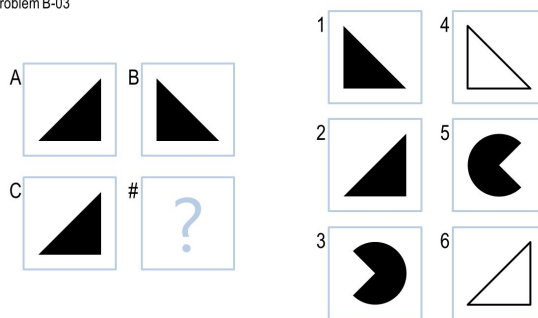


MIDTERM

1. Because semantic networks emphasize representing the directional relationships between nodes that capture objects. Thus, the interpretation of a relationship heavily influences the quality of the semantic network and how well it represents the situational knowledge. Shakesper's semantic networks would potentially not work in the modern world because he would identify different relationships between two objects than we would. Contextually, perhaps given the following problem:

Basic Problem B-03



Shakesper might not be able to have the same geometric intuitions that we do today, as we could identify that this is a horizontal flip from A to B while he might describe that same relationship differently.

2. Shakesper's mean's end analysis could potentially fail because he might not have knowledge of the same operators that we do. More specifically, means-ends analysis requires that for each operator that can be applied to the current state, we apply it and compare the new state with the given goal state. From this we choose the state that "minimizes distance between new state and goal state." (Udacity) As we mentioned earlier, Shakesper might see that for any modern problem, very few operators might exist. However, we would potentially be able to identify many more descriptive and accurate operators that would produce a new state that is closer to the goal state.
3. If we assume that s=Shakesper had many production rules in his mind, then we could attribute his supposed lack of intelligence in the real world simply due to the idea that he has different rules for different perceptions. Because production systems rely so heavily on episodic knowledge and prior observations to make decisions, Shakesper would not have the same

experiences that make the average human being indirectly intelligent. In fact, his cognitive architecture would involve more impasses for modern problems because Shakesper has insufficient knowledge about how things work in the real world or would not be able to decide between multiple actions that he has mapped to his archaic percepts.

4. Shakesper's frames would not work in the modern world because frames embody stereotypes through the assumptions they make about given situations and rely on default values. Essentially, the slots of a frame are largely based on generalizations and fundamental assumptions that our society makes about certain things. This cultural difference would severely hinder Shakesper's effective modern intelligence because he would not have the same slots that need to be filled in each frame. For instance:

```
Ate
  subject : Ashok
  object  : a frog
  location :
  time    :
  utensils :
  object-alive : false
  object-is  : in-subject
  subject-mood : happy
```

The above frame in modern world has ideas of "subject-mood" captured within the last line, something that we as a society regard as relevant to the action of eating. However, shakespeare might hypothetically only associate the other seven ideas to the action of eating and therefore completely disregard the emotional aspect of consuming food. In addition, default values within frames are also largely culturally dependent, as we might initialize them to things other than what Shakesper would, making it difficult for him to have the same kind of intelligence that we do!

5. Shakesper's case based reasoning would not have the same record of cases that the typical modern individual does, therefore making his usage of learning by recording cases and case-based reasoning very limited for modern tests of intelligence. Naively, he would come up with suboptimal cases to apply to given situations because resolving the nearest neighbor in k-dimensional problems would still not address his lack of "modern" cases. No matter how much Shakesper can try to adapt his archaic solutions to fit the modern problem, it would be quite off from the actual solution. Evaluating the solution would reveal this issue and storing the new suboptimal solution would be very inefficient for Shakesper to become "intelligent" by modern standards.
6. Incremental Concept Learning would not work well in the modern world because given an example, Shakespear might not be able to discern or apply an accurate concept to them. If he tried variabilizing his current understanding to derive a more abstract notion of concept, he might

derive a concept that, although it spans his archaic experiences and modern experiences, is altogether very vague. This could yield very misleading positive and negative examples, which would inappropriately generalize and specialize his understanding. Despite using heuristics, the inapplicability of his concepts would immensely hinder his understanding of the modern world via this method.