

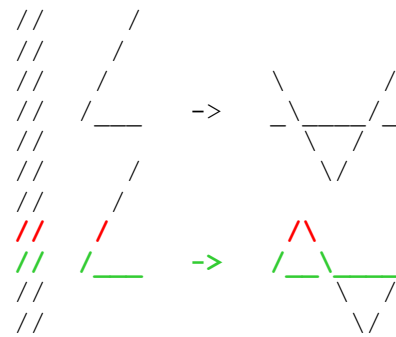
## The answer:

It's time for the answer... and what a quality bug it turns out to be!

A few people gave suggestions, so that shows we're all thinking about spu instructions which is a good thing. However there is nothing wrong with the code itself. Instead – and here's a lesson for anyone likely to occasionally include ascii art in their comments – the backslash character at the end of the line marked in red causes the comment to continue onto the next line, effectively commenting out the line marked in green. Arrgh!

```
// range-reduction for cos
fs      arg_c0, half, x
andc    arg_c1, arg_c0, sign_bit
fs      arg_c, arg_c1, quarter

// range-reduction for sin
andc    arg_s0, arg_c, sign_bit
fs      arg_s1, arg_s0, quarter
selb    arg_s, arg_s1, arg_c0, sign_bit
```



Even once I'd noticed that the instruction wasn't showing up in the compiled output, I still didn't immediately spot the cause of the problem and for a while I was convinced it was a compiler/assembler bug. The thing that made it so confusing was what happened when I replaced the above section with an older, slower version which I knew worked. I progressively changed it line by line until it matched the above code precisely, but of course the bug refused to manifest itself at any stage because I hadn't copied the commenting, and this gave me the impression that the inclusion of the green instruction was random.

Lesson learned, hopefully. In future I will try to remember to put a safe border on the right-hand side of any ascii art comments.

Mike