

nimsticks

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1 Background

`nimsticks` is a package for L^AT_EX that draws sticks for representating games of multi-pile Nim.

Nim objects could be anything, of course, but conventionally sticks or stones are used. There are various types of dot in L^AT_EX that might look like stones, but somehow a line of dots didn't seem satisfactory. There are various ways to draw a line (e.g. just typing `IIII`), including some tally markers (e.g. in `hhcount`). My problem with these (call me picky) is that they are all identical lines, and a 'heap' of them just looks very organised. Really, I want a set of lines that looks like someone just threw them into heaps (though probably without crossings for the avoidance of ambiguity).

The way this works is it draws a thick vertical line in TikZ with a little wobble added so each one doesn't look extremely well-lined-up with its neighbour, achieved by adding or subtracting a small random number to the top and bottom coordinate.

It does this by providing two commands:

- `\drawnimstick`: draws a single Nim stick with a little random wobble;
- `\nimgame`: takes a comma-separated list of numbers and draws a line of Nim heaps holding those number of sticks.

2 Usage

For example, the input `\nimgame{5,3,4}` will produce output like this (precise look affected by random wobble in the sticks):



This is designed to look like a 3-pile Nim game with 5 sticks in the first pile (or heap), 3 in the second and 4 in the third.

It is likely the user will want to use `\nimgame` and not `\drawnimstick` directly, but the input `\drawnimstick` will produce output like this (precise look affected by random wobble in the sticks):

\nimgame will happily work with one heap, so the input \nimgame{7} will produce output like this (precise look affected by random wobble in the sticks):

WVVI

3 Issues

There is no limit in the code to the number of piles or the number in a pile, but this code doesn't do anything to cope when line breaks start happening, and presumably there is a computational limit.

In principle, if you add lots of piles it will just wrap onto multiple lines, though it will start to look less clear. For example, the input

```
\nimgame{1,2,3,4,5,6,7,8,9,10,9,8,7,6,5,4,3,2,1}
```

will produce the output:

[illegible]

Similarly, if you have a lot of sticks in the same heap, it will wrap and look confusing, for example the input `\nimgame{128}` will produce the output: