## Changes introduced

As before, you can use git diff to find the lines introduced by the buggy commit. Again, you'll need the ID of the buggy commit, which is 003c8c197cd3b1e5b28b58f53ee14d7ebaa9bb3a, and the ID of the previous commit, which is 746f762e38b5bbb7d0b837464ef6ec3f8ee5bf91.

Thus, by running git diff 746f762e38b5bbb7d0b837464ef6ec3f8ee5bf91 003c8c197cd3b1e5b28b58f53ee14d7ebaa9bb3a, you can find out that the change made by the buggy commit was:

- clone.x += utils.randomNumber(5, 10);

- clone.y += utils.randomNumber(-20, 20);

+ clone.x += utils.randomNumber(500, 1000);

+ clone.y += utils.randomNumber(-2000, 2000);

That is, the x and y coordinate of each clone is changed by a larger random amount. This will have the effect of making the clones move more quickly, or speed up, since their positions change more quickly.

## File changed

Near the top of the git diff output, you can see the lines:

--- a/js/pappu.js

+++ b/js/pappu.js

This indicates that the file changed was js/pappu.js, that is, the file pappu.js in the directory js.

## What caused the bug

Based on the change that was made, one possible bug is that the clones move too quickly - so quickly they have left the screen before you see them. This turns out to be correct. If you change the code to have numbers bigger than the original numbers, but smaller than the new numbers, the clones will move more quickly, but still be visible. Some lines of code that work well are:

clone.x += utils.randomNumber(20, 40);

clone.y += utils.randomNumber(-30, 30);

Again, even if you weren't sure exactly why the bug was there, congratulations! You tracked down which lines introduced a bug without knowing the code base, just by using Git.