

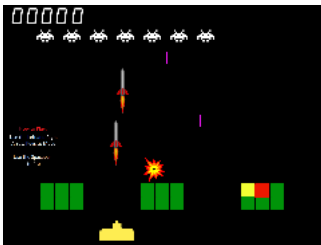
Snap! Examples

Jens Mönig
September 26, 2016

This is a non-comprehensive collection of sample projects, mostly used by myself for testing, debugging and demonstrating Snap. The good ones have been sent to me by despairing users and did not work at the time because Snap was either broken or buggy, hence this list suffers from extreme and terrible selection bias, I'm sure that there are much better examples out there in the wild.

Awesome Projects from Users

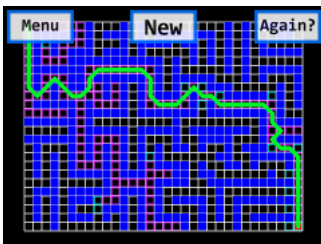
The projects in this category define Snap's "high end" and demonstrate its computational "no-ceiling" aspect. They were created by a BJC teacher and by amazing UC Berkeley CS10 students.



Space Invaders

(from a teacher in Colorado)

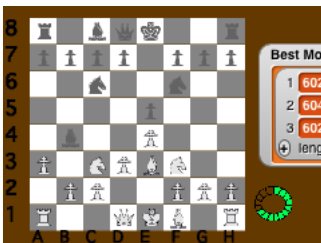
<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=Space%20Invaders&editMode&noRun>



PathFinder

(created by Aleks Kamko and Ben Purcell; UC Berkeley CS10, Fall 2012)

<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=PathFinder>



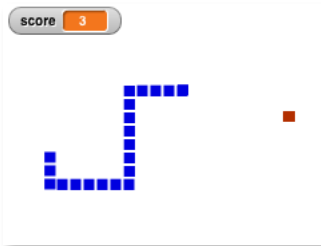
Chess

(created by UC Berkeley CS10 students)

<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=Chess>

Garden-Variety Projects

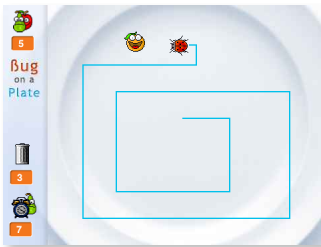
The projects in this category are a wild variety that don't fit into a particular theme (below). Some are simple test projects for a certain feature, some have been transcribed from existing Scratch projects, and some have been shared by the BJC curriculum developers and from Brian and Dan.



Snake

(playable game, stamping, using a list as queue)

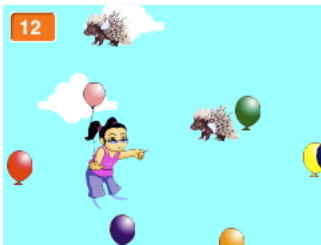
<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=Snake&editMode&noRun>



Bug on a Plate

(playable game by Bernatp from Hungary, pen-trails collision detection)

<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=BugOnAPlate&editMode&noRun>



Balloon Pop

(playable game by Cheddargirl from Scratch)

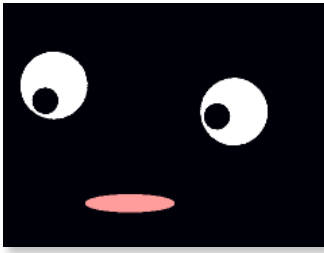
<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=Balloon%20Pop>



Star Wars Game

(hilarious playable game from Scratch)

<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=Star%20Wars%20Game>



Funny Face

(by Hideki from Japan, off-center rotation point play, good starter project)

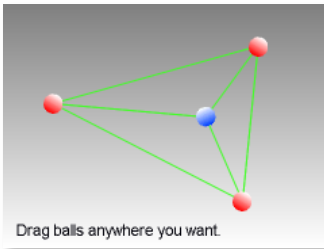
<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=funny%20face>



Slideshow

(originally by Bernatp from Hungary - changing backgrounds, good starter project)

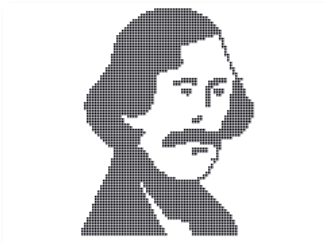
<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=Slideshow>



Constraint

(by Kazuhiro Abe from Japan)

<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=constraint>



Portrait

(by Goch from Austria - sprite collision detection and stamping)

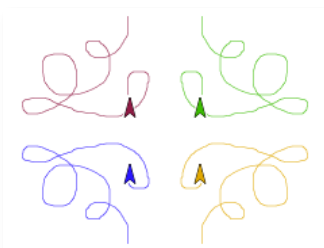
<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=Portrait>



Einmaleins

(in German: "AI-enhanced" multiplication trainer)

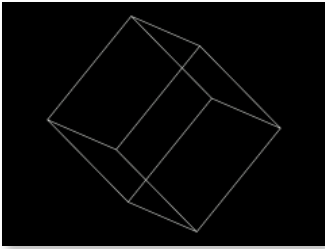
<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=Einmaleins&editMode&noRun>



Kaleidoscope

(awesome starter project from the BJC curriculum)

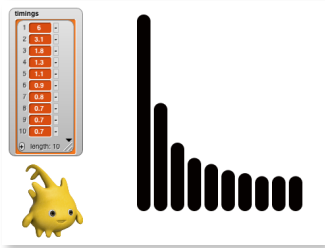
<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=kaleidoscope&editMode>



3D Cube

(by Dan, wireframe animation)

<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=3D%20cube>



Slices

(parallelization demo)

<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=Slices&editMode&noRun>



Jurassic

(simple stop motion animation by Luis, Jens' son, example of a starter project)

<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=Jurassic>



Dog Walk

(keyboard-controlled sprite-animation with changing backgrounds, starter project)

<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=dogwalk&editMode>



Path Follower

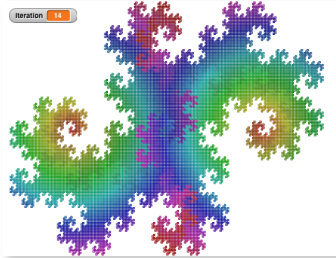
(simulates a very simple line-following robot using sprite-nesting)

<http://snap.berkeley.edu/run#cloud:Username=jens&ProjectName=PathFollower>

Themes

I have categorized the following projects into an arbitrary and by no means exhaustive set of “themes”, some of which used to be unique to Snap (recursion), or still are (HoFs, Nesting, SICP-style OOP).

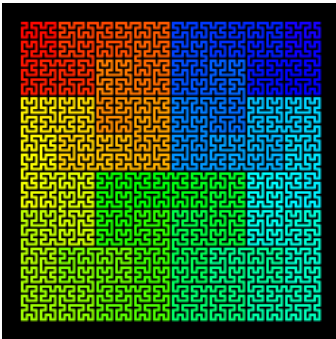
Recursion



Double Jurassic Park

(fractal)

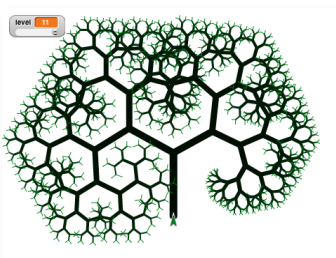
<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=Double%20Jurassic%20Park>



Hilbert Curve

(fractals)

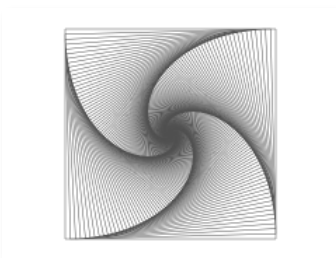
<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=Hilbert2>



Tree Animation

(animated fractal)

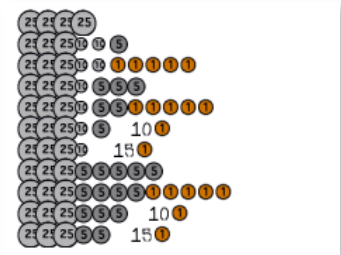
<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=tree%20animation>



Mystery Fractal

(by Dan, animation)

<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=2013Sp%20Final%20What%20Does%20This%20Do%3F&editMode>



Count Change

(by Brian, SICP)

<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=count%20change&editMode>

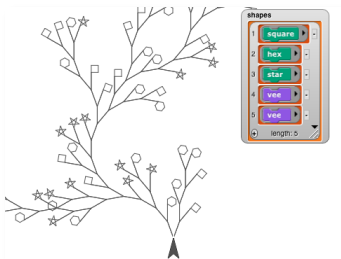


Tree

(playable project by Brian, interactive fractal tree drawer)

<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=Tree>

Higher Order Functions



Vee

(Snap's flagship project, idea by Paul, this design by Brian)

<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=vee&editMode&noRun>



Roman Numerals

(MAP, REDUCE, DETECT)

<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=Roman&editMode>



Y Combinator

(by Brian back in the old BYOB3 days)

<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=y%20combinator&editMode>

SICP-Style Dispatch-Procedure Objects



Joke

(modified Scratch example, Smalltalk-inspired ReadStream class with “self” dispatch)

http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=joke_self&editMode&noRun



Dolmetscher

(German - English - Swabian Interpreter, example scripts)

<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=Dolmetscher&editMode>

Music



Free Jacques

(round, coded explicitly)

<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=Frere%20Jacques&editMode>



Kanon

(playing a round from a voice recording)

<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=Kanon&editMode&noRun>



Menuet

(treating melodies/voices as lists)

<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=Menuet&editMode&noRun>



Round

(using clones to play a round)

<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=Round&editMode&noRun>



Sine Wave Blues Band

(AI-improvising)

<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=Sine%20Wave%20Blues%20Band&editMode&noRun>

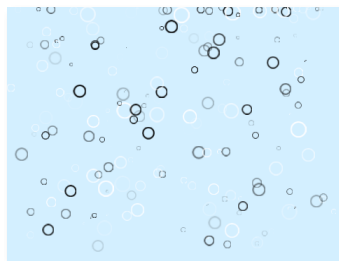


Tiny Music

(atonal harmonic auto-composer)

<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=Tiny%20Music&editMode&noRun>

Clones



Sprudel

("Sparkling Water" animation)

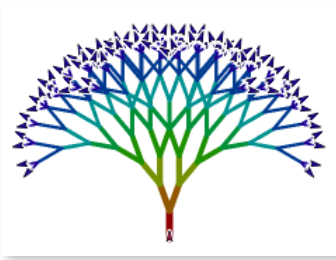
<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=Sprudel&editMode&noRun>



Growing Tree

(drawing a growing tree with clones)

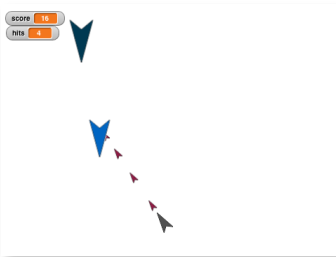
snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=Growing%20Tree&editMode



Exponential Growth

(a clone explosion)

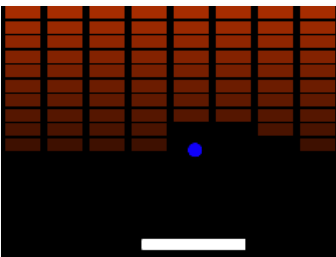
<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=Clones>



Shooter

(playable game - use arrow keys to turn, space key to fire)

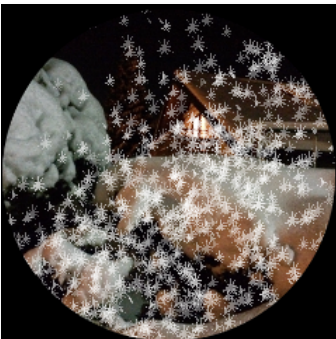
<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=Shooter&editMode&noRun>



Breakout (clones)

(self-playing game demo)

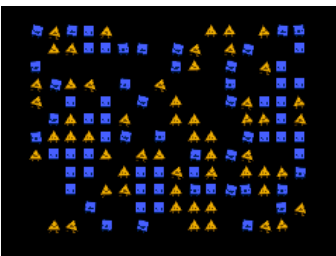
<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=breakout&editMode&noRun>



Snow Globe

(Christmas card, flocking)

<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=Snow%20Globe&editMode&noRun>



Parable of the Polygons

after Vi Hart's and Nicky Case's famous blog post:

<http://ncase.me/polygons/>

This was a challenge from Alan Kay how we could facilitate *authoring* something like Vi and Nicky did in our respective programming environments. This was my first try in Snap:

(press green flag to set up the board, then drag the “unhappy” polygons around until they are happy. press space key to let the project auto-solve it.

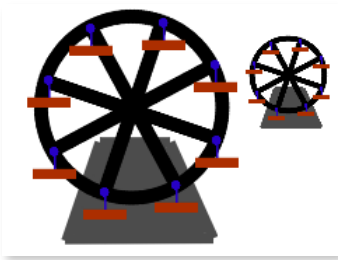
[http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=Parable%20\(big\)&editMode&noRun](http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=Parable%20(big)&editMode&noRun)



Mesmerize

(Example for both clones and using JS block to draw custom costumes)

<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=Mesmerize&editMode>

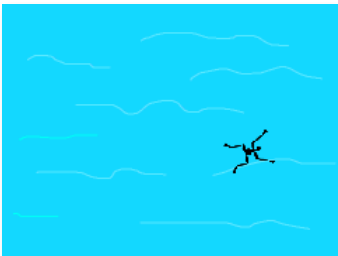


Nested Sprites

Ferris Wheel

(nesting, with “dangling” connections)

<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=FerrisWheel&editMode&noRun>



Swimmer

(nesting, animation)

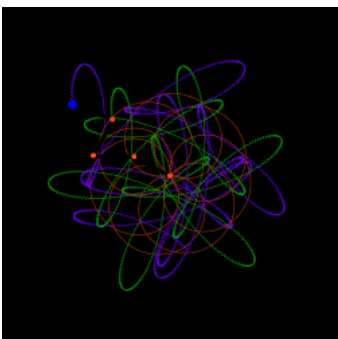
<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=swimmer&editMode>



Copter

(an “Alan Kay” style driving car example, except it’s a quadcopter, and it doesn’t involve color collision detection, instead the rotors double as collision sensors)

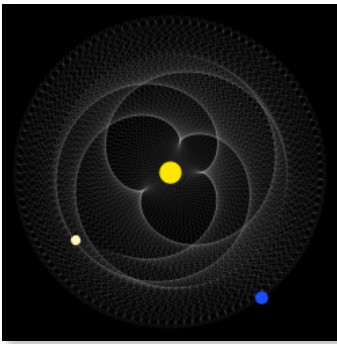
<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=copter&editMode>



Spirograph

(nesting, parts can draw individually):

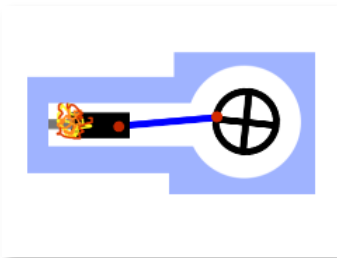
<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=Spirograph>



Planets

Eight Earth years are about equal to 13 Venus years, the two planets roughly trace out this pattern with 5-fold symmetry as they orbit around the Sun.

<http://snap.berkeley.edu/snapsource/dev/snap.html#present:Username=jens&ProjectName=Earth%20Venus%20Orbits>



Engine

(nesting, machine simulation):

<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=engine&editMode&noRun>



Zombies

(demonstrates how nested sprites can even be clones as whole)

<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=Zombie%20%23ScratchMIT2014&editMode&noRun>

Media Comp



Pixel manipulation, graphic effects. This experimental project came out of collaborating with Mark Guzdial on GP and other things, it's also referenced in my description of the "table" feature:

<http://snap.berkeley.edu/snapsource/TablesInSnap.pdf>
<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=MediaComp&editMode>

(note: you can seriously speed up the examples in this project, especially for the high-res version of the photograph, by replacing "map" with "fastMap" as described in the pdf).



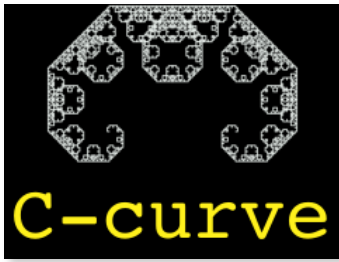
Pen-trails as Costumes

and then stamping them:

1. click green flag
 2. press "s"
 3. press "p"
- etc...

these blocks are now an "official" library

<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=save%20and%20restore%20pen%20trails&editMode&noRun>

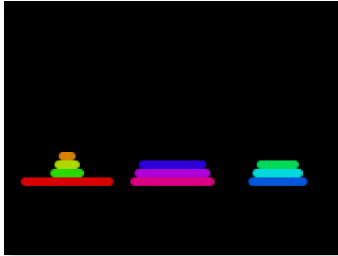


Fastest Fractal

(by Dan, uses the pen-trails saving and restoring blocks for linear-time fractals)

<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=save%20and%20restore%20open%20trails%20FRACTAL&editMode>

First Class Sprites



Towers of Hanoi

(demonstrates sprites in lists)

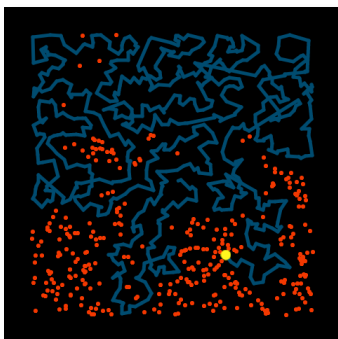
<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=Towers%20of%20Hanoi>



Population Simulation

(demonstrates collision detection among clones)

<http://snap.berkeley.edu/run#cloud:Username=jens&ProjectName=population>



Woodworm

(demonstrates enumerating many clones)

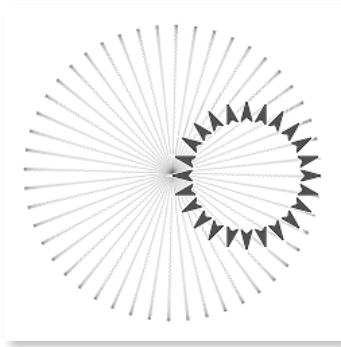
<http://snap.berkeley.edu/snapsource/snap.html#cloud:Username=jens&ProjectName=Woodworm>



Ferris Wheel 2016

(demonstrates “bootstrapping” a machine by drawing costumes for clones)

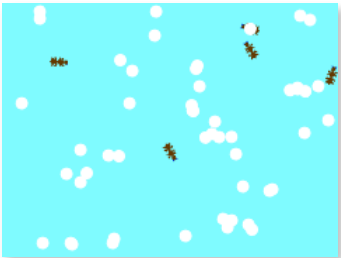
<http://snap.berkeley.edu/run#present:Username=jens&ProjectName=Ferris%20Wheel%202016>



Cartwheel

(demonstrates programmatic sprite-nesting)

<http://snap.berkeley.edu/run#present:Username=jens&ProjectName=cartwheel>



Ants and Eggs

(idea and prototype by Xavier Leroy)

<http://snap.berkeley.edu/snapsource/snap.html#cloud:Username=jens&ProjectName=Ants%20and%20Eggs>

Geeky Features

Codification

(transpiling blocks to arbitrary text languages)

<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=Codification&editMode>



Continuations

(test-suite)

<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=continuations&editMode>



Upvars

and variable scope

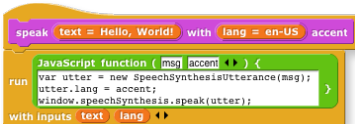
<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=Upvars&editMode>



JS-Functions

extending Snap with JavaScript

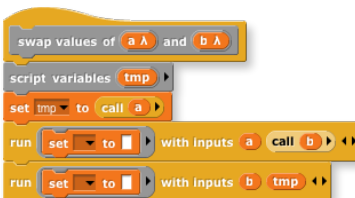
<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=JSFunctions&editMode>



Swapping Variable Values

(a challenge from our friends at the Citilab in Barcelona)

<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=swap%20variables&editMode&noRun>





Free Form Expressions

(type-in JS-functions instead of nesting reporter blocks)

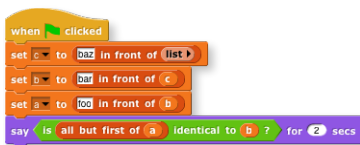
<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=free%20form%20expressions&noRun>



Tables

(test-cases, enable “table support” for these)

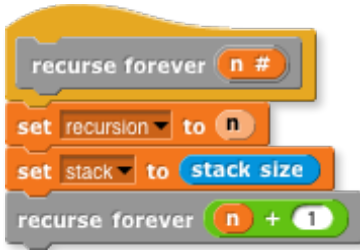
(see: <http://snap.berkeley.edu/snapsource/TablesInSnap.pdf>)
<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=table%20docu&editMode>



Linked Lists

see:

<http://snap.berkeley.edu/snapsource/LinkedListsInSnap.pdf>
<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=linked%20list%20identity&editMode&noRun>



Tail-Call Elimination

(Proper Tail Recursion)

<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=tco&editMode%noRun>



Mutable Formal Parameters

(Ethiopian Multiplication Example stub)

<http://snap.berkeley.edu/snapsource/snap.html#present:Username=jens&ProjectName=Ethiopian%20Multiplication&editMode>