

How **grid** Responds to Non-Finite Values

Paul Murrell

December 29, 2023

It is possible to include non-finite values, **NA**, **NaN**, **Inf**, and **-Inf**, in specifications of locations and sizes in **grid** functions. This document describes how **grid** responds to non-finite values in different cases.

viewports

Non-finite values are not permitted in the location, size, or scales of a viewport. Viewport scales are checked when a viewport is created. It is very hard to be certain that locations and sizes are not non-finite when the viewport is created so this is only checked when the viewport is pushed. Non-finite values result in error messages.

lines, segments, rectangles, text, points, circles

For all of these primitives, non-finite values for locations or sizes result in the corresponding primitive not being drawn. The following image provides a simple demonstration. Each primitive is drawn at seven x-locations, with the fourth location made non-finite (as indicated by a grey "NA").

| | | | | | | | |
|------------|-------|---|---|----|-------|---|---|
| segments | | | | NA | | | |
| | | | | NA | | | |
| text | a | b | c | NA | e | a | b |
| lines | _____ | | | NA | _____ | | |
| rectangles | ▣ | ▣ | ▣ | NA | ▣ | ▣ | ▣ |
| circles | ○ | ○ | ○ | NA | ○ | ○ | ○ |
| points | ○ | ○ | ○ | NA | ○ | ○ | ○ |

lineTo

A line segment is only drawn if the previous location and the new location are both not non-finite.

polygon

A non-finite value breaks the polygon into two separate polygons. NOTE that this break happens within the current polygon as specified by the `id` argument. All polygons with the same `id` receive the same `gp` settings.

arrows

An arrow head is only drawn if the first or last line segment is drawn.

The following image demonstrates the behaviour of these primitives where x- and y-locations are seven equally-spaced locations around the perimeter of a circle. In the top-left figure, all locations are not non-finite. In each of the other figures, two locations have been made non-finite (indicated in each case by grey text).

