D, F, J, J, J, J, J, J, F, F, F, F, D, -, -, -, 
-, -, -, D, J, -, -, -, J, -, -, -, J, J, F, F, D, -, -, -, 
-, -, -, D, J, -, D, -, J, -, D, -, J, J, B, B, D, -, -, -, 
-, -, -, D, J, -, -, -, J, -, -, -, J, J, B, B, D, -, -, -, 
-, -, -, D, C, J, J, J, J, J, J, J, C, C, C, D, -, -, -, 
-, -, -, D, C, C, C, C, C, C, C, C, C, C, C, D, D, -, -, -, 
-, -, -, D, C, C, C, C, D, D, D, D, D, D, C, D, A, A, A, D, -, -, 
-, -, -, D, F, C, C, C, C, C, C, C, C, D, A, -, -, A, D, -, 
-, -, -, D, F, C, F, C, C, C, C, F, D, A, -, A, A, A, -, A, D, - 
-, -, D, C, F, F, F, F, C, C, F, D, A, -, A, F, F, F, A, -, A, D 
-, -, D, C, F, F, F, F, F, F, F, D, A, -, A, F, -, F, A, -, A, D 
-, -, D, A, D, -, A, -, A, -, A, D, A, -, A, F, F, F, A, -, A, D 
-, -, -, D, D, -, A, -, A, -, A, -, D, A, -, A, A, A, -, A, D, - 
-, -, -, -, D, D, F, D, D, D, D, F, D, A, -, -, -, A, D, -, 
-, -, -, -, D, A, D, -, -, D, -, -, D, A, A, A, D, -, -, 
-, -, -, -, -, D, D, D, -, -, D, D, D, D, D, D, D, -, -, 
\end{filecontents*}

\PixlArtTikz[Codes=ABCDJ,Symbols={1,2,3,4,6,10},Symb,Style=\tiny\sffamily,Unit=0.35]{cap.csv}
~
\PixlArtTikz[Codes=ABCDJ,Colors={red,brown,yellow,black,blue,gray},Correction,Unit=0.35]{cap.csv}
```



3.3 Symbols within list(s)

List of symbols can be given within list(s), picked randomly.

Code \LaTeX

```
\begin{filecontents*}[overwrite]{testlist.csv}
A,B,C,A
A,B,B,C
B,A,C,B
C,A,B,C
\end{filecontents*}

\textbf{Notice:}

Multiples of 5 : red\\
Multiples of 3 : green\\
Multiples of 2 : blue

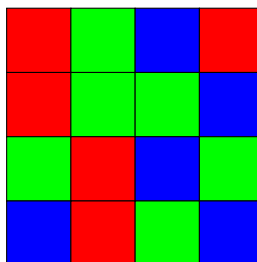
\PixelArtTikz[Codes=ABC,Symbols={5§25§35,3§9§21§27,2§4§8§14§16},Symb,Style=\large\sffamily,Unit=0.85]{testlist.csv}
\hspace{5mm}
\PixelArtTikz[Codes=ABC,Symbols={5§25§35,3§9§21§27,2§4§8§14§16},Symb,Style=\large\sffamily,Unit=0.85]{testlist.csv}
\hspace{5mm}
\PixelArtTikz[Codes=ABC,Colors={red,green,blue},Correction,Style=\large\sffamily,Unit=0.85]{testlist.csv}
```

Notice:

Multiples of 5 : red
 Multiples of 3 : green
 Multiples of 2 : blue

5	9	8	35
35	3	3	8
27	5	8	9
16	35	21	2

35	27	14	25
25	27	21	16
21	35	4	21
2	25	3	8



3.4 Starred macro

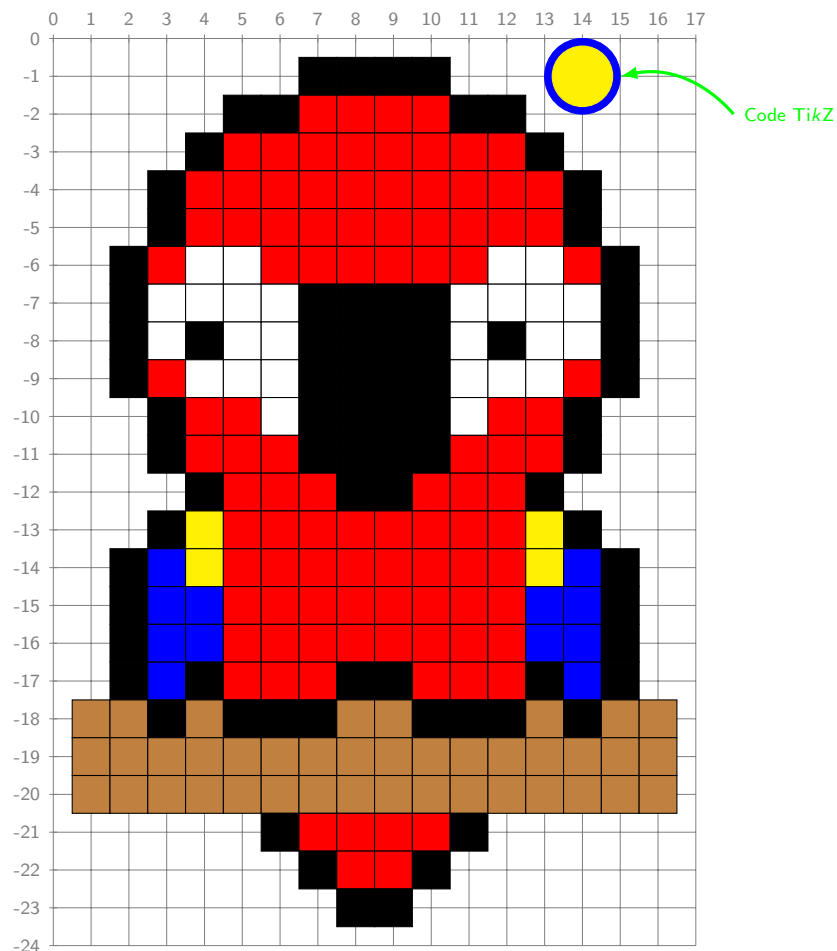
The starred macro `\PixelArtTikz*` is to be used within an already created environment. It can be useful for adding code after the `PixlArt`.

In this case:

- the *optional* argument between `<...>` is discarded;
- the key `\Unit` is discarded too (units can be configured in the environment!)

Code *MT_X*

```
\begin{center}
\begin{tikzpicture}[scale=0.5]
%grid to show positioning
\draw[very thin,gray,xstep=1,ystep=1] (0,0) grid (17,-24) ;
\foreach \x in {0,1,...,17} \draw[very thin,gray] (\x,-3pt)--(\x,3pt)%
node[above,font=\scriptsize\sffamily] {\x} ;
\foreach \y in {0,-1,...,-24} \draw[very thin,gray] (3pt,\y)--(-3pt,\y)%
node[left,font=\scriptsize\sffamily] {\y} ;
%le PixelArt
\PixelArtTikz*[Codes=123469,Colors={red,brown,yellow,black,blue,white},Correction]{test1.csv}
%added code
\filldraw[blue] (14,-1) circle[radius=1] ;
\filldraw[yellow] (14,-1) circle[radius=0.8] ;
\draw[green,very thick,<=>=latex] (15,-1) to[bend left=30] (18,-2)%
node[right,font=\scriptsize\sffamily] {Code Ti\textit{k}Z} ;
\end{tikzpicture}
\end{center}
```



4 PixelArt environment

4.1 Usage

The package PixelArtTikz provides an environment to create a PixelArt and add code afterwards.

- The environment is created within TikZ and additional code is passed on to the TikZ environment!
- The additional code will be printed on top of the PixelArt!

```
\begin{EnvPixlArtTikz}[keys]<options tikz>{filename.csv}
  %tikz code(s)
\end{EnvPixlArtTikz}
```

Code \LaTeX

The first argument, *optional* and between [...], proposes the keys:

- the key **<Codes>** with the *string* of *simple* codes of the csv file;
- the key **<Colors>** with the *list* of colors;
- the key **<Symbols>** with the *optional list* of alt. symbols for the cells;
- the boolean **<Correction>** to color the PixelArt; default false
- the boolean **<Symb>** to print the symbols; default false
- the boolean **<Border>** to print borders of the cells; default true
- the key **<Style>** to specify the style of the text. default \scriptsize

The second argument, *optional* and between <...>, is for TikZ options to be passed on to the environment which creates the PixelArt.

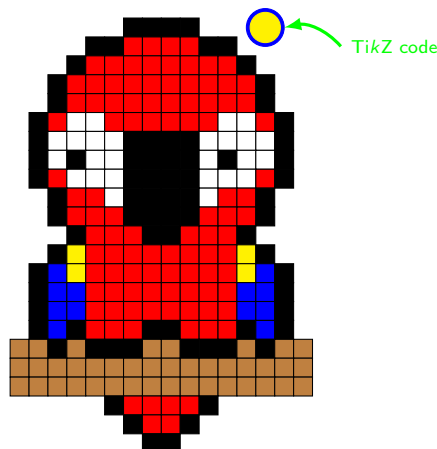
The third argument, *mandatory*, is the filename of the csv.

4.2 Example

The symbols are at the nodes ($c; -l$) where l and c are the row and column of the data in the csv file.

```
\begin{center}
  \begin{EnvPixlArtTikz}%
    [Codes=123469,Colors={red,brown,yellow,black,blue,white},Correction,Unit=0.25]
    {test1.csv}
    \filldraw[blue] (14,-1) circle[radius=1] ;
    \filldraw[yellow] (14,-1) circle[radius=0.8] ;
    \draw[green,very thick,<-,>=latex] (15,-1) to[bend left=30] (18,-2)%
      node[right,font=\scriptsize\sffamily] {Ti\textit{k}Z code} ;
  \end{EnvPixlArtTikz}
\end{center}
```

Code \LaTeX



5 Macro for *mini*-PixelArt

5.1 Idea

The idea is to propose a macro to insert, without csv file, a small PixelArt with small colors list.

```
\MiniPixlArt[keys]{list of colors}
```

Code \LaTeX

The first argument, *optional* and between [...] proposes the keys:

- the key **<Unit>** for dimension of the cells ; default 0.25em,
- the boolean **<Border>** to print a small border for the cells. default false

The second argument, *mandatory* and between {...}, is the colors of the cells :

- each color is *coded* by a letter:

– R: red	– C: blue	– B: black	– .: white	– O: orange
– G: green	– Y: yellow	– L: gray	– M: maroon	– P: purple

- each linebreak is done by ,;
- the thickness of the borders are 10% of the unit.

The last argument, *optional* and between <...>, proposes options for the tikz environment.

5.2 Examples

```
\MiniPixlArt{%  
  .RR..RR..  
  .RRRRRRR..  
  RRRRRRRRRR,  
  RRRRRRRRRR,  
  RRRRRRRRRR,  
  .RRRRRRR..  
  ..RRRRR..  
  ...RRRR...  
  ....RR....  
}
```

Code \LaTeX



Inline, we can give `\MiniPixlArt[Unit=5mm,Border]{BCGOYG,YLP.BR}<baseline=(current bounding box.center)>` this miniPA.

Code \LaTeX

Inline, we can give



this miniPA.

6 Macro for cutting PixelArt

6.1 Idea

The idea is to offer commands to create *collaborative* PixelArts, to form a *large* image from several small ones (of the same size).

☛ For practical reasons (related to the use of `filecontents`) the file `csv` must end with an empty line (it is created automatically via `filecontents`, and the code uses this specificity).

The available **<keys>** are exactly the same as those in classic displays.

6.2 Global usage

The argument `cutting` can be given in the form:

- **<number of block length>x<number of block col>** to specify the size of the blocks;
- **<number of V blocks>+<number of H blocks>** to specify the number of blocks.

Code \LaTeX

```
\CutPixlArtTikz(*)[keys]<tikz options>{file.csv}{cutting}
%(*) := change layout formatting (A1 or 1.1)
%1 := keys
%2 := tikz options
%3 := csv file
%4 := block size (LxC) or block number (L+C)

\HelpGridPixelArtTikz(*)[scale]{file.csv}{cutting}
%(*) := change layout formatting (A1 or 1.1)
%1 := scale of notice
%2 := csv file
%4 := block size (LxC) or block number (L+C)
```

6.3 Example

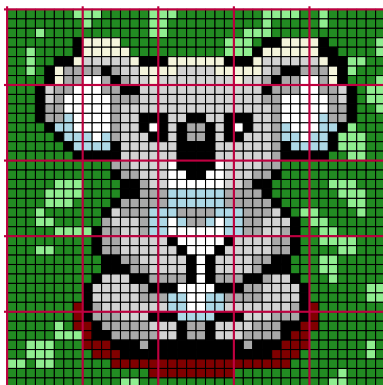
Code \LaTeX

```
\def\listcoulkoala%
{VertForet,Noir,GrisClair,GrisFonce,Beige,Blanc,BleuClair,VertClair,Marron}
```

Code \LaTeX

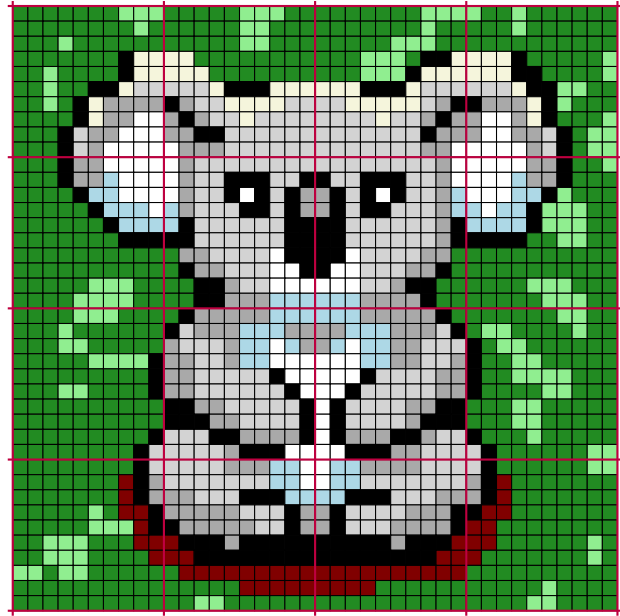
```
%block with 8x8 size
\HelpGridPixelArtTikz{PAkoala.csv}{8x8}
~~
\PixlArtTikz[Correction,Unit=0.125,Codes=ABCDEFGHI,Colors={\listcoulkoala},Grid=8x8]{PAkoala.csv}
```

A1	A2	A3	A4	A5
B1	B2	B3	B4	B5
C1	C2	C3	C4	C5
D1	D2	D3	D4	D5
E1	E2	E3	E4	E5



```
%16 blocks (4L 4C)
\HelpGridPixelArtTikz*[2]{PAkoala.csv}{4+4}
~~
\PixelArtTikz[Correction,Unit=0.2,Codes=ABCDEFGHI,Colors={\listcoulkoala},Grid=4+4]{PAkoala.csv}
```

1.1	1.2	1.3	1.4
2.1	2.2	2.3	2.4
3.1	3.2	3.3	3.4
4.1	4.2	4.3	4.4



```
%block with 8x8 size
```

```
\CutPixlArtTikz[Unit=0.3,Codes=ABCDEFGHI]{PAkoala.csv}{8x8}
```

Sample A1

A	A	A	A	A	A	A	H
A	A	A	A	A	A	A	A
A	A	A	H	A	A	A	A
A	A	A	A	A	A	B	
A	A	H	A	A	A	B	
A	A	H	A	A	B	B	E
A	A	H	A	B	E	D	D
A	A	A	A	B	E	D	D

Sample A2

H	H	A	A	A	A	A	H
H	A	A	A	A	A	A	H
A	A	A	A	A	A	A	A
E	E	E	E	A	A	A	A
E	E	E	E	E	A	A	A
C	C	C	C	C	E	B	B
D	D	B	D	C	C	E	E
F	F	D	B	D	C	C	E

Sample A3

H	H	A	A	A	A	A	A
H	A	A	A	A	A	A	A
H	A	A	A	A	A	A	A
A	A	A	A	A	A	A	H
A	A	A	A	A	A	A	H
B	E	E	E	E	E	E	B
E	E	C	C	C	C	E	E
C	C	C	C	C	C	C	C

Sample A4

A	A	A	H	H	H	H	A
A	A	A	H	A	A	A	A
A	H	H	H	A	A	A	A
H	H	A	B	B	E	E	E
H	H	B	E	E	E	E	E
B	B	E	C	C	C	C	C
E	E	E	C	D	B	B	D
E	C	C	D	B	D	D	F

Sample A5

A	H	A	A	A	A	A	A
A	H	A	A	A	A	A	A
A	A	A	A	A	A	A	A
E	B	A	A	A	A	H	
E	B	B	A	A	A	H	
C	E	B	B	H	H	A	A
D	D	E	B	H	A	A	A
F	D	E	B	A	A	H	

Sample B1

A	A	A	B	C	D	D	F
A	A	A	B	C	D	F	F
A	A	A	B	D	D	F	F
A	A	A	B	D	D	G	F
A	A	A	A	B	G	G	F
A	A	A	A	A	B	G	G
A	A	A	A	A	A	B	G
A	A	A	A	A	A	B	

Sample B2

F	F	D	D	B	B	C	C
F	F	F	D	D	D	C	C
F	F	F	D	C	C	C	C
F	F	F	D	C	C	B	B
F	F	F	D	C	C	B	F
G	F	G	D	C	C	B	B
G	G	G	B	C	C	C	C
B	B	B	B	C	C	C	C

Sample B3

C	C	C	C	C	C	C	C
C	C	C	C	C	C	C	C
C	C	C	C	C	C	C	C
B	C	C	B	B	C	C	B
B	C	B	D	D	B	C	B
B	C	B	D	D	B	C	B
C	C	B	B	B	B	C	C
C	C	B	B	B	B	C	C

Sample B4

C	C	C	B	D	D	D	F
C	C	C	D	D	F	F	F
C	C	C	C	D	F	F	F
B	B	C	C	D	F	F	F
F	B	C	C	D	G	F	F
B	C	C	C	D	G	G	F
C	C	C	C	D	B	G	G
C	C	C	C	D	B	B	B

Sample B5

F	D	D	C	B	A	H	H
F	F	D	C	B	A	H	H
F	F	D	D	B	A	A	H
F	G	D	D	B	A	A	A
F	G	G	B	H	A	A	A
G	G	B	H	H	H	A	A
G	G	B	H	H	H	A	A
B	B	A	A	H	H	A	A

Sample C1

A	A	A	A	A	A	A	A
A	A	A	A	A	A	A	A
A	A	A	A	H	H	H	H
A	A	A	A	H	H	H	H
A	A	A	A	H	H	H	A
A	A	A	H	A	A	A	A
A	A	A	H	H	A	A	A
A	A	A	A	H	H	H	H

Sample C2

A	A	A	D	D	C	C	C
A	A	A	B	D	D	C	C
A	A	A	A	B	B	D	C
A	A	A	A	B	B	D	D
A	A	A	B	D	D	D	D
A	A	B	C	D	D	D	G
A	A	D	C	C	C	D	G
H	B	D	D	C	C	D	G

Sample C3

C	F	B	B	B	B	F	C
C	F	F	B	B	B	F	F
C	F	F	F	F	F	F	F
D	G	G	G	G	G	G	D
D	G	G	G	G	G	G	D
G	G	D	D	D	D	G	G
G	F	G	D	D	G	F	G
G	F	F	F	F	F	F	G

Sample C4

C	C	C	D	D	A	A	A
C	C	D	D	B	A	A	A
C	D	B	B	A	A	A	A
D	D	D	B	A	A	A	A
D	D	D	D	B	A	A	A
G	D	D	D	C	B	A	H
G	D	D	C	C	C	B	A
G	D	D	C	C	D	B	A

Sample C5

A	A	A	A	A	A	A	A
A	A	A	A	A	A	A	A
A	A	H	H	H	A	A	A
A	A	A	H	H	H	A	A
A	A	A	A	H	H	A	A
H	A	A	A	A	H	A	A
H	H	A	A	A	A	A	A
A	H	H	A	A	A	A	A

Sample D1

A	A	A	A	A	A	A	A
A	A	A	H	H	A	A	A
A	A	A	A	A	A	A	A
A	A	A	A	A	A	A	A
A	A	A	A	A	A	A	A
A	A	A	A	A	A	A	A
A	A	A	A	A	A	A	A
A	A	A	A	A	A	A	I

Sample D2

A	B	D	D	C	C	C	C
A	B	D	D	C	C	C	C
A	A	B	B	D	D	C	C
A	A	B	B	B	D	D	C
A	B	C	C	C	B	B	D
B	C	C	C	C	C	D	B
B	C	C	C	C	C	D	D
B	D	C	C	C	C	C	C

Sample D3

C	B	F	F	F	F	F	B
C	C	B	F	F	F	F	B
C	C	C	B	F	B	C	C
C	C	C	B	F	B	C	C
D	D	D	B	F	B	D	D
B	B	F	F	F	F	B	B
D	G	G	F	F	G	G	D
C	G	F	F	F	G	G	C

Sample D4

C	C	C	C	D	D	B	A
C	C	C	C	D	D	B	A
C	C	D	D	B	B	A	A
C	C	D	B	B	B	A	A
D	B	B	D	C	C	B	A
B	D	D	C	C	C	C	B
D	D	D	C	C	C	C	B
C	C	C	C	C	D	B	

Sample D5

A	H	H	H	H	A	A	A
A	A	A	H	H	A	A	A
A	H	H	A	A	A	A	A
A	H	H	A	A	A	A	A
A	A	H	A	A	A	A	A
A	A	A	A	A	A	H	H
A	A	A	A	A	A	H	H
I	A	A	A	A	A	A	A

Sample E1

A	A	A	A	A	A	A	I
A	A	A	A	H	A	A	I
A	A	A	A	A	H	H	H
A	A	H	H	H	A	A	A
A	A	H	H	H	A	A	A
H	H	A	H	H	A	A	A
A	A	A	A	A	A	A	A
A	A	A	A	A	A	A	A

Sample E2

B	D	D	D	C	C	C	B
I	B	D	D	D	D	D	C
I	I	I	B	B	B	D	B
A	I	I	I	B	B	B	B
A	A	A	I	I	I	I	I
A	A	A	A	A	A	A	I
A	A	A	A	H	H	A	A

Sample E3

B	B	G	G	G	G	B	B
C	C	B	D	D	B	C	C
C	C	B	D	D	B	C	C
B	B	B	B	B	B	B	B
B	B	B	B	B	B	B	B
I	I	I	I	I	I	I	I
I	I	I	I	I	I	I	I
A	A	A	A	A	A	A	A

Sample E4

B	C	C	C	D	D	D	B
C	C	D	D	D	B	B	I
C	D	D	D	D	B	I	I
B	D	B	B	B	I	I	I
B	B	B	B	I	I	I	A
I	I	I	I	I	I	I	A
A	A	A	A	A	A	A	A
A	A	A	A	A	A	A	A

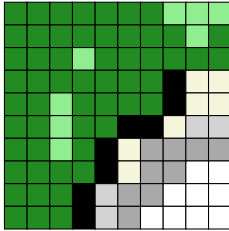
Sample E5

I	A	A	A	A	A	A	A
I	A	A	A	A	A	A	A
A	A	A	A	A	A	A	A
A	A	A	A	A	A	H	A
A	A	A	A	A	A	A	A
A	A	A	A	A	A	A	A
A	A	A	H	A	A	A	A
A	A	H	H	A	A	A	A

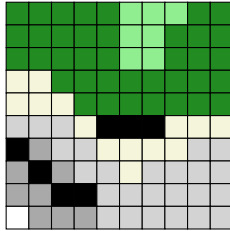
```
%16 blocks (4L 4C)
```

```
\CutPixelArtTikz*[Unit=0.3,Codes=ABCDEFGH,Correction,Colors={\listcoulkoala}]{PAkoala.csv}{4+4}
```

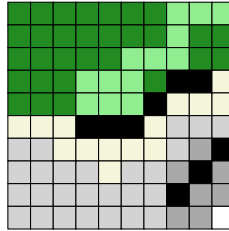
Sample 1.1



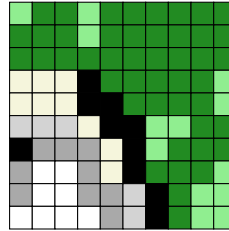
Sample 1.2



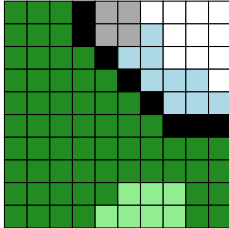
Sample 1.3



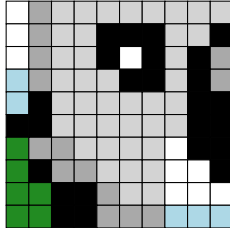
Sample 1.4



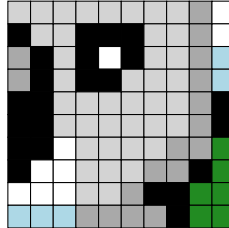
Sample 2.1



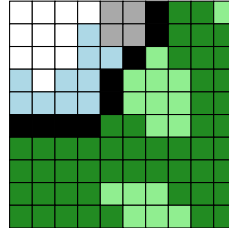
Sample 2.2



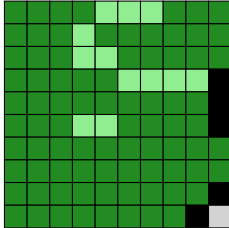
Sample 2.3



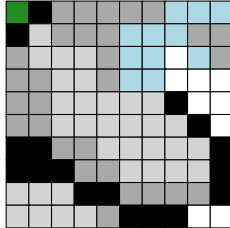
Sample 2.4



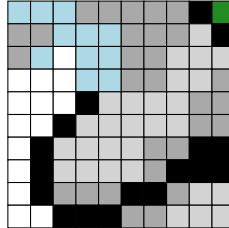
Sample 3.1



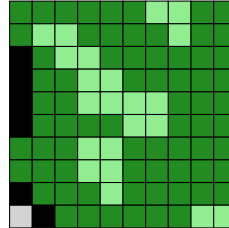
Sample 3.2



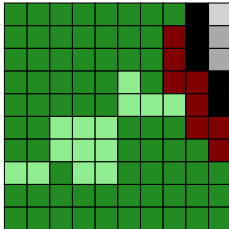
Sample 3.3



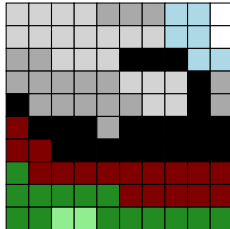
Sample 3.4



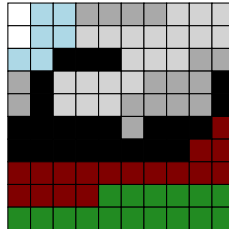
Sample 4.1



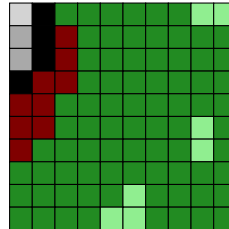
Sample 4.2



Sample 4.3



Sample 4.4



7 Anamorphic cylinder PixelArt

7.1 Idea

The idea is to provide something to create PixelArt with the aim of using a cylindrical anamorphosis. On <https://www.youtube.com/watch?v=PT8KUozBg3I>, there is a video *demonstration*, proposed by Jean-Yves Labouche. The overall operation is similar to that of the *main* command, however there are some adjustments:

- the possibility of giving the file *csv* in *normal* or *inverted* mode;
- the dimensions (width & middle) must be specified to produce the PixelArt;
- the command is standalone (for the moment) so no addition(s) later.

```
\PixelArtTikzCylindric[keys]{file.csv}
```

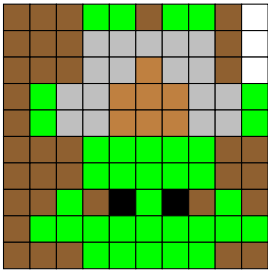
Code \LaTeX

The files illustrating this paragraph are given below.

```
%version with inverted data
\begin{filecontents*}[overwrite]{PAyoda.csv}
E,E,E,A,A,E,A,A,E,D
E,E,E,F,F,F,F,E,D
E,E,E,F,F,C,F,E,D
E,A,F,F,C,C,C,F,F,A
E,A,F,F,C,C,C,F,F,A
E,E,E,A,A,A,A,E,E
E,E,E,A,A,A,A,E,E
E,E,A,E,B,A,B,E,A,E
E,A,A,A,A,A,A,A,A
E,E,E,A,A,A,A,E,E
\end{filecontents*}

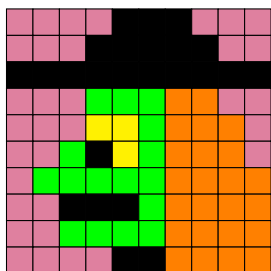
\PixelArtTikz[%
  Codes=ABCDEF,
  Colors={green,black,brown,white,brown!75!black,lightgray},
  Correction,Unit=0.35]%
{PAyoda.csv}
```

Code \LaTeX



```
%version with normal data
\begin{filecontents*}{PAсорciere.csv}
V,V,V,V,N,N,N,V,V,V
V,V,V,N,N,N,N,N,V,V
N,N,N,N,N,N,N,N,N,N
V,V,V,G,G,G,O,O,V,V
V,V,V,J,J,G,O,O,O,V
V,V,G,N,J,G,O,O,O,V
V,G,G,G,G,G,O,O,O,O
V,V,N,N,N,G,O,O,O,O
V,V,G,G,G,G,O,O,O,O
V,V,V,V,N,N,O,O,O,O
\end{filecontents*}

\PixelArtTikz[%
  Codes=VNGOJ,
  Colors={purple!50,black,green,orange,yellow},
  Correction,Unit=0.35]%
{PAсорciere.csv}
```



7.2 Keys and options

The first argument, *optional* and between [...] offers **Keys** necessary for the command to function properly:

- the key **<Width>** which defines the width (radius in cm) of the rendering; default 6
- the key **<Center>** which defines the width (radius in cm) of the *middle*; default 1.25
- the key **<Codes>** contains the *string* of the *simple* codes of the file csv;
- the key **<Colors>** which contains the *list* of associated colors;
- the key **<Symbols>** which contains the *possible list* of alternative characters to display in the boxes;
- the key **<Style>** which allows you to specify the style of characters. default normalsize
- the Boolean key **<Correction>** which allows you to color the PixelArt; default false
- the Boolean key **<Symb>** which allows you to display the *alternative* characters; default false
- the Boolean key **<Solution>** which displays the solution (with *mirror* effect); default false
- the Boolean key **<Swap>** which allows you to specify the data type (**<true>** := normal; **<false>** := inverted). default false

The second argument, *mandatory*, is the name of the csv file to use.

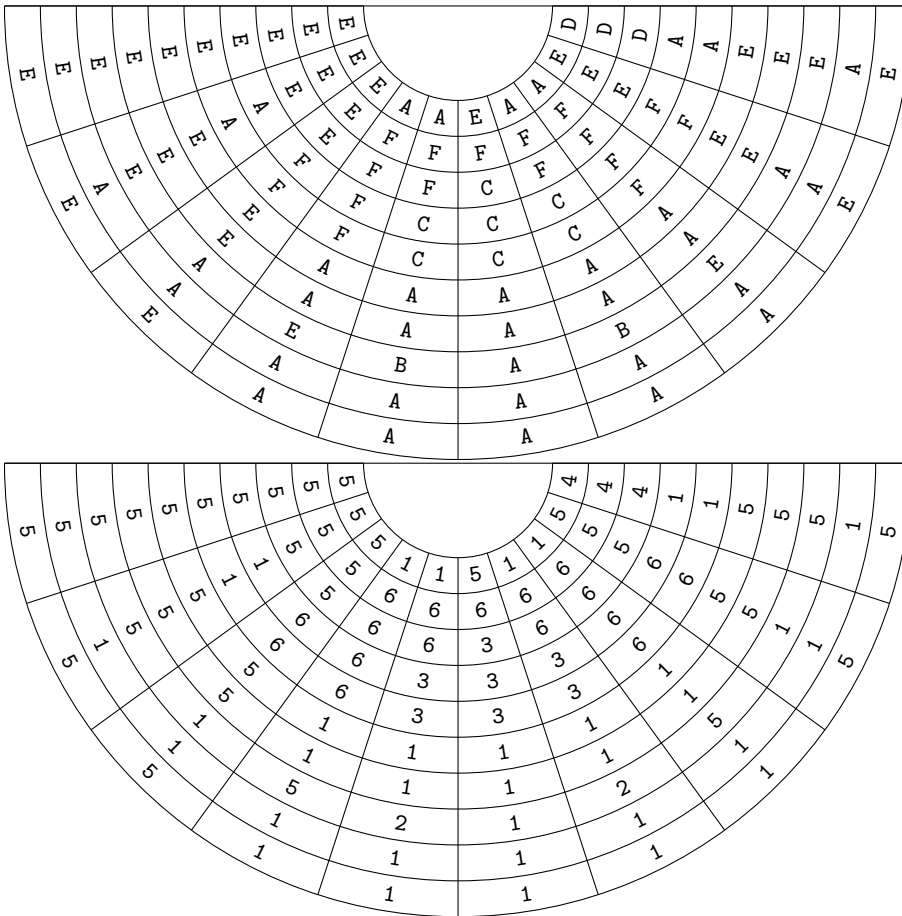
7.3 Example with inverted data (Yoda)

In this paragraph, we use the data `PAyoda`, which corresponds to the *inverted* layout, so the key **Swap** is not necessary.

Code \LaTeX

```
%classic version
\PixelArtTikzCylindric[Codes=ABCDEF,Style=\small\ttfamily]{PAyoda.csv}

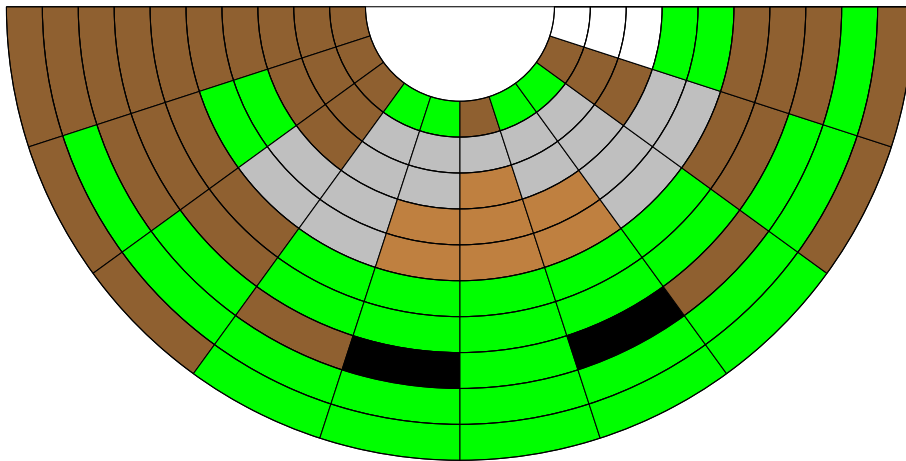
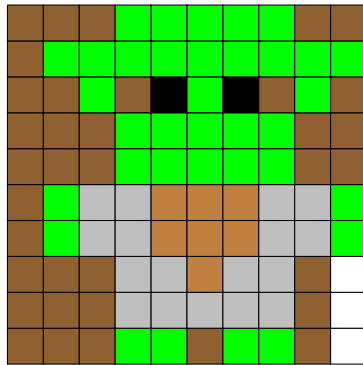
%version with 'symbols'
\PixelArtTikzCylindric[Codes=ABCDEF,Symbols={1,2,3,4,5,6},Symb,Style=\small\ttfamily]{PAyoda.csv}
```



```

%Fix and solution
\begin{tabular}{c}
\PixelArtTikzCylindric[%
  Codes=ABCDEF,
  Colors={green,black,brown,white,brown!75!black,lightgray},
  Solution]%
  {PAyoda.csv}
\\
\PixelArtTikzCylindric[%
  Codes=ABCDEF,
  Colors={green,black,brown,white,brown!75!black,lightgray},
  Correction]%
  {PAyoda.csv}
\end{tabular}

```

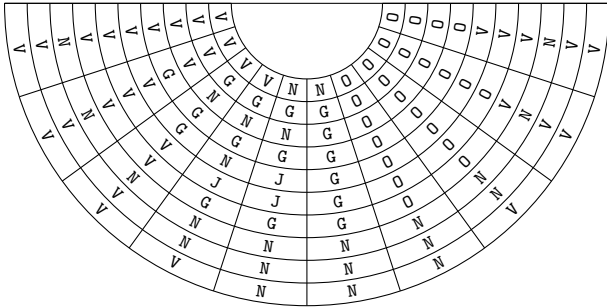


7.4 Example with classic data (Witch)

In this paragraph, we use the data `PAsorciere`, which corresponds to the *normal* layout, so the key **(Swap)** is necessary.

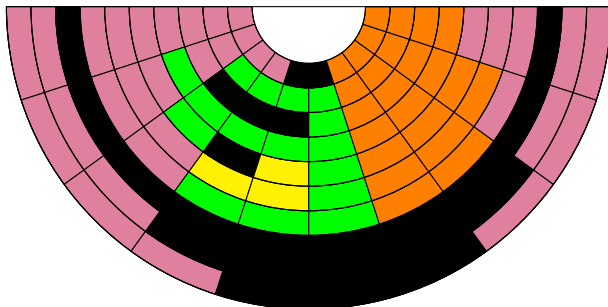
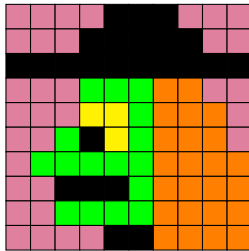
Code \LaTeX

```
%classic version
\PixelArtTikzCylindric[%
Width=4,Center=1,Codes=VNGOJ,
Colors={purple!50,black,green,orange,yellow},
Swap,Style=\ttfamily\scriptsize}%
{PAsorciere.csv}
```



Code \LaTeX

```
%Correction and solution
\begin{tabular}{c}
\PixelArtTikzCylindric[%
Width=4,Center=0.75,Codes=VNGOJ,
Colors={purple!50,black,green,orange,yellow},
Swap,Solution}%
{PAsorciere.csv}
\\
\PixelArtTikzCylindric[%
Width=4,Center=0.75,Codes=VNGOJ,
Colors={purple!50,black,green,orange,yellow},
Swap,Correction}%
{PAsorciere.csv}
\end{tabular}
```



8 With datatool

8.1 Macros

Code \LaTeX

```
%reading of csv
\readdtcsv{file.csv}{readname}

%full pixelart (french keys for the moment...)
\dtpixlarttikz[keys]{readname}

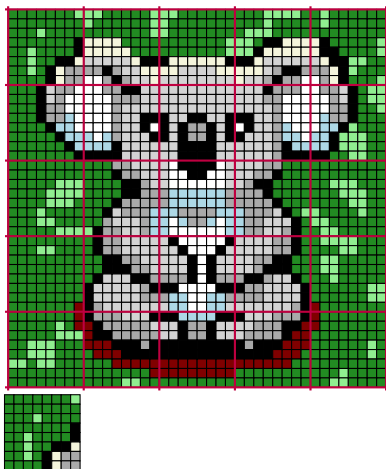
%cut pixelart (french keys for the moment...)
\dtpixlarttikzblock[clés]{readname}{LxC or L+C}{numblock}
```

Code \LaTeX

```
%reading of csv (koala)
\readdtcsv{PAkoala.csv}{DTkoala}

%full pixelart
\dtpixlarttikz[Correction,Unite=0.125,Codes=ABCDEFGH,I,Couleurs={\listcoulkoala},Decoupage=8x8]{DTkoala}

%cut pixelart (french keys for the moment...)
\dtpixlarttikzblock[Unite=0.125,Correction,Codes=ABCDEFGH,I,Couleurs={\listcoulkoala}]{DTkoala}{8x8}{1/1}
```



Part III

History

v0.1.9: L^AT_EX3 version of the package (pixelarttikz-l3)
v0.1.8: Bugfix
v0.1.7: Bugfix with 'cut'
v0.1.6: Styles for lines + **datatool** for alternative version
v0.1.5: Symbols can be given with list(s) + Enhancements of internal code
v0.1.4: Anamorphic cylinder PixelArts
v0.1.3: Cut PixelArts within several PixelArts
v0.1.2: *mini*-PixelArts
v0.1.1: Bugfix with color
v0.1.0: Initial version