





LibreLogo

Contributing to Wikipedia

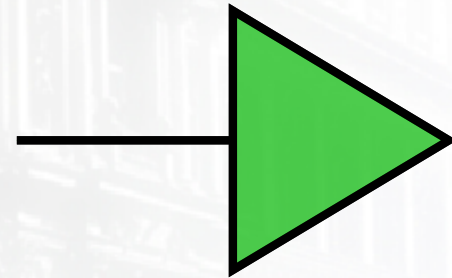
László Németh

nemeth@numbertext.org

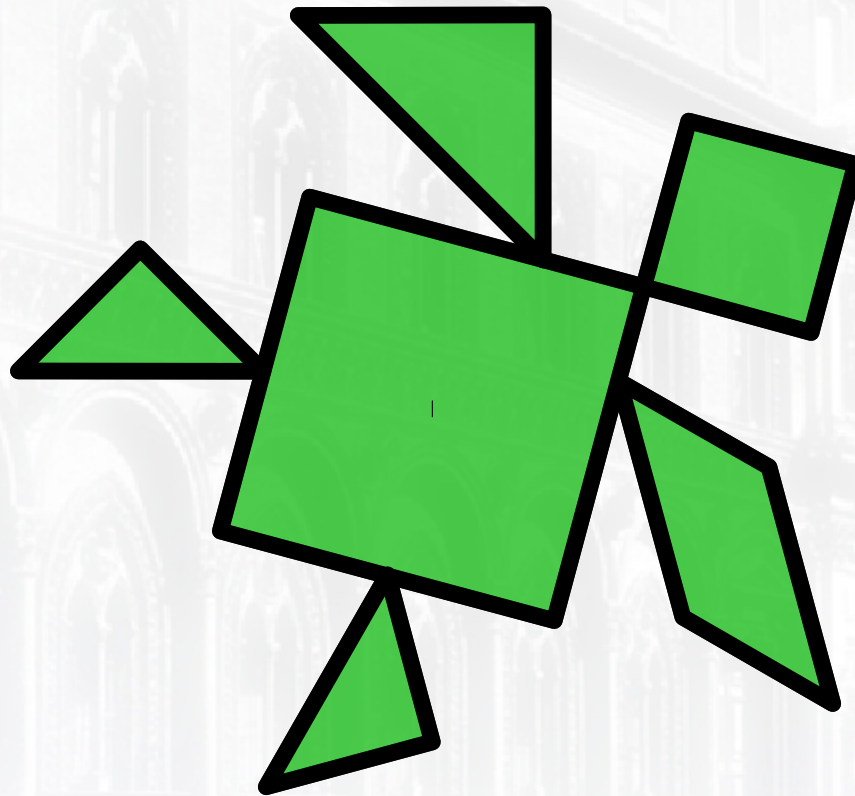
FSF.hu Foundation & Hungarian
Free Software Competence Center

Turtle vector graphics

- But where is the turtle?

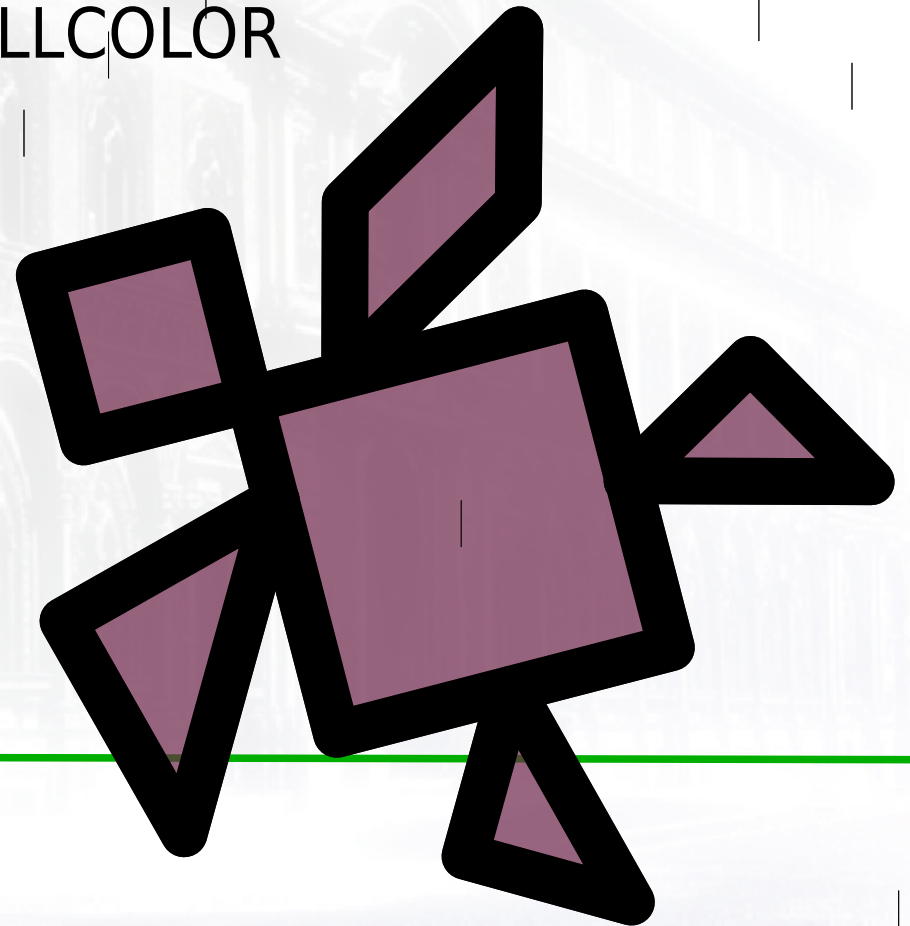


Fixing turtle shape problem



WYSIWYG turtle usage

- position and rotation, basic moves
- NEW: Modifying line width, color, filling color of the turtle by Drawing object properties toolbar will set PENSIZE, PENCOLOR and FILLCOLOR



LibreLogo

- Teaching of programming and word processing
- Automating graphical tasks in word processing
- Drawing high quality scientific illustrations
- By free softwares, open standards and community development



Keeping it simple

- 1610 Python/PyUNO program lines (from ~1450)
- New features: valid SVG and SVG SMIL support, etc.
- Fixes

Education

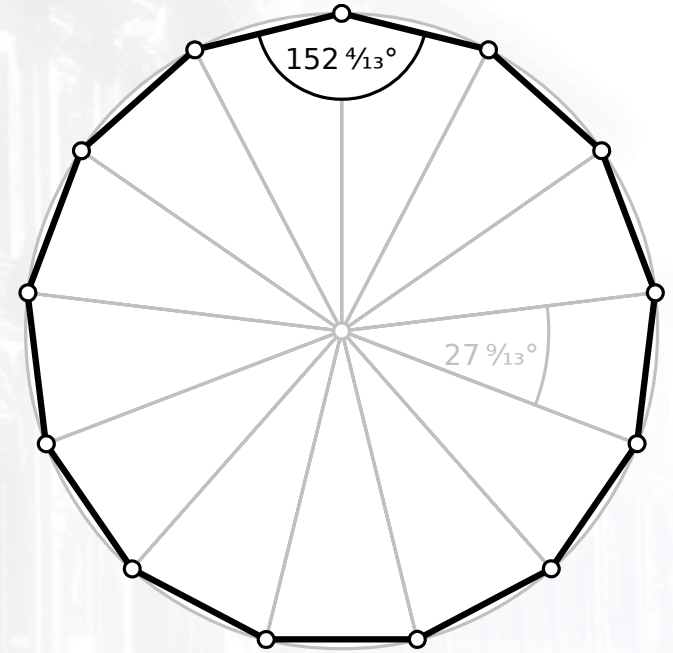
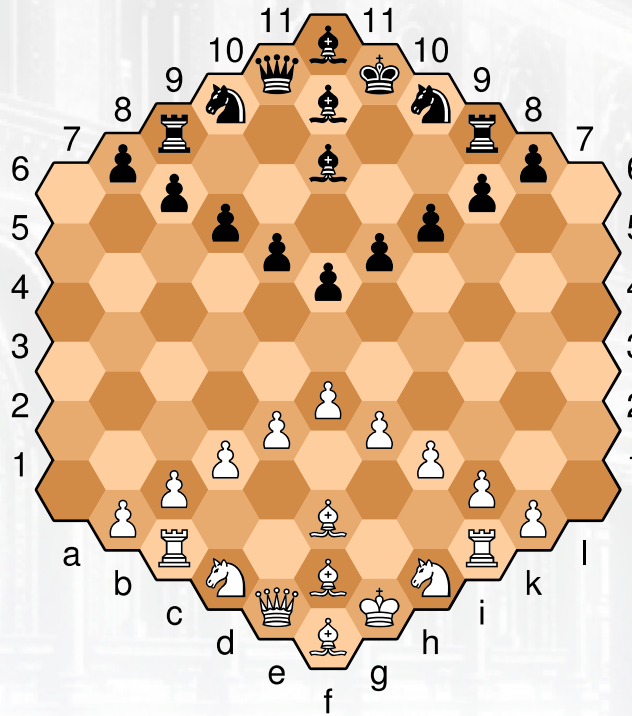
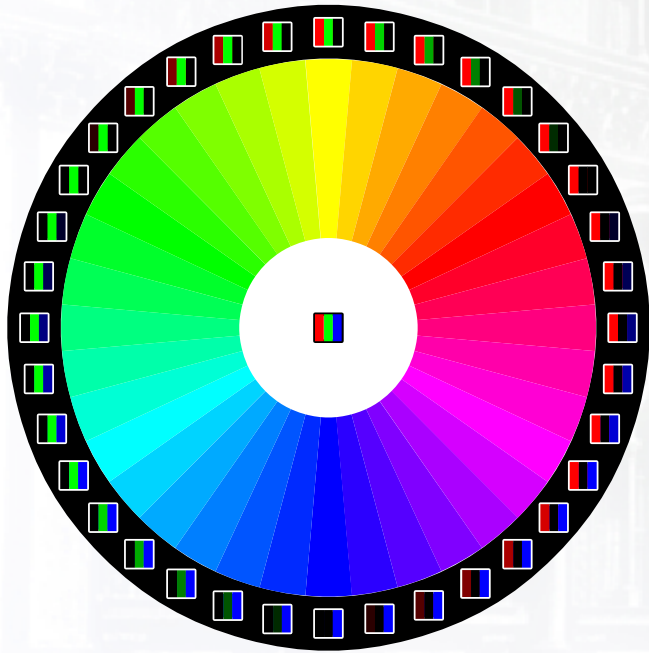
- Introduction (LibreOffice conference, Berlin, 2012):
<http://www.numbertext.org/logo/librelogo.pdf>
- LibreOffice multilingual help
https://help.libreoffice.org/Writer/LibreLogo_Toolbar
- Images with source on Wikipedia
Category: [Images with LibreLogo source code](#)
- [Templates.libreoffice.org](http://templates.libreoffice.org)
[LibreLogo templates](#)

Programming in your language

- Localization of commands and messages
https://translations.documentfoundation.org/en_GB/libreoffice/ui/librelogo/source/pythonpath.po
- Localization of LibreLogo help page
https://translations.documentfoundation.org/en_GB/libreoffice/help/swriter/librelogo.po
- Property file with localized commands and messages (modify it to test your fixes):
`[LIBREOFFICE]/share/Scripts/python/LibreLogo/LibreLogo_[langid].properties`

LibreLogo in Wikipedia

- Contributing to SVG transition project of Wikipedia
- New illustrations and animations
- Meaningful programming task (motivation)



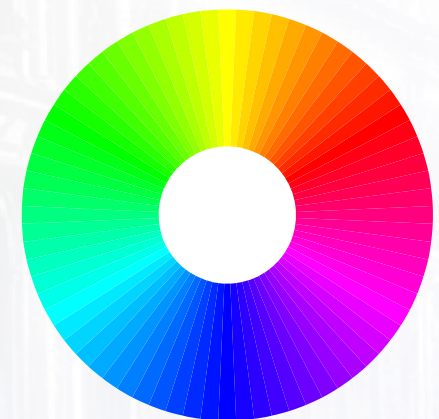
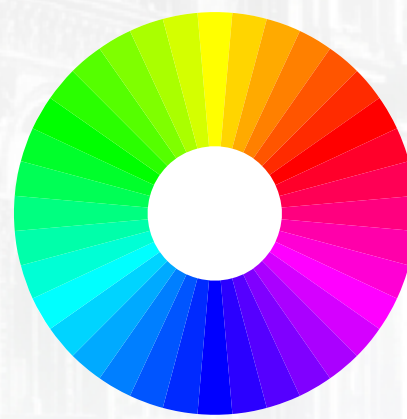
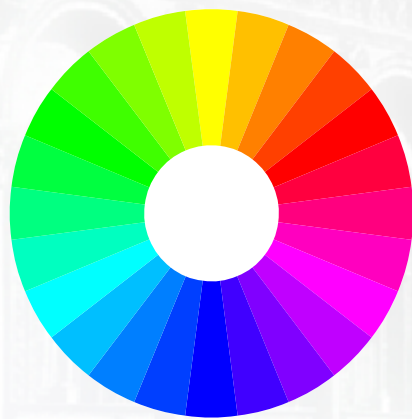
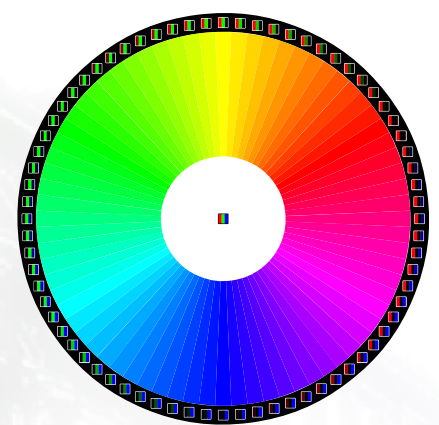
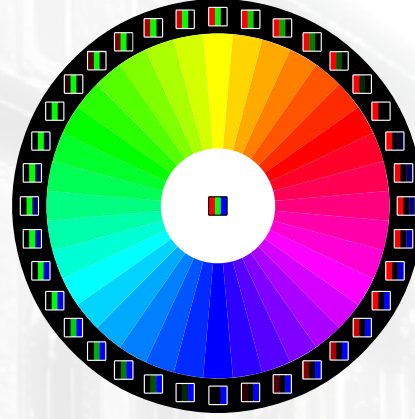
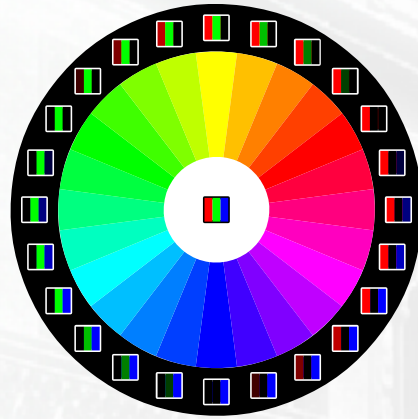
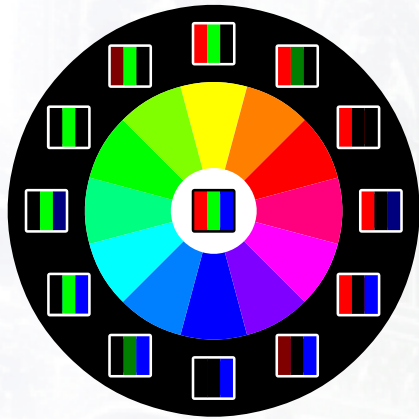
Feedback from Wikipedia

- SVG export of LibreOffice is not valid:
→ fixed SVG export in LibreLogo
- <https://en.wikipedia.org/wiki/LibreLogo>
- <https://eo.wikipedia.org/wiki/LibreLogo>
- LibreLogo is a “LibreOffice technology”

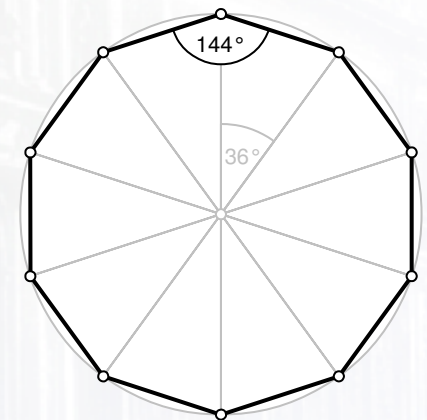
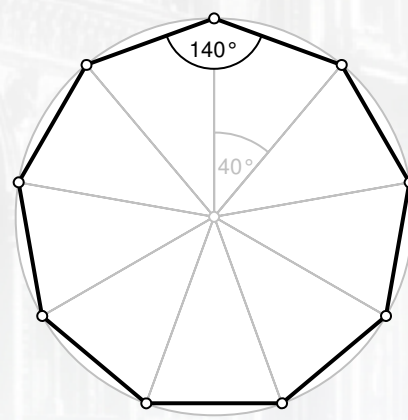
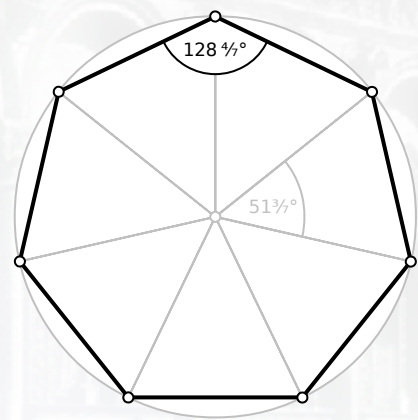
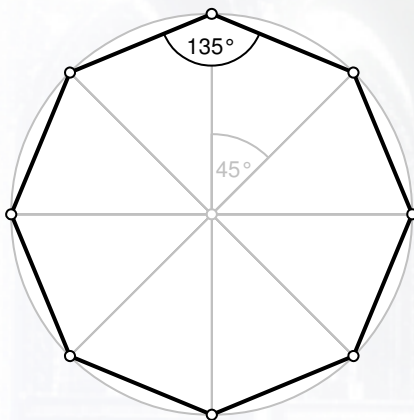
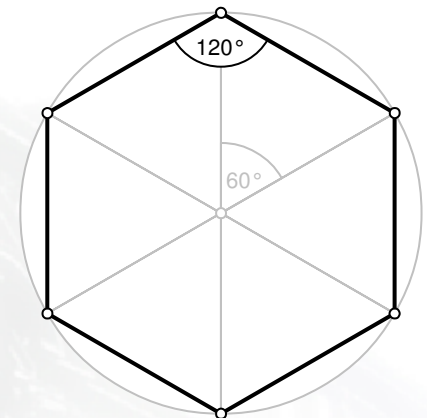
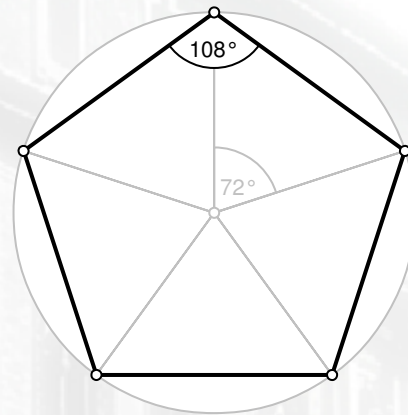
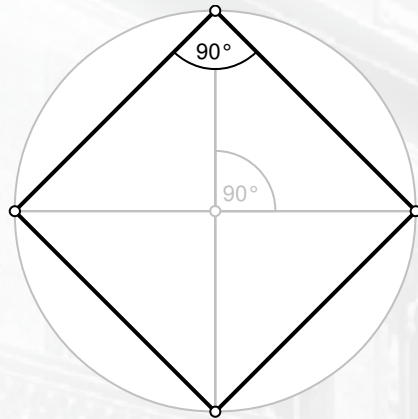
V · T · E	LibreOffice		[hide]
Applications	Desktop	Writer · Calc · Impress · Base · Draw · Math	
	Server	LibreOffice Server Install GUI	
	Mobile	LibreOffice on Android · Impress Remote	
	Online	LibreOffice Online	
Technologies	LibreLogo		
Category · Commons · Wikibooks			



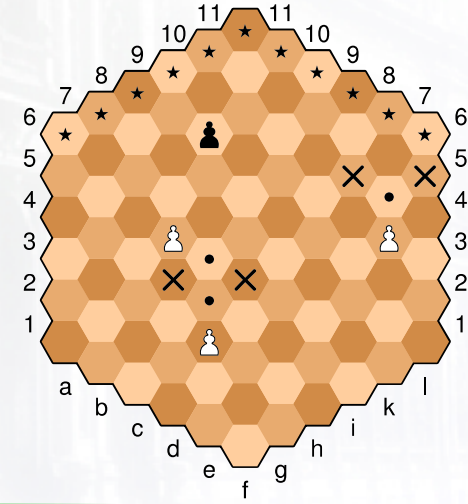
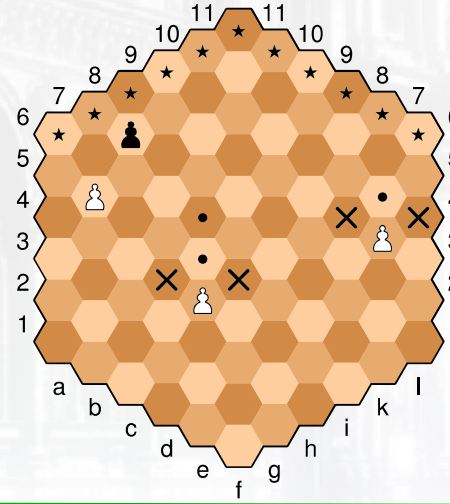
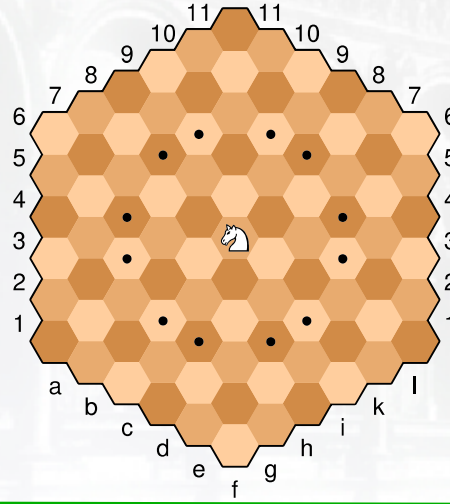
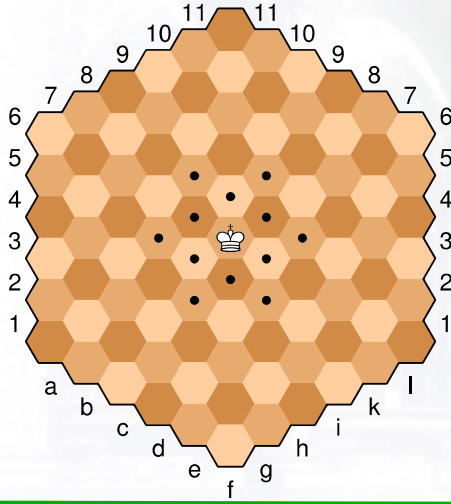
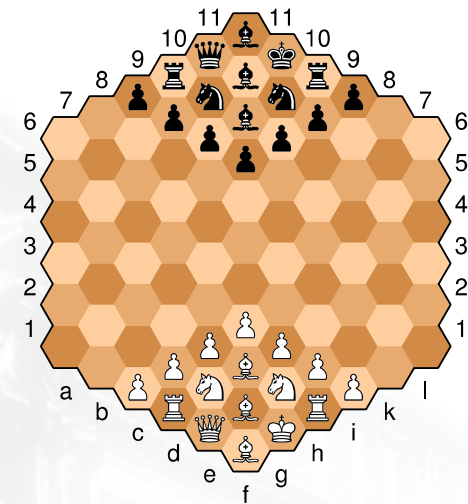
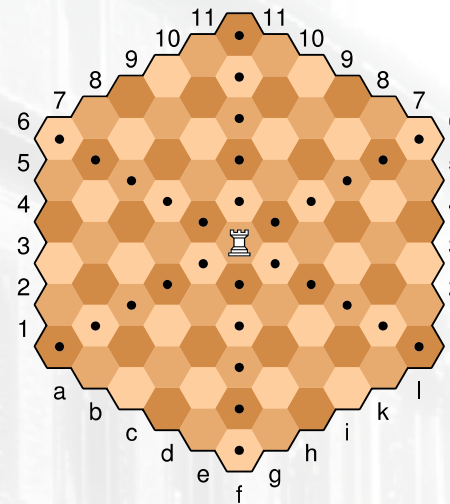
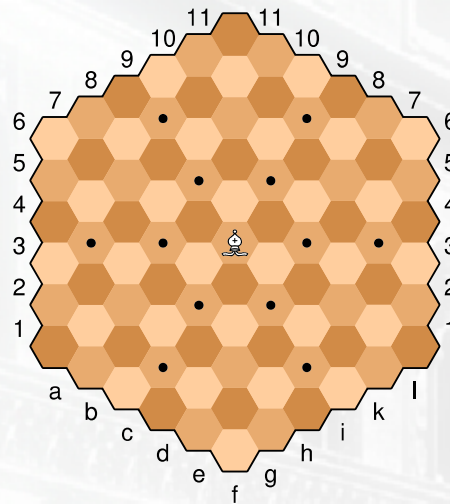
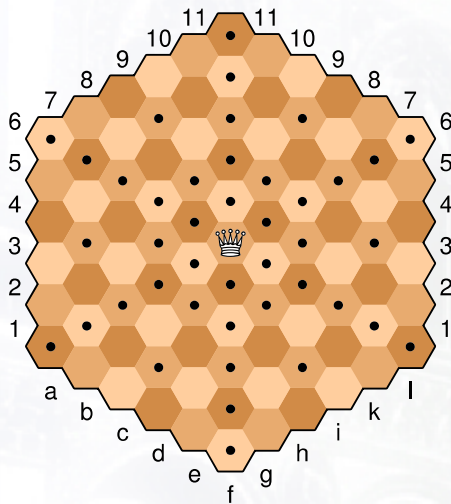
Automatization



Automatization



Automatization



Wikimedia Commons

- Media file repository of Wikipedia Foundation
- <http://commons.wikimedia.org>
- [Commons:Transition_to_SVG](#)
- [Template:Should_be_SVG](#)
- [Help:SVG](#)

LibreLogo contributions

- Category: Images with LibreLogo source code
- ~200 Wikipedia illustrations created with LibreLogo
- Category: Created with LibreOffice (18 → 180 pcs)
- Category: Valid SVG
- Category: Animated SVG (49 → 159 pcs)



SVG export in LibreLogo

- Add a file name/path to PICTURE
- Valid and cropped (ready for Wikipedia)
- [File:Random_walk_2500.svg](#)

```
PICTURE "random_walk_2500.svg" [  
  REPEAT 2500 [  
    HEADING 90 * INT RANDOM 4  
    FORWARD 5  
  ]  
]
```



Exporting animated SVG

- Use standard Logo command SLEEP
- SVG export will be SVG SMIL
- File:Random_walk_2500_animated.svg

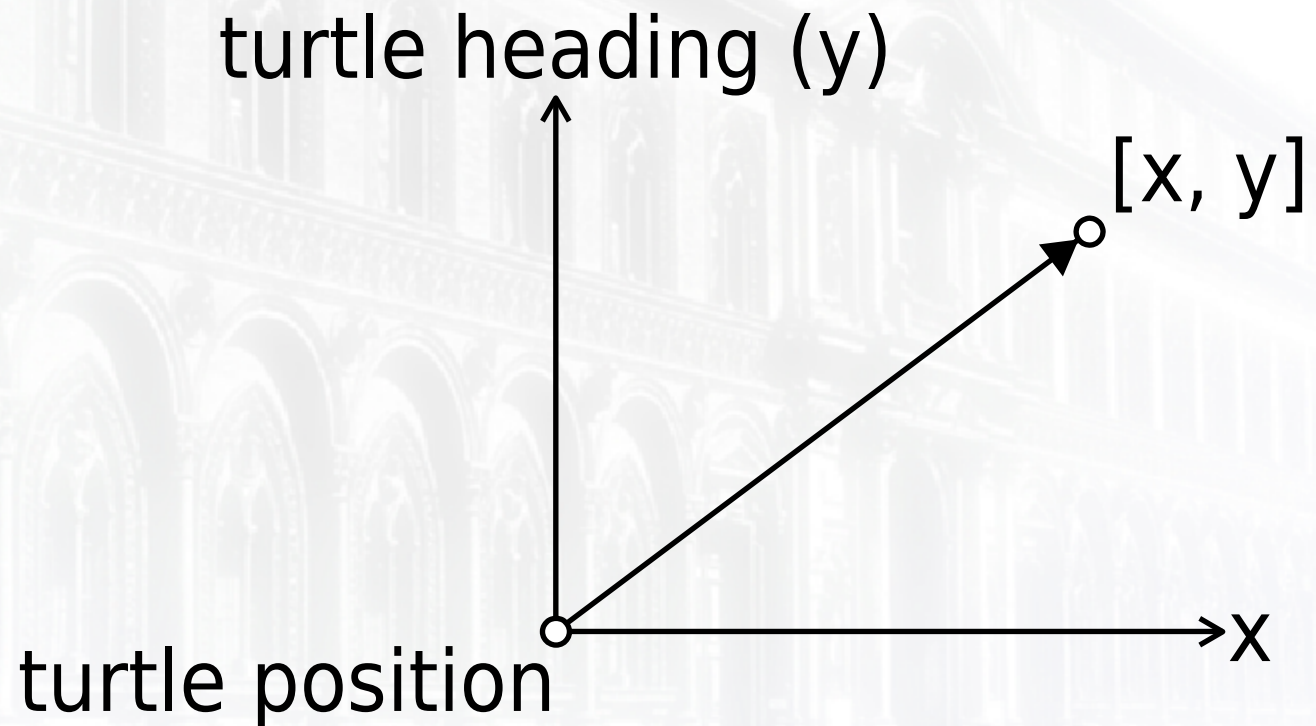
```
PICTURE "random_walk_2500.svg" [  
  REPEAT 2500 [  
    HEADING 90 * INT RANDOM 4  
    FORWARD 5  
    SLEEP 5  
  ]  
]
```

More SVG SMIL examples

- [File:Random_walk_25000.svg](#) (→ direct link)
- [File:Knight%27s_tour_animation.svg](#) (→)
- [File:Regular_polygon_100_vertex_animation.svg](#) (→)
- [File:Dragon_curve_animated.svg](#) (→)

Relative positioning

- FORWARD $[x, y]$
- Relative to turtle position and heading



Relative text positioning

- LABEL [x, y, "text"]
 - LABEL [0, 0, "x"]; center position (or LABEL "x")
 - LABEL [0, 1, "|"]; aligned to top
 - LABEL [0, -1, "|"]; ... bottom
 - LABEL [1, 0, "--"]; ... left
 - LABEL [-1, 0, "--"]; ... right
 - LABEL [1, 1, "1"] LABEL [1, -1, "2"]
 - LABEL [-1, -1, "3"] LABEL [-1, 1, "4"]
- Not only integer values ($n * \text{half size}$)

$$\begin{array}{r} 41 \\ - \times - \\ 32 \end{array}$$



Simple periodic table

1 1.008* H hydrogen																	18 4.003 He helium
3 6.94* Li lithium	4 9.012 Be beryllium											5 10.81* B boron	6 12.01* C carbon	7 14.01* N nitrogen	8 16.00* O oxygen	9 19.00 F fluorine	10 20.18 Ne neon
11 22.99 Na sodium	12 24.30* Mg magnesium											13 26.98 Al aluminium	14 28.09* Si silicon	15 30.97 P phosphorus	16 32.06* S sulfur	17 35.45* Cl chlorine	18 39.95 Ar argon
19 39.10 K potassium	20 40.08 Ca calcium	21 44.96 Sc scandium	22 47.87 Ti titanium	23 50.94 V vanadium	24 52.00 Cr chromium	25 54.94 Mn manganese	26 55.84 Fe iron	27 58.93 Co cobalt	28 58.69 Ni nickel	29 63.55 Cu copper	30 65.38* Zn zinc	31 69.72 Ga gallium	32 72.63 Ge germanium	33 74.92 As arsenic	34 78.96* Se selenium	35 79.90* Br bromine	36 83.80 Kr krypton
37 85.47 Rb rubidium	38 87.62 Sr strontium	39 88.91 Y yttrium	40 91.22 Zr zirconium	41 92.91 Nb niobium	42 95.96* Mo molybdenum	43 [98] Tc technetium	44 101.1 Ru ruthenium	45 102.9 Rh rhodium	46 106.4 Pd palladium	47 107.9 Ag silver	48 112.4 Cd cadmium	49 114.8 In indium	50 118.7 Sn tin	51 121.8 Sb antimony	52 127.6 Te tellurium	53 126.9 I iodine	54 131.3 Xe xenon
55 132.9 Cs caesium	56 137.3 Ba barium	57-71 lanthanides	72 178.5 Hf hafnium	73 180.9 Ta tantalum	74 183.8 W tungsten	75 186.2 Re rhenium	76 190.2 Os osmium	77 192.2 Ir iridium	78 195.1 Pt platinum	79 197.0 Au gold	80 200.6 Hg mercury	81 204.4* Tl thallium	82 207.2 Pb lead	83 209.0 Bi bismuth	84 [209] Po polonium	85 [210] At astatine	86 [222] Rn radon
87 [223] Fr francium	88 [226] Ra radium	89-103 actinides	104 [267] Rf rutherfordium	105 [268] Db dubnium	106 [269] Sg seaborgium	107 [270] Bh bohrium	108 [269] Hs hassium	109 [278] Mt meitnerium	110 [281] Ds darmstadtium	111 [281] Rg roentgenium	112 [285] Cn copernicium	113 [286] Uut ununtrium	114 [289] Fl flerovium	115 [288] Uup ununpentium	116 [293] Lv livermorium	117 [294] Uus ununseptium	118 [294] Uuo ununoctium
			57 138.9 La lanthanum	58 140.1 Ce cerium	59 140.9 Pr praseodymium	60 144.2 Nd neodymium	61 [145] Pm promethium	62 150.4 Sm samarium	63 152.0 Eu europium	64 157.2 Gd gadolinium	65 158.9 Tb terbium	66 162.5 Dy dysprosium	67 164.9 Ho holmium	68 167.3 Er erbium	69 168.9 Tm thulium	70 173.1 Yb ytterbium	71 175.0 Lu lutetium
			89 [227] Ac actinium	90 232.0 Th thorium	91 231.0 Pa protactinium	92 238.0 U uranium	93 [237] Np neptunium	94 [244] Pu plutonium	95 [243] Am americium	96 [247] Cm curium	97 [247] Bk berkelium	98 [251] Cf californium	99 [252] Es einsteinium	100 [257] Fm fermium	101 [258] Md mendelevium	102 [259] No nobelium	103 [262] Lr lawrencium

*H: [1.00784, 1.00811]
 Li: [6.938, 6.997]
 B: [10.806, 10.821]
 C: [12.0096, 12.0116]
 N: [14.00643, 14.00728]
 O: [15.99903, 15.99977]
 Mg: [24.304, 24.307]
 Si: [26.084, 26.086]
 S: [32.059, 32.076]
 Cl: [35.446, 35.457]
 Br: [79.901, 79.907]
 Tl: [204.382, 204.385]
 Zn: 65.38(2)
 Se: 78.96(3)
 Mo: 95.86(2)

For printing

1 1.008* H hydrogen											
3 6.94* Li lithium	2 9.012 Be beryllium										
11 22.99 Na sodium	12 24.30* Mg magnesium	3	4	5	6	7	8	9	10	11	12
19 39.10 K potassium	20 40.08 Ca calcium	21 44.96 Sc scandium	22 47.87 Ti titanium	23 50.94 V vanadium	24 52.00 Cr chromium	25 54.94 Mn manganese	26 55.84 Fe iron	27 58.93 Co cobalt	28 58.69 Ni nickel	29 63.55 Cu copper	30 65.38 Zn zinc
37 85.47 Rb rubidium	38 87.62 Sr strontium	39 88.91 Y yttrium	40 91.22 Zr zirconium	41 92.91 Nb niobium	42 95.96* Mo molybdenum	43 [98] Tc technetium	44 101.1 Ru ruthenium	45 102.9 Rh rhodium	46 106.4 Pd palladium	47 107.9 Ag silver	48 112 Cd cadmium
55 132.9 Cs caesium	56 137.3 Ba barium	57-71	72 178.5 Hf hafnium	73 180.9 Ta tantalum	74 183.8 W tungsten	75 186.2 Re rhenium	76 190.2 Os osmium	77 192.2 Ir iridium	78 195.1 Pt platinum	79 197.0 Au gold	80 200 Hg mercury
87 [223] Fr francium	88 [226] Ra radium	89-103	104 [267] Rf rutherfordium	105 [268] Db dubnium	106 [269] Sg seaborgium	107 [270] Bh bohrium	108 [269] Hs hassium	109 [278] Mt meitnerium	110 [281] Ds darmstadtium	111 [281] Rg roentgenium	112 [285] Cn copernicium

*H: [1.00784, 1.00811]
Li: [6.938, 6.997]
B: [10.806, 10.831]

In other languages

1 1.008* H υδρογόνο	2										
3 6.94* Li λίθιο	4 9.012 Be βηρύλλιο										
11 22.99 Na νάτριο	12 24.30* Mg μαγνήσιο	3	4	5	6	7	8	9	10	11	12
19 39.10 K κάλιο	20 40.08 Ca ασβέστιο	21 44.96 Sc σκάνδιο	22 47.87 Ti τιτάνιο	23 50.94 V βανάδιο	24 52.00 Cr χρώμιο	25 54.94 Mn μαγγάνιο	26 55.84 Fe σίδηρος	27 58.93 Co κοβάλτιο	28 58.69 Ni νικέλιο	29 63.55 Cu χαλκός	30 65.38 Zn ψευδάργυρος
37 85.47 Rb ρουβίδιο	38 87.62 Sr στρόντιο	39 88.91 Y ύτριο	40 91.22 Zr ζιρκόνιο	41 92.91 Nb νιόβιο	42 95.96* Mo μολυβδένιο	43 [98] Tc τεχνητίο	44 101.1 Ru ρουθίνιο	45 102.9 Rh ρόδιο	46 106.4 Pd παλλάδιο	47 107.9 Ag άργυρος	48 112 Cd κάδμιο
55 132.9 Cs καίσιο	56 137.3 Ba βάριο	57-71	72 178.5 Hf άφνιο	73 180.9 Ta ταντάλιο	74 183.8 W βολφράμιο	75 186.2 Re ρήνιο	76 190.2 Os όσμιο	77 192.2 Ir ιρίδιο	78 195.1 Pt λευκόχρυσος	79 197.0 Au χρυσός	80 200 Hg υδράργυρος
87 [223] Fr φράνκιο	88 [226] Ra ράδιο	89-103	104 [267] Rf ραδερφόρντιο	105 [268] Db ντούμπνιο	106 [269] Sg σιμπόργκιο	107 [270] Bh μπόριο	108 [269] Hs χάσιο	109 [278] Mt μαϊτνέριο	110 [281] Ds νταρμστάντιο	111 [281] Rg ρεντγκένιο	112 [285] Cn κοπερνίκιο

*H: [1.00784, 1.00811]
Li: [6.938, 6.997]

1 1.008* H водород											
3 6.94* Li литий	4 9.012 Be бериллий										
11 22.99 Na натрий	12 24.30* Mg магний	3	4	5	6	7	8	9	10	11	12
19 39.10 K калий	20 40.08 Ca кальций	21 44.96 Sc скандий	22 47.87 Ti титан	23 50.94 V ванадий	24 52.00 Cr хром	25 54.94 Mn марганец	26 55.84 Fe железо	27 58.93 Co кобальт	28 58.69 Ni никель	29 63.55 Cu медь	30 65.38 Zn цинк
37 85.47 Rb рубидий	38 87.62 Sr стронций	39 88.91 Y иттрий	40 91.22 Zr цирконий	41 92.91 Nb ниобий	42 95.96* Mo молибден	43 [98] Tc технеций	44 101.1 Ru рутений	45 102.9 Rh родий	46 106.4 Pd палладий	47 107.9 Ag серебро	48 112 Cd кадмий
55 132.9 Cs цезий	56 137.3 Ba барий	57-71	72 178.5 Hf гафний	73 180.9 Ta тантал	74 183.8 W вольфрам	75 186.2 Re рений	76 190.2 Os осмий	77 192.2 Ir иридий	78 195.1 Pt платина	79 197.0 Au золото	80 200 Hg ртуть
87 [223] Fr франций	88 [226] Ra радий	89-103	104 [267] Rf резерфордий	105 [268] Db дубний	106 [269] Sg сиборгий	107 [270] Bh борий	108 [269] Hs хассий	109 [278] Mt мейтнерий	110 [281] Ds дармштадтий	111 [281] Rg рентгений	112 [285] Cn коперниций

*H: [1.00784, 1.00811]
Li: [6.938, 6.997]
B: [10.806, 10.831]

In Italien, too

1 1.008* H idrogeno											
3 6.94* Li litio	4 9.012 Be berillio										
11 22.99 Na sodio	12 24.30* Mg magnesio										
		3	4	5	6	7	8	9	10	11	12
19 39.10 K potassio	20 40.08 Ca calcio	21 44.96 Sc scandio	22 47.87 Ti titanio	23 50.94 V vanadio	24 52.00 Cr cromo	25 54.94 Mn manganese	26 55.84 Fe ferro	27 58.93 Co cobalto	28 58.69 Ni nichel	29 63.55 Cu rame	30 65.38 Zn zinco
37 85.47 Rb rubidio	38 87.62 Sr stronzio	39 88.91 Y ittrio	40 91.22 Zr zirconio	41 92.91 Nb niobio	42 95.96* Mo molibdeno	43 [98] Tc tecnecio	44 101.1 Ru rutenio	45 102.9 Rh rodio	46 106.4 Pd palladio	47 107.9 Ag argento	48 112 Cd cadmio
55 132.9 Cs cesio	56 137.3 Ba bario	57-71 Lantanoidi	72 178.5 Hf afnio	73 180.9 Ta tantalio	74 183.8 W tungsteno	75 186.2 Re renio	76 190.2 Os osmio	77 192.2 Ir iridio	78 195.1 Pt platino	79 197.0 Au oro	80 200 Hg mercurio
87 [223] Fr francio	88 [226] Ra radio	89-103 Attinoidi	104 [267] Rf rutherfordio	105 [268] Db dubnio	106 [269] Sg seaborgio	107 [270] Bh bohrio	108 [269] Hs hassio	109 [278] Mt meitnerio	110 [281] Ds darmstadtio	111 [281] Rg roentgenio	112 [285] Cn copernicio

*H: [1.00784, 1.00811]
Li: [6.938, 6.997]
B: [10.806, 10.831]

SVG fonts of Wikipedia

- https://meta.wikimedia.org/wiki/SVG_fonts
- Not supported fonts, use
Modify→Convert→To Curve (Draw) or
Path→Object to path (Inkscape)
- Script version: `svg2svg 1.svg 2.svg` (a workaround via PDF, not for animated SVG):

```
#!/bin/sh
inkscape $1 --export-pdf /tmp/$1.pdf -T
inkscape -l $2 /tmp/$1.pdf
```

“Low level” LibreLogo I

- Embedded Python code using exec()
- Periodic table: download and process Wikipedia data

```
exec("import urllib.request")
```

```
exec("data =  
urllib.request.urlopen("http://en.wikipedia.org/w/index.ph  
p?action=raw&title=List_of_elements").readlines()")
```

```
exec("table = [[j.strip(" |[]") for j in i.decode("utf-  
8").replace("style=\\\"background-  
color:#", "0x").replace("\\\" | ", "||").split("||") for i in data if  
re.match("^\\| *\\d+ *\\|\\|", i.decode("utf-8"))]")
```

“Low level” LibreLogo II

- Direct PyUNO calls
- Periodic table: fit element names into cells

TO width_of_last_object

```
OUTPUT _.drawpage.getByIndex(_.drawpage.getCount()-1).getSize().Width / 100 * __MM_TO_PT__ ; in pt  
END
```

TO delete_last_object

```
_.drawpage.remove(_.drawpage.getByIndex(_.drawpage.getCount()-1))  
END
```

Planned developments

- Support new shape features
- Faster drawing
- Fix parsing of complex expressions
- Moving, deleting objects for SVG SMIL export
- Curves
- Better warning messages
- Textbook in English
- More and more high quality Wikipedia illustrations

Everybody can program

- PRINT “Hello, World!”
- STAMPA “Ciao, Mondo!”
- GIB „Hallo, Welt!”
- IMPRIMER “Bonjour tout le monde!”
- KI „Szia, Világ!”
- ...

Thanks for your attention!

