

1. The Metaphor: The impression that a piece leaves with a reader is a reflection of how well it communicated its point. After reading the piece, write a concise summary of the metaphor that is being used in a few sentences of your own words. This will provide the author with a picture of what you took away from reading their writing. If this does not agree with what they intended for the reader to take away, it can be a valuable source of feedback for revision.

The author uses a metaphor of a magician to explain this concept. In this metaphor, the magician brings props and tricks with him, including some backup ones that he leaves in his car in case he needs them. The car, in this case, is the main memory. The magician also brings tricks in with him. Some of which go backstage which might be needed soon. This is the cache. The magician then has some props and tricks hidden on him. This is the registers and finally, the magician has some props and tricks in his hands, which is the ALU. The author then talks about cache hits and misses, where a cache hit is if the magician asks his helpers for a trick and it is backstage and they are able to promptly supply him with it. A cache miss is when he requests a trick but it is not backstage so the helper now has to walk all the way to his car to retrieve the trick. The author explains spatial and temporal locality by saying that spatial locality is how the magician has tricks that he will likely use hidden on him and the author explains temporal locality by saying that the magician specializes in specific tricks and so, he is likely to keep doing those at all his shows and therefore, has the props for those tricks at hand.

2. The Elements: The prompt explicitly asks that the metaphor elements corresponding to the main memory, cache, registers and ALU be identified.

a. For each of the computing elements below, fill in the corresponding metaphor element that was identified by the author. If you think that one has not been clearly defined indicate that by writing "Not clearly specified."

- i. The main memory: The car
- ii. The cache: The tricks backstage
- iii. The CPU registers: The tricks hidden on him
- iv. The ALU: The tricks in his hand

b. Of the metaphor elements identified in part a:

- i. Which one did you find the most effective in illustrating the role of the corresponding computing element in a system with caching? Briefly describe why you found this element more effective than the others.

I think all of the elements are explained well and contribute in understanding the computing elements. All of them are clear and make sense when related to computing processes.



- ii. Which one did you find the least effective in illustrating the role of the corresponding computing element in a system with caching? Give concrete suggestions for how this could be improved. You might suggest different metaphor elements that could be used or how the chosen element could be used more effectively.

I don't think any of the elements are inefficient. I think the author does a good job of explaining them all and relating them to the computer.

3. Hits and Misses: The prompt explicitly asks that the metaphor be sufficiently rich to be used to explain cache hits and cache misses.

- a. Does the author use the metaphor to explain cache hits and cache misses? If no, make some concrete suggestions for how these ideas might be explained using the author's metaphor and then skip to question 4.

Yes

- b. Were the explanations of cache hits and misses factually correct? If not, briefly explain the way in which you believe that they are incorrect.

Yes

- b. Make at least one concrete suggestion for how you think the ideas of cache hits and cache misses might be improved.

I think the author does a good job of explaining cache hits and misses and explains them factually and well.

4. Locality: The prompt explicitly asks that the metaphor be used to explain how spatial and temporal locality contribute to cache efficiency.

- a. Does the author explain spatial and temporal locality? If no, make some concrete suggestions for how these ideas might be explained using the author's metaphor and then skip to question 5.

Yes

- b. Were the explanations of temporal and spatial locality factually correct? If not, briefly explain the way in which you believe that they are incorrect.

Not exactly.

- c. Make at least one concrete suggestion for how you think the ideas of temporal and spatial locality might be improved.

I think that the way that they were explained didn't quite match up with how it would in a computing system. I think how you could fix this is by explaining spatial locality as the helper going to the car to retrieve what the magician asked for but also collecting some other potential tricks that the magician is likely to do (i.e. he routinely does some of them together). Temporal locality could be explained if the magician asks the helpers for a deck of



cards, it is possible that he will use them again soon so instead of returning them to the helpers to put backstage, he keeps them with him where he has hidden his other tricks.

5. Length: The target length was 400-600 words. However, that is not a hard limit. More important here is whether the writing is of an appropriate length to address the prompt both full and concisely.

a. If the author were to add to their response, which topic(s) would benefit from additional explanation? What concrete suggestions do you have for doing so?

I think you could maybe include more about how it relates to a computer rather than comparing it to the plumber metaphor. Also, just to fix and explain the spatial and temporal locality.

b. If the author were to shorten their response, what topic(s) could be explained equally well in fewer words? What concrete suggestions do you have for doing so?

I think maybe you could remove the explanations to the metaphor with the plumber. I think instead, you could relate it to a computer using cache rather than relating it to another metaphor.

c. Would you recommend expanding or contracting the overall length of the draft? Briefly explain why and how you might suggest implementing your recommendation.

I think the length is fine, just replace the plumber relation with the computer relation.

6. Final Thoughts: Is there any additional praise or constructive feedback that you would like to offer that did not fit into your responses to earlier questions? This would also be an appropriate location to make constructive suggestions about structural or grammatical issues with the writing.

