

Quality of Search Data for Paths

by Sven Nilsen, 2016

I discovered a pattern of “ugly” matches, for example for positive square numbers:

```
sqrt[neg_odd] <=> and
```

The reason this seems “ugly” is because “neg_odd” always returns `false` for all positive numbers.

```
neg_odd(x) = (x%2)==-1
```

Since we are dealing with only positive numbers, “and” will always take `(false, false)` as input and return `false`. There is no case where it takes `(true, false)` or `(false, true)` or `(true, true)`.

This leads to the idea that the quality of paths is related to the variation of the path data. The better quality, the more varied input. Even though, it strictly fits the data for positive numbers, but considered “ugly” by intuition.

It is like when somebody says something that is true, but only for a very narrow case. Intuitively, this does not seem to make a lot of sense.

“The sky is red, because that is the color of sunsets.”

Yes, it is true that the sky is red sometimes, but it happens more often that it is blue. Therefore, we think “the sky is blue” makes more sense than “the sky is red” when speaking about the sky in general.

Yet, we have no conscious rule of why we think one case makes more sense than another. Perhaps we just remember the sky was blue when we first thought of it? The chance is higher that the sky is blue when pondering on this question, but then somebody might think the sky is red, which is rarely the case. A more plausible reason is that while the sky can have many colors, we feel that if it has to be assigned a color, it must be “blue”. It is not accurate, but symbolically appropriate.

On the other hand, if something is correct for a narrow case but false otherwise, we feel it is wrong to assume a such rule.