

CS 100 - Homework 10

Deadline:

11:00 am (the beginning of class) on **FRIDAY, November 30, 2018**.

Purpose:

To practice filling in missing premise(s)/conclusion in enthymemes; to practice summarizing arguments by using standardization, by restating an argument in standard logical form; and to think a bit more about science vs. pseudoscience.

How to submit:

- Submit your work for this homework **ON PAPER** (with answers legibly hand-written or typed)
 - **I will accept your work on paper ONLY**, unless special arrangement is made. You may turn it in at the beginning of class, or into the Math/Computer Science department office (on the 3rd Floor of BSS, with instructions to place it into my mailbox) **BEFORE** the the due date and time, in order to receive credit.
 - Make sure **your name** is at the **top of each page** of the document!

Problem 1

1 part a

In the Week 13 Lecture 3 class, on 2018-11-16, we discussed seven telltale signs contrasting science with pseudoscience. (This table is also included in the Week 13 Lecture 3 projected notes on the public course web site.)

Choose **TWO** of these -- being sure to **state** both the sign-of-science and the sign-of-pseudoscience for each -- that you think would be **most useful to you** in determining if something should be characterized as science or as pseudoscience.

1 part b

We discussed common steps in the methodology of science. Give at least one of these steps.

1 part c

We also discussed some limitations of science, including two broad categories of questions which science cannot reasonably answer. Give at least one of these categories of questions.

Problem 2

(adapted from course text, Exercise 7.3)

Now, back to Chapter 7-related topics!

As we have discussed, an **enthymeme** is an argument with a **MISSING** premise or conclusion.

In summarizing arguments by using standardization, by restating an argument in standard logical form, you are expected to fill in the missing premise(s) or conclusion in an enthymeme.

(Reminder: see Chapter 7 (pages 182-188) of the course text, and the in-class projections on the public

course web site for Week 12 Lecture 2, Week 12 Lecture 3, and Week 13 Lecture 2, for discussion on summarizing arguments using standardization, by restating an argument in standard logical form.)

Assume that each of the following enthymemes is attempting to be a valid deductive argument, and restate each in standard logical form, filling in the missing premise or conclusion.

- 2-1. Because this is a Mazda Miata, it's a convertible.
- 2-2. All Volkswagens are fuel efficient, and this Beetle is a Volkswagen.
- 2-3. Either Tahoes are made by Chevy, or Tahoes are made by Ford. Therefore, Tahoes are made by Chevy.
- 2-4. This is a Civic only if it's a Honda. Therefore, this is not a Civic.
- 2-5. If this is a Camaro, then it's a Chevy. If this is a Firebird, then it's a Pontiac. Therefore, this is either a Chevy or a Pontiac.
- 2-6. Honda Odysseys are roomy; after all, Odysseys are minivans.
- 2-7. If this is a Camry or a Corolla, then it's a Toyota. If this is a Toyota, then it gets good gas mileage. This is a Corolla. Therefore, it gets good gas mileage.
- 2-8. If this car gets good gas mileage, it's good for the environment. If this car doesn't get good gas mileage, I don't want it. This car isn't good for the environment. Therefore, I don't want it.
- 2-9. Either this is an Accord or it's an Altima. If this is an Accord, it's a Honda. If this is an Altima, it's a Nissan.
- 2-10. Some Fords are trucks because all Rangers are trucks.

Problem 3

(adapted from course text, Exercise 7.3)

The following are, again, enthymemes, but some are deductive arguments and some are inductive arguments. Also, some of these are missing more than one premise-or-conclusion!

Restate each in standard logical form, filling in the missing premise(s) or conclusion.

- 3-1. Li Fong is from Singapore, so she probably speaks English.
- 3-2. Boxing should be banned because it's dangerous.
- 3-3. If today is Thursday, Zoe is either at work or on the golf course. Therefore, Zoe is at work.
(Hint: what would be needed for this to be a valid argument?)
- 3-4. If Sparky committed the robbery, he was working for Curley. If Sparky was working for Curley, Bugsy drove the getaway car. But Bugsy became totally blind last year. So, I guess we can cross Sparky off our list of suspects.

Problem 4

(adapted from course text, Exercise 7.4)

Summarize each of the following arguments by using standardization, by restating it in standard logical form.

(Reminder: see Chapter 7 (pages 182-188) of the course text, and the in-class projections on the public course web site for Week 12 Lecture 2, Week 12 Lecture 3, and Week 13 Lecture 2, for discussion on summarizing arguments using standardization, by restating an argument in standard logical form.)

4-1. *Management Professor James O'Toole on vocational education (slightly adapted):*

Consideration should be given to providing all students in the twelfth grade with some kind of work-and-study experience. This would help to overcome age segregation by allowing students to observe adults at work and, in doing so, to learn what it is like to work all day. It would give students the opportunity to overcome stereotypes about people who perform kinds of jobs different from their parents'. The jobs would enhance the meaning of schoolwork, because students would see how education actually contributes to workday life. Young people would come to know better what they really like to do and what they are good at doing, and thus develop clearer career aspirations. Most important, the work experience could be used to make classroom discussions of social and economic institutions more vivid and individually relevant.

4-2. *From a newspaper call-in column:*

My opinion regarding the amount of homework a child receives is basically threefold. I don't believe the children should receive any homework whatsoever. One, because the teacher has seven or eight hours during the course of the school day to instruct children and do work assignments with them, to review material for tests. They do not need to be sending work home. To me, homework is an excuse for a teacher's lack of ability to do their job properly. Two, there are too many children that come home with either no adult there or no adult with the ability to help them with their homework. That places too many children at a disadvantage compared to other children who have their parents there to help them with their homework. Three, an adult spends eight hours at work, comes home, and has the rest of the day to enjoy themselves. That is a luxury that a child should definitely be afforded. They don't need to spend time after school. Teacher, it is time to wake up.