

# **anima** — Class for creating slideshow with simple animations with TikZ \*

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### Abstract

The idea for this package arose from noticing that including the `\pause` command from the `beamer` class within the `\foreach` loop command from the `tikz` package creates a sequence of frames, where each slide presents a step in the construction of the image. The purpose of the `anima` class is to provide macros that simplify the use of this effect for creating animated slide presentations.

Although the functionality of this class can be compared to the transition effects of the `beamer` class, it is not a dependency of the `anima` class. However, the class makes extensive use of the image creation language provided by the `tikz` package. Lastly, it is worth noting a comparison between this class and the `animate` package. The `animate` package can create embedded animations within the document, while the `anima` class produces an animation where each frame corresponds to a page of the document. This distinction highlights the different design goals of the `anima` class.

## 1 Dependências

This class depends on the `standalone` class and the `tikz` and `pgf` packages, as well as the other classes and packages on which these are dependent.

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\*This file describes version v1.0, last revised 2024/11/18.

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## 2 Funcionamento

Like the `beamer` class, the `anima` class uses the `frame` environment to create slide presentations. The main difference is that this class focuses on using the `tikz` package to create a sequence of frames with images that form an animation as the slides transition sequentially.

Each slide in the presentation is a frame with dimensions of 16 cm in width and 9 cm in height (i.e., in a 16:9 aspect ratio), which are commands within the `tikzpicture` environment. A standard document using the `anima` class follows this structure:

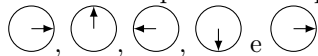
```
\documentclass{anima}      \documentclass{anima}
                           \begin{document}
                           \begin{frame}[\langle n \rangle]
                             content
                           \end{frame}
                           \end{document}
```

In “content,” any valid commands from the `tikz` environment can be written, such as `\draw`, `\fill`, `\node`, `\beginscope`, `\endscope`, `\clip`, as well as their respective parameters. The origin, i.e., the point (0,0) of this environment, is located at the center of a frame measuring 16 cm in width and 9 cm in height. This means that the points (-8,-4.5), (-8,4.5), (8,4.5), and (8,-4.5) are the vertices of this frame.

```
\begin{frame}[\langle n \rangle]
```

The `frame` environment of the `anima` class has an optional parameter `[\langle n \rangle]`, which specifies the number of frames the transition will include. If this parameter is not provided, the class will assume  $n = 1$ . For example, if  $n = 5$  and the code in “content” is

```
\draw(0,0) circle (1);
\draw[-latex] (0,0)--({360*\um}:1);
```

Then the class will produce a sequence of 5 slides with the following figures centered: . By increasing or decreasing the value of  $n$ , the class will produce more or fewer frames, representing the animation of a pointer rotating counterclockwise within the circumference of radius 1.

For a quick explanation of the `tikz` package commands and what is happening in the code:

- The `\draw` command draws shapes or lines on the screen based on the parameters provided immediately after it.
- The sequence `(a,b) circle (c)` draws a circle centered at the point `(a,b)` with a radius of `c`.
- The sequence `P--Q` draws a line from point `P` to point `Q`.

In `tikz`, a point can be represented by its Cartesian coordinates `(a,b)` or its polar coordinates `(t:r)`, where `t` is the angle (in degrees) and `r` is the distance from the origin (or the reference origin).

```
\um
```

The command `\um`, which appears in `(\{360*\um\}:1)` in the code above (in

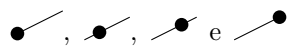
Portuguese, "um" means "one"), is a function of the frame number of the transition,  $i = 1, 2, \dots, n$ , within the interval  $[0, 1]$ .

In summary, `\um` takes the value 0 on the first frame and the value 1 on the last frame, progressing through these values in equal intervals across each frame. Thus, in the example above, when  $n = 5$ , we have the following values for  $360*\um$ : = 0 on the first frame, = 90 on the second, = 180 on the third, = 270 on the fourth, and = 360 on the fifth and final frame.



`\zero` Another useful command to be used in the `anima` class is the command `\zero`. This command is defined as  $1-\um$ . If the code `(360*\um):1` produces a pointer rotating counterclockwise in the previous example, replacing this part with `(360*\zero):1` will produce the same pointer, but rotating clockwise instead.

The commands `\um` and `\zero` are very useful for creating various animations with `tikz`. We have already seen an example of rotation. Another possibility is to move a figure from a point  $(a, b)$  to a point  $(c, d)$ . For example, the following code:

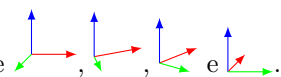
```
\draw(2,3)--(4,4);
\fill({2*\zero+4*\um},{3*\zero+4*\um}) circle (.3);
```

will produce the effect of a sequence of figures. . The following code

```
\fill[opacity={\zero}](0,0) circle (1);
```

will cause the figure to gradually disappear, as in the example. , . Já o código

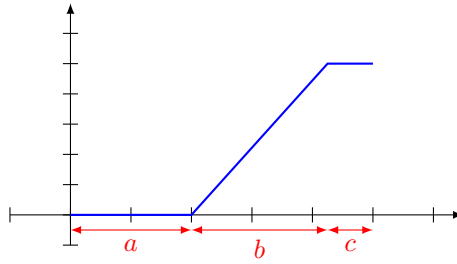
```
\begin{scope}[rotate around y={\um}]
\draw[-latex,red] (0,0) -- (1,0);
\draw[-latex,blue] (0,0) -- (0,1);
\draw[-latex,green] (0,0) -- (0,0,1);
\end{scope}
```

will produce .

In summary, it is easy to see the many animation possibilities that can be created with `tikz` using the commands `\um` and `\zero` in the `anima` class. At the end of this documentation, an implementation of a model with some other possibilities is presented.

### 3 Principais Comandos

`\uns{a}{b}{c}` In addition to the commands `\um` and `\zero` presented earlier, there are several other commands implemented by the class to facilitate animation creation. One such command is `\uns{a}{b}{c}`. This command is a function that divides the interval  $[0, 1]$  into three parts proportional to the ratio  $a:b:c$  and performs the animation in the intermediate part. The behavior of this command can be represented by its graph.



This command was created to produce successive animations without the need to create the same slide multiple times using the `\um` command. For example, if we want a figure to move to the right and then consecutively to the left, we can use the following code:

```
\fill[-latex,blue] (\uns011),(\uns110) circle (1);
```

`\zeros{<a>}{<b>}{<c>}` The command `\zeros` is defined as `1-\uns`. By substituting one command for the other, using the same parameters, we will always obtain the inverse animation.

`block` Just like in the `beamer` class, in the `anima` class we have the `block` environment implemented to insert information such as text into the slide presentation. To use the `block` environment, we write the following code:

```
\begin{block} [<post>]{<Title> [<width>] [<conf>] [<conf>]}
  content
\end{block}
```

The mandatory parameter `{<Title>}` is the title of the block, and it accepts a text value. The parameter `[<post>]` specifies the position of the top center of the block, and it must receive a point such as  $(a, b)$  or  $(t : r)$ . Each new block inserted into the slide is placed directly below the previous one. The parameter `[<width>]` determines the length of the block. Finally, the `[<conf>]` and `[<conf>]` parameters are the configurations for the text of the title and the "content," respectively. Any valid parameters for the `\node` command from the `tikz` package can be used here.

`alertblock` The environments `alertblock`, `exampleblock`, and `anotherblock` work similarly to the `block` environment, but with a different color scheme.

`anotherblock` The `notitleblock` environment is similar to the `block` environment, but without the title bar.

`\animaColorTheme{<c1>}...{<c6>}` The command `\animaColorTheme{<c1>}...{<c6>}` defines the color palette for the slide presentation. The colors should be inserted using their HTML codes, such as `FFFFFF` or `FF4500`, without the `#` character. The parameter `{<c1>}` defines the background color of the frame, and the second parameter `{<c2>}` defines the primary color for texts and figures in the presentation. These first two colors can be used by the user with the names `boardColor` and `textColor`, respectively. The remaining colors are auxiliary colors that determine the colors for the `block`, `alertblock`, `exampleblock`, and `anotherblock` environments, respectively. These last four colors can be used under the names `animaColor1`, `animaColor2`, `animaColor3`, and `animaColor4`, respectively.

`\animaFormatText{<conf>}` The command `\animaFormatText{<conf>}` is used to modify the formatting of the block titles.

`\animaFormatTitle{<conf>}` The command `\animaFormatTitle{<conf>}` is used to modify the formatting

of the block content texts.

`\animaFrameTitle{<t>}{<n>}{<c>}{<y>}` command `\animaFrameTitle{<t>}{<n>}{<c>}{<y>}` can be used to create a title slide for the presentation. In comparison with `beamer`, it is similar to the command `\makeframetitle`. The mandatory parameters `{<t>}`, `{<n>}`, `{<c>}`, and `{<y>}` are texts representing the "Title" of the presentation, the "Name" of the author, the "City" or location, and the "Year" or date.

`\animaBoardDimension{<w>}{<h>}` With the command `\animaBoardDimension{<w>}{<h>}`, it is possible to modify the dimensions of the presentation. The parameters `{<w>}` and `{<h>}` represent the width and height of the presentation, respectively.

`\nFrame` The command `\nFrame` is the counter that indicates which frame of the animation is currently being displayed. The internal counter of the class is `\anima@FrameCount`.

## 4 Implementation

```
1 <*class>
2 \NeedsTeXFormat{LaTeX2e}
3 \ProvidesClass{anima}[2024/11/12 Classe Anima para Animations]
4 \LoadClass[multi=page]{standalone}
5
6 \RequirePackage{pgf,tikz}[1994/06/01]
7 \usetikzlibrary{positioning}
8
9 \newcommand\animaFormatText{\large}
10 \newcommand\animaFormatTitle{\large\bf}
11 \newcommand{\animaFrameTitle}[4]{
12   \begin{anima}
13     \node (centro) at (0,0) {};
14     \begin{block}{\huge #1}
15       [(\anima@BoardWidth-.15)*1cm]
16       [above = of centro,anima@TextColor,align = center]
17       [node distance = 0.5cm, below = of a]
18       \\ \Large #2
19     \end{block}
20     \node[
21       text width = {(2*\anima@BoardWidth-0.25)*1cm},
22       node distance = 3.5cm,
23       below = of centro]
24     {#3\hfill #4};
25   \end{anima}
26 }
27
28
29 % Dimensões do Slide
30 \newcommand\animaBoardDimension[2]{
31   \def\anima@BoardWidth{(#1/2)}
32   \def\anima@BoardHeight{(#2/2)}
33 }
34 \animaBoardDimension{16}{9}
35
36 % Definição de cores
37 \newcommand{\animaColorTheme}[6]{
```

```

38 \definecolor{anima@BoardColor} {HTML}{#1}
39 \definecolor{boardColor} {HTML}{#1}
40 \definecolor{anima@TextColor} {HTML}{#2}
41 \definecolor{textColor} {HTML}{#2}
42 \definecolor{anima@Color1} {HTML}{#3}
43 \definecolor{animaColor1} {HTML}{#3}
44 \definecolor{anima@Color2} {HTML}{#4}
45 \definecolor{animaColor2} {HTML}{#4}
46 \definecolor{anima@Color3} {HTML}{#5}
47 \definecolor{animaColor3} {HTML}{#5}
48 \definecolor{anima@Color4} {HTML}{#6}
49 \definecolor{animaColor4} {HTML}{#6}
50 }
51
52 \def\animaColorThemeI{
53 \animaColorTheme{FFFFFF}
54 {000000}
55 {0000FF}
56 {FF0000}
57 {00FF00}
58 {FFFF00}
59 }
60 \def\animaColorThemeII{
61 \animaColorTheme{FFFFFF}
62 {660907}
63 {016BBF}
64 {FF0000}
65 {00FFFF}
66 {FFD16A}
67
68 }
69
70 \animaColorThemeI
71
72 \newcommand\grade{
73 \draw[dotted, opacity=.2,line width = .3pt] %
74 ({-\anima@BoardWidth},{-\anima@BoardHeight}) grid %
75 ({\anima@BoardWidth},{\anima@BoardHeight});
76 }
77

```

\uns As próximas linhas implementam o comando `\uns{a}{b}{c}`. Este comando é uma função de  $[1,0]$  em  $[0,1]$  definida por partes da seguinte forma

$$\uns(x) = \begin{cases} 0 & \text{se } x < \frac{a}{a+b+c} \\ 1 & \text{se } x > \frac{a+b}{a+b+c} \\ \frac{a+b+c}{b}x - \frac{a}{b} & \text{nos demais casos} \end{cases}$$

```

78 \newcommand{\uns}[3]{
79 ((#1+#2+#3)<=0?1:(
80 (\um<(#1/(#1+#2+#3))?0:
81 (\um>((#1+#2)/(#1+#2+#3)))?1:
82 (((#1+#2+#3)/#2)*\um-#1/#2)
83 )))

```

```

84 }
85 \newcommand{\zeros}[3]{(1-\uns{#1}{#2}{#3})}
86
87 % Ambiente anima
88 \newcount\anima@FrameCount
89 \newcount\nFrame
90 \NewDocumentEnvironment{anima}{+0{1} +b}{
91 \ifnum #1 = 1
92 \def\um{1}
93 \def\zero{0}
94 \begin{page}%
95 \begin{tikzpicture}[color=anima@TextColor,line width=1.5pt]
96 \clip ({-\anima@BoardWidth},{-\anima@BoardHeight})
97 rectangle ({\anima@BoardWidth},{\anima@BoardHeight});
98 \fill[color=anima@BoardColor]
99 ({-\anima@BoardWidth},{-\anima@BoardHeight})
100 rectangle ({\anima@BoardWidth},{\anima@BoardHeight});
101 \grade
102 \node (a) at \anima@PositionBlock{};
103 #2
104 \end{tikzpicture}%
105 \end{page}
106 \else
107 \anima@FrameCount = 0
108 \loop
109 \nFrame = \anima@FrameCount
110 \def\um{(\the\anima@FrameCount/(#1-1))}
111 \def\zero{(1-\um)}
112 \begin{page}%
113 \begin{tikzpicture}[color=anima@TextColor,line width=1.0pt]
114 \clip
115 ({-\anima@BoardWidth},{-\anima@BoardHeight}) rectangle
116 ({\anima@BoardWidth},{\anima@BoardHeight});
117 \fill[color=anima@BoardColor]
118 ({-\anima@BoardWidth},{-\anima@BoardHeight}) rectangle
119 ({\anima@BoardWidth},{\anima@BoardHeight});
120 \grade
121 \node (a) at \anima@PositionBlock {};
122 #2
123 \end{tikzpicture}%
124 \end{page}
125 \advance \anima@FrameCount +1
126 \ifnum \anima@FrameCount < #1 \repeat
127 \fi
128 }{}
129
130 \renewenvironment{frame}[1][1]{\begin{anima}[#1]}{\end{anima}}
131
132 %comando textblock
133 \def\anima@PositionBlock{(0,{\anima@BoardHeight})}
134 \def\anima@WhidthBlock{\anima@BoardWidth*0.9875 cm}
135
136 \NewDocumentEnvironment{block}
137 {+0{a} +m +0{\anima@WhidthBlock} +0{} +0{} +b}

```

```

138 {
139 \node[ draw,
140 bottom color = anima@Color1,
141 top color = anima@Color1!50!anima@BoardColor,
142 text width = {2*#3-0.25cm},
143 node distance = 0.0cm,
144 below = of {#1}, #4]
145 (a) {\animaFormatTitle\vphantom{bq} #2};
146 \node[ text width = {2*#3-0.25cm},
147 node distance = 0.0cm,
148 below = of a,#5]
149 (a) {\animaFormatText #6};
150 }{}
151
152 \NewDocumentEnvironment{alertblock}
153 {+0{a} +m +0{\anima@WhidthBlock} +0{} +0{} +b}
154 {
155 \node[ draw,
156 bottom color = anima@Color2,
157 top color = anima@Color2!50!anima@BoardColor,
158 text width = {2*#3-0.25cm},
159 node distance = 0.0cm,
160 below = of {#1}, #4]
161 (a) {\animaFormatTitle\vphantom{bq} #2};
162 \node[ text width = {2*#3-0.25cm},
163 node distance = 0.0cm,
164 below= of a,#5]
165 (a) {\animaFormatText #6};
166 }{}
167
168 \NewDocumentEnvironment{exampleblock}
169 {+0{a} +m +0{\anima@WhidthBlock} +0{} +0{} +b}
170 {
171 \node[ draw,
172 bottom color = anima@Color3,
173 top color = anima@Color3!50!anima@BoardColor,
174 text width = {2*#3-0.25cm},
175 node distance = 0.0cm,
176 below = of {#1}, #4]
177 (a) {\animaFormatTitle\vphantom{bq} #2};
178 \node[ text width = {2*#3-0.25cm},
179 node distance = 0.0cm,
180 below= of a,
181 #5]
182 (a) {\animaFormatText #6};
183 }{}
184
185 \NewDocumentEnvironment{anotherblock}
186 {+0{a} +m +0{\anima@WhidthBlock} +0{} +0{} +b}
187 {
188 \node[draw,
189 bottom color = anima@Color4,
190 top color = anima@Color4!50!anima@BoardColor,
191 text width = {2*#3-0.25cm},

```



```

192 node distance = 0.0cm,
193 below = of {#1}, #4]
194 (a) {\animaFormatTitle\vphantom{bq} #2};
195 \node[ text width = {2*#3-0.25cm},
196 node distance = 0.0cm,
197 below= of a,
198 #5]
199 (a) {\animaFormatText #6};
200 }{}
201
202 \NewDocumentEnvironment{notitleblock}
203 {+0{a} +0{\anima@WhidthBlock} +0{} +b}
204 {
205 \node[ text width = {2*#2-0.25cm},
206 node distance = 0.0cm,
207 below= of a,
208 #3]
209 (a) {\animaFormatText #4};
210 }{}
211
212 \newcommand{\animaExemplo}{\large
213 \begin{block}[(0,4.2)]{LAYOUT EXAMPLE WITH BLOCK OF TITLE}[7.9cm]
214 \end{block}
215
216 \begin{exampleblock}[(-4,3)]{EXAMPLE BLOCK}[3.9cm]
217 A example of block with a equation
218 $$f(x)=2\sin(.57x)$$
219 \end{exampleblock}
220
221 \begin{alertblock}{ALERT BLOCK}[3.9cm]
222 \end{alertblock}
223
224 \begin{scope}[
225 shift={(4,-2)},
226 scale=1.3,
227 rotate around x= {360*\uns011},
228 rotate around y= {360*\uns110}]
229 \draw[animaColor1,-latex] (0,0)--(1,0)node[anchor=north]{$x$};
230 \draw[animaColor2,-latex] (0,0)--(0,1)node[anchor=east]{$y$};
231 \draw[animaColor4] (-1,-1,-1)--(1,-1,-1)--(1,1,-1)--(-1,1,-1)--cycle;
232 \draw[animaColor4] (-1,-1,1)--(1,-1,1)--(1,1,1)--(-1,1,1)--cycle;
233 \draw[animaColor4] (-1,-1,-1)--(-1,-1,1) (1,-1,-1)--(1,-1,1)
234 (1,1,-1)--(1,1,1) (-1,1,-1)--(-1,1,1);
235 \draw[anima@Color3,-latex] (0,0)--(0,0,1)node[anchor=south]{$z$};
236 \end{scope}
237
238 \node at (0,3) [anchor=north west]{
239 \begin{minipage}{7.25cm}\animaFormatText
240 {\color{textColor} Text in the color textColor}\
241 {\color{animaColor1} Text in the color animaColor1}\
242 {\color{animaColor2} Text in the color animaColor2}\
243 {\color{animaColor3} Text in the color animaColor3}\
244 {\color{animaColor4} Text in the color animaColor4}\
245 \end{minipage}};

```

```

246
247 % Gráfico de Função da integral
248 \begin{scope}[shift={(-7,-4)},color=animaColor2]
249 % eixos x e y=f(x)
250 \draw[-latex] (-.5,0)--(6,0)node[anchor=north]{$x$};
251 \draw[-latex] (0,-.5)--(0,3)node[anchor=east]{$f(x)$};
252 % Retângulos de soma de Riemann
253 \def\número{\the\nFrame}
254 \foreach \i in {-1,0,...,\número}{
255 \fill[color=animaColor4]
256 ({1.25+(\i+1)*(4/((\número)+2))},0)--
257 ({1.25+(\i+2)*(4/((\número)+2))},0)--
258 ({1.25+(\i+2)*(4/((\número)+2))},{2*sin(.6*(1+(\i+2)
259 *4/((\número)+2)) r})--
260 ({1.25+(\i+1)*(4/((\número)+2))},{2*sin(.6*(1+(\i+2)
261 *4/((\número)+2)) r})--
262 cycle;
263 % eixos x e y=f(x)
264 \draw[-latex] (-.5,0)--(6,0)node[anchor=north]{$x$};
265 \draw[-latex] (0,-.5)--(0,3)node[anchor=east]{$f(x)$};
266 % Gráfico da função (pede ser alterada)
267 \draw[color=animaColor3,domain=0:{5.7}] plot (\x,{2*sin(.57*\x r)});
268 \draw[color=animaColor1,domain=0:{5.7*\um}] plot (\x,{2*sin(.57*\x r)});
269 }
270 \end{scope}
271 }
272 </class>

```

## 5 Exemplo

```

273 (*example)
274 \documentclass{anima}
275
276 \begin{document}
277
278 \animaFrameTitle
279 {PRESENTATIONS WITH ANIMATIONS IN \LaTeX}
280 {Adriano G. Santana}
281 {Toledo-PR}{\today}
282
283 \begin{frame}[24]
284 \animaExemplo
285 \end{frame}
286
287 \begin{frame}[3]
288
289 \begin{block}[(-5.1,4.4)]{A CLOCK}[2.8cm]
290 \end{block}
291
292 \draw[-latex] (-5,1.8)--+({90-360*\um}:1.4);
293 \draw[-latex] (-5,1.8) circle (1.4);
294
295 \begin{alertblock}[(-5.1,0)]{DESCRIPTION}[2.8cm]

```

```

296 4 - defines the counter;\
297 5 - initializes it to zero;\
298 7 - start of the loop;\
299 10 - drawing the pointer;\
300 14 - counter + 1;\
301 15 - stop condition
302 \end{alertblock}
303
304 \begin{exampleblock}[(2.9,4.4)]{CODE}[5cm]
305 \normalsize\tt{%
306 1 \textbackslash documentclass[multi=page]\{standalone}\}
307 2 \textbackslash usepackage\{pgf,tikz\}
308
309 3 \quad\textbackslash begin\{document\}
310
311 4 \quad\textbackslash newcount\textbackslash nFrame\
312 5 \quad\textbackslash nFrame = 0\
313 6 \quad\textbackslash def\textbackslash angulo\{90- 36*\textbackslash the\textbackslash r
314 7 \quad\textbackslash loop\
315 8 \quad\quad \textbackslash begin\{page\}\%\
316 9 \quad\quad \textbackslash begin\{tikzpicture\}\
317 10\quad\quad\quad\textbackslash draw [->] (0,0)--(\textbackslash angulo\}:1);\
318 11\quad\quad\quad\textbackslash draw (0,0) circle (1);\
319 12\quad\quad\quad\textbackslash end\{tikzpicture\}\%\
320 13\quad\quad\quad\textbackslash end\{page\}\
321 14\quad\textbackslash advance \textbackslash nFrame +1\
322 15\quad\textbackslash ifnum \textbackslash nFrame < 11 \textbackslash repeat\
323 16\textbackslash end\{document\}
324 \end{exampleblock}
325 \end{frame}
326
327 \begin{frame}[12]
328
329 \begin{block}[(-5.1,4.4)]{A CLOCK}[2.8cm]
330 \end{block}
331
332 \draw[-latex] (-5,1.8)--+({90-360*\um}:1.4);
333 \draw[-latex] (-5,1.8) circle (1.4);
334
335 \begin{alertblock}[(-5.1,0)]{DESCRIPTION}[2.8cm]
336 1 - anima class;\
337 3 - \textbackslash um default counter\
338 4 - [10] defines the number of repetitions\
339 5 and 6 - same command as before
340 \end{alertblock}
341
342 \begin{exampleblock}[(2.9,4.4)]{CODE WITH ANIMA CLASS}[5cm]
343 Of course, the same result can be achieved by creating a command with \textbf{\textbackslash
344
345 \tt{%
346 1 \textbackslash documentclass\{frame}\}
347
348 2 \quad\textbackslash begin\{document\}\
349 3 \quad\textbackslash def\textbackslash angulo\{90- 36*\textbackslash um\}\

```

```

350 4 \qqquad\qqquad \textbackslash begin\{anima\}[10]\\
351 5 \qqquad\qqquad\qqquad\textbackslash draw [->] (0,0)--(\{\textbackslash angulo\}:1);\\
352 6 \qqquad\qqquad\qqquad\textbackslash draw (0,0) circle (1);\\
353 7 \qqquad\qqquad \textbackslash end\{frame\}\\
354 8 \textbackslash end\{documento\}}
355 \end{exampleblock}
356 \end{frame}
357
358 \begin{frame}[3]
359 \begin{block}{HOW WORKING}
360 The environment named {\tt frame} produces a screen with a 16:9 aspect ratio, similar to mo
361 \end{block}
362
363 \draw[latex-latex] ({-8*\um},-3.5)--node[above]{16cm}({8*\um},-3.5);
364 \draw[latex-latex] (-7,{-4.5*\um})--node[right]{9cm} (-7,{4.5*\um});
365 \end{frame}
366
367 \begin{frame}
368 \begin{block}{HOW WORKING}
369 The optional parameter {\tt{\color{animaColor1}[10]}} defines the number of frames in the a
370
371 We can insert any code within the \textbf{anima} environment that would typically be used i
372 \end{block}
373 \begin{exampleblock}{NEW EXAMPLE}
374 \tt%
375 1 \textbackslash documentclass\{anima\}\\
376
377 2 \qqquad\textbackslash begin\{document\}\\
378 3 \qqquad\textbackslash def\textbackslash angulo\{90- 360*\{\color{animaColor2}\textbackslash
379 4 \qqquad \textbackslash begin\{anima\}\{\color{animaColor1}[10]\}\\
380 5 \qqquad\qqquad\textbackslash draw [->] (0,0)--(\{\textbackslash angulo\}:1);\\
381 6 \qqquad\qqquad\textbackslash draw (0,0) circle (1);\\
382 7 \qqquad \textbackslash end\{anima\}\\
383 8 \textbackslash end\{documento\}}
384 \end{exampleblock}
385 \end{frame}
386
387 \begin{frame}
388 \begin{block}{BLOCK, EXAMPLEBLOCK, ALERTBLOCK}
389 To simplify the creation of slide presentations, the \textbf{block}, \textbf{alertblock}, a
390
391 {\tt%
392 1- \textbackslash begin\{block\}\{Title\}\\
393 2-\qqquad Body text\\
394 3- \textbackslash begin\{block\}\\
395 }
396 \end{block}
397 \begin{alertblock}{Alignment}
398 The first block starts at the top of the page, and subsequent blocks are aligned directly b
399 \end{alertblock}
400 \begin{exampleblock}{}
401 A title is mandatory, even if left empty.
402 \end{exampleblock}
403 \end{frame}

```

```

404
405 \begin{frame}
406 \begin{block}[(-2,3)]{Basic Block Options}[5.5cm]
407 {\tt%
408 1- \textbackslash begin\{block\}\{color{animaColor2}[(-2,3)]\}\{Title\}\{color{animaColor1}
409 2-\quad Body text\}
410 3- \textbackslash begin\{block\}
411 }\}
412
413 If repositioning or resizing a block is necessary, there are two optional parameters to ach
414
415 {\tt\color{animaColor1}[(-2,3)]} - defines the position of the top center of the block;\}
416 {\tt\color{animaColor2}[5.5cm]} - defines half the width of the block.
417 \end{block}
418
419 \draw[-latex,animaColor2] (-2,3.5)--node[above,animaColor2]{5.5cm}++(5.5,0);
420 \draw[-latex,animaColor2] (-2,3.5)--node[above,animaColor2]{5.5cm}++(-5.5,0);
421 \draw[animaColor2] (-2,3.3)--(-2,3.7);-
422 \fill[animaColor1] (-2,3) circle (.2) node[above]{center block};
423
424 \begin{exampleblock}{NEW BLOCK}[4cm]
425 The next block is always vertically aligned with the previous one. Here, we only need to de
426 \end{exampleblock}
427 \end{frame}
428
429 \end{document}
430 \example)

```