CS 560: Homework 1 Critique

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Overview

While there are many difference between my answers and the provided solutions, I would argue that the differences are not substantive. Due to the dense nature of material, I rely heavily on the textbook for learning the material and therefore my answers are styled as I interpret the resources in the textbook. There appear to be several stylistic differences between the way material appears in the book and the way it is presented in class. I ask the grader to look past these stylistic differences and try to see whether I have the intuition about the material that the assignment requires. This critique will provide reasons why I believe I should not be heavily marked down for the differences between my solutions and the answer sheet.

Question 1

Part 1:

For this question, I did not include the evaluations of the knowledge base clauses in my solution. This is because the book defines an interpretation as $I =< D, \phi, \pi >$ and does not depend on a knowledge base, but rather depends on a world or language. Regardless of the construction of the knowledge base, as long as a single language is used, there will still be the same number and format of interpretations. This confusion caused me to exclude the evaluation of the knowledge base with respect to the interpretations. I want to point out that my exclusion of those evaluations is not because I lack the understanding of how to evaluate them, but rather is a result of my misunderstanding of the desired format.

Part 2:

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Part 3:

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Question 2

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Question 3

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Question 4

This question contains several formatting discrepencies that I appologise for. Again I think that the differences between my solution and the provided solution are not a result of a lack of understanding of the material.

Part 1:

Here I failed to include the operation that was being utilized along side the updated set. I did not realize that this was a requirement of the solution. Update as follows:

Rule Applied	Consequent set
.	$\{\}$
c	$\{c\}$
e	$\{c, e\}$
$b \leftarrow e$	$\{c, e, b\}$
$a \leftarrow b \wedge c$	$\{c, e, b, a\}$
$j \leftarrow a \wedge b$	$\{c, e, b, a, j\}$

Part 2:

In this section I formatted to solution to reflect that, since f is not a logical concequence of KB we can have a model where all logical concequences of KB are set to TRUE and all non logical concequences (including f) are set to FALSE and have a modle. While this was obvious in my head at the time, it was not when I read back through the problem.

The following is just a reorganization of the inital solution to be in alphabetical order by atom:

$$\pi(a) = TRUE$$
$$\pi(b) = TRUE$$
$$\pi(c) = TRUE$$
$$\pi(d) = FALSE$$
$$\pi(e) = TRUE$$
$$\pi(f) = FALSE$$
$$\pi(g) = FALSE$$
$$\pi(h) = FALSE$$
$$\pi(j) = TRUE$$
$$\pi(k) = FALSE$$

Part 3:

The same thing as Part 1 of this problem:

Answer Clause	Rule Applied
$yes \leftarrow a$	a ← b ^ c
$yes \leftarrow b \wedge c$	c
$yes \leftarrow b$	b ← e

Answer Clause	Rule Applied
$yes \leftarrow e$	e

$$yes \leftarrow .$$

Question 5

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Question 6

I have the programs to take the input query format as "?a" instead of ["a"]. This seems trivial and can be changed in seconds. Also my function takes KB as a parameter in case of wanting to work with different KBs.a