In-Class Exercise on Plagiarism

Original Passage

> "ACT-R claims that cognition emerges as the consequence of an interaction between specific units of procedural knowledge and specific units of declarative knowledge. The units of declarative knowledge are called *chunks* and represent things remembered or perceived. For instance, a chunk may represent the fact that $2 + 3 = 5$ or that Boston is the capital of Massachusetts. For driving, chunks may represent numerous types of knowledge such as situational awareness (e.g. 'there is a car to my left'), navigational knowledge (e.g. 'Broad St. intersects Main St.'), or driver goals and intentions (e.g. 'stop for gas at the next traffic light'). Procedural knowledge encodes the processes and skills necessary to achieve a given goal. The units of procedural knowledge are called *productions*, condition-action rules that 'fire' when the conditions are satisfied and execute the specified actions. The conditions can depend on the current goal to be achieved, on the state of declarative knowledge (i.e. recall of a chunk), and/or the current sensory input from the external environment. Similarly, the actions can alter the state of declarative memory, change goals, or initiate motor actions in the external environment."[1]

What's Wrong with These Summaries?

In groups of three students, discuss these three summaries and mark places where you think the author overstepped the bounds of correct paraphrasing and citation. For which of these summaries do you think you would get a zero?

1. In the ACT-R system, cognition is created as the result of an interaction between units of procedural knowledge (chunks) and declarative knowledge (productions). Chunks are things that the system remembers or perceives. Productions are rules with conditions and actions that fire when the conditions are satisfied and execute the actions. [Anderson et al. 2002]

2. ACT-R models cognition as the result of interactions between *procedural* and *declarative* knowledge. The procedural knowledge in ACT-R, which encodes the processes and skills needed to achieve a goal, is represented as *condition-action rules*, which are triggered when the conditions are met in the environment, causing the actions on the right-hand side to be performed by the system. ACT-R's declarative knowledge, which encodes "things remembered or perceived," is represented as *chunks*. Each chunk stores a single "nugget" of knowledge, such as the fact that 2+2=4 or that Annapolis is the capital of Maryland. [Anderson et al. 2002]

3. ACT-R models cognition as the result of interactions between specific units of procedural knowledge and specific units of declarative knowledge. The procedural knowledge in ACT-R is represented as *condition-action rules*, which "fire" when the conditions are satisfied and execute the specified actions. ACT-R's declarative knowledge is represented as *chunks*. Each chunk represents something remembered or perceived, such as the fact the 2+3=5 or that Boston is the capital of Massachusetts. [Anderson et al. 2002]

[1] J. R. Anderson, D. Bothell, M. D. Byrne, and C. Lebiere, "An integrated theory of the mind," p. 6. Submitted for publication, 2002.

Write Your Own Summary

In your small groups, summarize the following passage. Turn in the summary with all of the group members' names on it. I'll review them and in the next class, we'll go over any problems I find.

> "David Kinny and Michael Georgeff... investigate how *bold* agents (those that never stop to reconsider [once an action has been selected]) and *cautious* agents (those that are constantly stopping to reconsider) perform in a variety of different environments. The most important parameter in these experiments was the *rate of world change*, γ. The key results of Kinny and Georgeff were as follows.
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> - If γ is low, (i.e., the environment does not change quickly), then bold agents do well compared to cautious ones, because cautious ones waste time reconsidering their commitments while bold agents are busy working towards—and achieving—their goals.
> - If γ is high, (i.e., the environment changes frequently), then cautious agents tend to outperform bold agents, because they are able to recognize when intentions are doomed, and also to take advantage of serendipitous situations and new opportunities."[2]

[2] M. Wooldridge, "Intelligent agents," chap. 1 in Gerhard Weiss, *Multiagent Systems: A Modern Approach to Distributed Artificial Intelligence*, p. 55. The MIT Press, 2000.