

Exercises for Section 1.3

Part I: Statements and Sentences In this text we use the word 'statement' to mean 'sentence that is true or false'. Some difficulties with this definition were discussed in this section. To get a sense of the kinds of difficulties involved, it is instructive to try to decide particular cases for yourself. Below are several sentences. Some of these would ordinarily be understood to be statements, whereas others clearly would not. Which would you ordinarily take to be statements? Which not? Discuss any difficult cases that you find.

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- ♦ 1. Snow is white.
- 2. Jack Sprat could eat no fat, his wife could eat no lean.
- 3. Go to your room!
- 4. Never before have I seen such beauty in so tragic a time.
- 5. Was not pity the cross to which was nailed he who loved men most? (Nietzsche, *Thus Spoke Zarathustra*)
- 6. Logic is hard.
- ♦ 7. Logic is hard!!
- 8. It was the best of times, it was the worst of times. (Dickens)
- 9. $2 + 2 = ((2 \times 3) + 4) - (3 + 1)$
- 10. $3 = 7 + 8$
- 11. The Crest group showed 53% fewer cavities than average.
- 12. The LEM landed on the moon in 1969.
- ♦ 13. Gary used to weigh considerably more than he does now.
- 14. Every positive integer greater than two can be expressed as the sum of two primes.
- 15. We have nothing to fear but fear itself.
- 16. Sexism is a social disease.
- ♦ 17. Beauty is only skin deep.
- 18. Who's on first?
- 19. Who's on first.
- 20. Exercise 20 in Section 1.3 of Bessie and Glennan's *Elements of Deductive Inference* is false.

Part II: Sentences and Propositions In this section we have distinguished between sentences and propositions. One difficulty with the notion of a proposition is that it can be difficult to decide when two sentences express the same proposition. In each of the following exercises, you will be presented with a pair of sentences. Indicate whether you think the sentences express the same or different propositions. Justify your answer.

- 21. (a) I love my mother [spoken by yourself]. (b) I love my mother [spoken by a sibling].
- 22. (a) I worked while I was in college. (b) Even though I was in college, I worked.
- ♦ 23. (a) Bill Clinton is president. (b) Bill Clinton is president of the United States.
- 24. (a) Bill Clinton threw out the first pitch at the Orioles game. (b) The president of the United States threw out the first pitch at the Orioles game. [Suppose both of these sentences are uttered at the time of an Orioles game during Clinton's presidency.]
- 25. (a) God exists [spoken by a devout Muslim]. (b) God exists [spoken by a devout Quaker].
- 26. (a) $2^2 + 2^2 = 8$ (b) $4 + 4 = 8$
- 27. (a) Just imagine what will happen to you if you don't study for the exam [spoken by your worried mother]. (b) You should study for the exam [spoken by your roommate].