

## Prompt Linguistics (it's not simple as writing when it comes to arithmetic):

### On Set Theory, Linguistics, and Semantics.

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I wanted to explore the nuance of people keep trying to checkmate models based inherently on low level math and like... "how many 'b's are in blueberries" but that's literally rote arithmetic. I will note, It's like asking someone how intuitively gifted at advanced mathematics is  $492 \times 83$ . Chances are they will not know off the top of their head, or be slower to getting there.

To get it to accurately count, prompting like, "In the word blueberries, how many 'e' letters are found in the word?" is better prompting than, how many e's are in blueberries? I change blueberry to blueberries that changes at least two contexts. Both quantity and word. The ambiguousness is in 'e' in just one word blueberries, blueberry OR one word blueberry for each berry in blueberries? As in if I have 8 blueberries, how many 'e's are in blueberries becomes a trick question to the model.

A better prompt would be: "If I have 8 blueberries, and I write the word 'blueberries' once to represent all of them, how many 'e's are in that word?"

Or

"What is the summation of 'e' in 8 blueberries?" That'd be the product of 'e' in 8 "blueberry"s? So, 16. What if its in literal, "blueberries" then that's  $e \times 3$  in each blueberries?

Path A: "blueberry"  $\times 8 \rightarrow \Sigma e = 16$

Path B: "blueberries"  $\times 8 \rightarrow \Sigma e = 24$

There's a hidden path C which is groups of 'e' in a group of blueberries until the groups of blueberries are exhausted.

Path C:  $\rightarrow$

- Groups:  $\{3,3,2\} \rightarrow$  labels: "blueberries," "blueberries," "blueberries"  $\rightarrow 3+3+3 = 9 \text{ e's}$
- Groups:  $\{4,4\} \rightarrow$  "blueberries," "blueberries"  $\rightarrow 6 \text{ e's}$
- Groups:  $\{1,1,1,1,1,1,1,1\} \rightarrow$  eight "blueberry"  $\rightarrow 16 \text{ e's}$   
Different partitions, different totals.

Which means, the gotchas could actually be incorrect on principle. Depending on if 2 or 3 is guessed using how many 'e's are in blueberry? The same thing goes with "r" in strawberries. Its always 3 in "ies" and "y" until it's a plural amount of strawberries.

It is stochastic but the end result is dependent on the clarity of the prompt and if the prompt has room for ambiguousness. This is nuance.