

Midterm 2021

Ling 525

March 18, 2021

This midterm is due Mar 26, 2021 at 9 AM.

1 Part one: Entailments

In part one of the midterm (and this review), each problem contains a pair of sentences. Let's call the first sentence (a) and the second (b). For each pair of sentences:

- 1.1. **First**, say whether sentence (a) **entails** sentence (b) or is **is entailed** by (b), or **both**, or **neither**. Saying they entail each other means you think they are logically equivalent.
- 1.2. If you say neither: (a) does not entail (b) and is not entailed by it), then you're done. For example, suppose we have
 - a. Every dog barked.
 - b. No dogs barked

Here neither sentence entails the other, so you say "neither sentence entails the other." and you're done

- 1.3. If you say (a) entails (b) or (b) entails (a) or they are equivalent, then provide a **failed cancellation** of the entailed sentence. For example, suppose we have
 - a. Sam got married.
 - b. Sam married Susan.

I claim that (b) entails (a). To defend that claim, I construct the following failed cancellation.

(1) # Sam married Susan but he didn't get married.

This sounds contradictory, so cancellation fails to be felicitous, and that's evidence that (b) entails (a), so I've defended my claim. Suppose, just for fun, I tried the cancellation the other way, testing whether (a) entails (b):

Sam got married but didn't marry Susan.

That's fine (no contradiction), and that means that *Sam got married* does not entail *Sam married Susan*.

Note the # marking *Sam married Susan but he didn't get married*. This symbol generally means "pragmatically anomalous". The sentence as a whole contradicts itself and since we don't in normal communicative situations make self-contradictory statements, we call the statement pragmatically anomalous, that is, not used in normal communicative situations. That's different from syntactically anomalous (**The seven brothers likes one another*) or semantically anomalous (? *John frightened sincerity*). When your attempt to cancel an entailment results in a contradiction, please signal that you have noticed this by marking the sentence with #.

If you say the two sentences entail each other, then you can cancel either one. One cancellation is sufficient.

Finally, discuss any **issues** that arose in formulating your answer. For example, (a) one or both of the sentences was ambiguous and you had to choose a reading, or (b) you had to make a specific assumption about the exact meaning of a word in (a) or (b).

2 Part one of the practice exam

2.1. (a) Susan and Barb walked to the corner.

(b) Susan walked to the cortner.

2.2. (a) Fred knitted a blue sweater.

(b) Fred knitted a sweater.

- 2.3. (a) Fred gave Lena a bicycle.
 (b) Lena received a bicycle from Fred.
- 2.4. (a) John lost his wallet.
 (b) John lost his wallet in the tunnel.
- 2.5. (a) The water boiled.
 (b) Susan boiled the water.
- 2.6. (a) No house with more than two bedrooms sold that month.
 (b) No house with more than one bedroom sold that month.
- 2.7. (a) Apples were discovered in the pantry.
 (b) John discovered apples in the pantry.
- 2.8. (a) Sandy married Kim.
 (b) Kim married Sandy.
- 2.9. (a) Sandy liked Kim.
 (b) Kim liked Sandy.
- 2.10. (a) Sandy and Kim exchanged phone numbers.
 (b) Sandy gave Kim her phone number.

3 Logic section of the practice exam

Consider the truth table for $\sim q \rightarrow (\sim p \& \sim q)$

p	q	$\sim p$	$\sim q$	$(\sim p \& \sim q)$	$\sim q \rightarrow (\sim p \& \sim q)$
T	T	F	F	F	T
T	F	F	T	F	F
F	T	T	F	F	T
F	F	T	T	T	T

Answer the questions below about the following expressions.

- (a) $q \rightarrow p$
- (b) $\sim (p \& \sim q)$
- (b) $(p \vee q) \rightarrow q$
- (c) $(p \& q) \rightarrow (p \vee q)$
- (d) $\sim (p \rightarrow q) \& \sim p$

3.1. Determine which of the above expressions is logically equivalent to

$$\sim q \rightarrow (\sim p \& \sim q)$$

Prove your answer by showing truth tables for all of the above expressions.

3.2. Point out any of these expressions that are tautologies or contradictions and explain why using the truth tables.

3.3. What is the truth value of the expression below when p , q , and r are all true.

$$(\sim p \& r) \rightarrow (r \rightarrow p)$$

4 Translation section of the practice exam

Translate the following sentences into predicate logic of the sort introduced in Allwood, Anderson, and Dahl, and further discussed in chapters 2 & 3 of Kearns. For any ambiguous sentences, give all the readings, and paraphrase them, saying which logical translation goes with which reading. Except where indicated otherwise, translate definite NPs and proper names using single letter constants. If you have an issue about how to translate a word, please **discuss** it and justify your decision, rather than just, say, ignoring the word and losing unnecessary points. If you feel that a word is being used inconsistently and you need to give it more than one translation (such as when you translate transitive and intransitive *eat* as EAT and EAT2), please explain why.

- 4.1. The car struck both the tree and the lamppost.
- 4.2. Joseph sat on either the tree stump or the swing.
- 4.3. A broken tooth was found.
- 4.4. No student attended the dance.

- 4.5. John was close to the water fountain.
- 4.6. Sincerity frightens John. (treat *sincerity* as if it were a proper name).
- 4.7. Susan will regret every broken promise.
- 4.8. An adolescent confessed to the crime.
- 4.9. Bill will be promoted.
- 4.10. Picasso painted a disturbing picture.