Carnap About Book ▼ logicteaching@g.ucla.edu

Logic, First Course, Winter 2020. Week 9, Section Meeting. Back to course website

## Scales and conversational implicature

In this section meeting, we look at conversational implicatures associated to scales. Along the way we practice with translations, truth-tables, and proofs.

- Scales of conjunction and disjunction
- · Scales of universals and existentials
- Other scales

## Scales of conjunction and disjunction

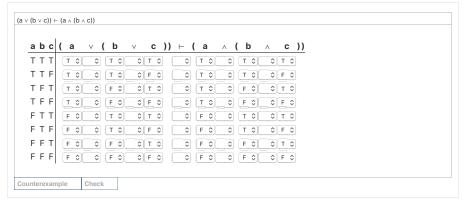
Consider the following sentences:

- a = Alex attends
- b = Brianna attends
- c = Claire attends

Alex attends and Brianna attends and Claire attends Alex attends and Brianna attends Alex attends or Brianna attends Alex attends or Brianna attends or Claire attends.

These are organized so that one can quickly check that the earlier ones imply the later ones, but not vice versa. For instance, you can quickly check that the first implies that fourth, but not vice versa:





This structure of entailments going from top to bottom can be more compactly written in the following horizontal way, with formulas to the left implying formulas to the right:

(a/(b/c), a/b, a/b, a/(b/c))

This structure of entailments seems to be correlated with the following conversational implicatures:

Which is the following is a conversational implicature of the speaker having said a/b?
○The speaker does not believe (a\/(b\/c))
○The speaker does not believe (a\/b)
○The speaker does not believe (a/\b)
○The speaker does not believe (a/\(b/\c))
Check

hich is the following is a conversational i	
The speaker does not believe	<u> </u>
The speaker believes (a∕b)	(αγ(μγο))
The speaker does not believe	(0/16)
•	
The speaker does not believe	(a/(tb/tc))
Check	
In both cases, what maxim is operative in	discerning that there is a conversational implicature?
Quantity	
Quality	
Relation	
○Matter	
Check	
	and existentials
Cales of universals as as us work with the following key:  "Angel"  "Briana"  "Cole"  "Is happy"	and existentials
us work with the following key: "Angel" "Briana" "Cole"	and existentials
us work with the following key: "Angel" "Briana" "Cole"	and existentials
us work with the following key: "Angel" "Briana" "Cole"	and existentials
us work with the following key: "Angel" "Briana" "Cole" "is happy"	and existentials
us work with the following key: "Angel" "Briana" "Cole" "is happy"	and existentials
us work with the following key: "Angel" "Briana" "Cole" "is happy"  Everyone is happy.	and existentials
us work with the following key: "Angel" "Briana" "Cole" "is happy"	and existentials
us work with the following key: "Angel" "Briana" "Cole" "is happy"  Everyone is happy.	and existentials
us work with the following key: "Angel" "Briana" "Cole" "is happy"  Everyone is happy.	and existentials

Find an equivalent of "Someone is happy" in predicate logic without using a quantifier, under the hypothesis that there are only three people a,b,c.

Since we are thinking about the case where there are only three people, we can also consider "Most people are happy", where this means that at least two out of the three are happy. We use a disjunction to translate this, since there is one option where a, b are happy, another where a, c are happy, and a third where b, c is happy.

Find an equivalent of "Most people are happy" in predicate logic without using a quantifier, under the hypothesis that there are only three people a,b,c.

We can then translate into pure predicate logic by replacing:

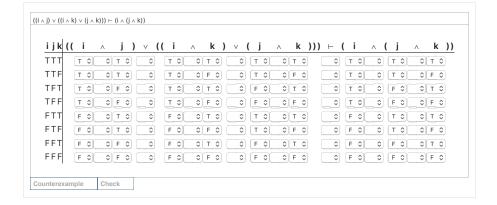
i = *Ha* 

j = Hb

k = Hc

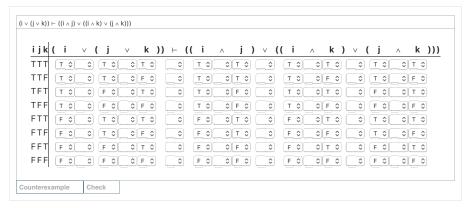
Then we can show that "Everyone is happy" implies "Most people are happy," but not vice-versa:

exercise  $\begin{array}{l} (\text{i } \land \ (\text{j } \land \ k)) \vdash ((\text{i } \land \ \text{j}) \lor ((\text{i } \land \ k) \lor (\text{j } \land \ k))) \\ \\ 1. \ \text{i} \land (\text{j} \land k) : assumption \\ \end{array}$ 



And likewise we can show that "Most people are happy" implies "Some people are happy" but not vice-versa.

```
exercise  \frac{((i \land j) \lor ((i \land k) \lor (j \land k))) \vdash (i \lor (j \lor k))}{1.(i \land j) \lor ((i \land k) \lor (j \land k))} : assumption
```



This structure of entailments going from top to bottom can be more compactly written in the following horizontal way:

(all, most, some

This structure seems to be correlated with the following conversational implicatures:

Which is the	e following is a conversational implicature of the speaker having said Most people are happy?
○The sp	peaker does not believe "All people are happy"
○The sp	peaker believes "All people are happy"
○The sp	peaker does not believe "Some people are happy"
○The sp	peaker believes "Some people are happy"
Check	

Which is the	following is a conversational implicature of the speaker having said Some people are happy?
○The sp	eaker does not believe "All people are happy"
○The sp	eaker believes "All people are happy"
○The sp	eaker does not believe "Most people are happy"
○The sp	eaker believes "Most people are happy"
Check	
n both cases	s, what maxim is operative in discerning that there is a conversational implicature?
Quantit	ty
Quality	
Relation	n
○Matter	

## Other scales

What we have seen so far is just the first two entries in the following list of scales:1

• (and, or)

Check

- (all, most, some)
- · (necessary, actual, possible)
- (always, often, sometimes)
- (hot, warm)
- (cold, cool)

The observed phenomena is that:

- 1. There is an intuitive sense in which the entries towards the left imply entries towards the right.
- 2. If someone asserts an entry, then they conversationally implicate that they do not believe the entries to the left of this entry to hold.

One can test this out on the following:

Which is the following is a conversational implicature of the speaker having said He is often late?		
○The speaker believes "He is always late"		
OThe speaker does not believe "He is sometimes late"		
OThe speaker does not believe "He is always late"		
OThe speaker believes "He is sometimes late"		
Check		
Which is the following is a conversational implicature of the speaker having said It is warm?		
○The speaker believes "It is not hot"		
○The speaker does not believe "It is hot"		
○The speaker does not believe "It is warm"		
○The speaker believes "It is cool"		
Check		

If one focuses on the first four scales:

- (and, or)
- (all, most, some)
- (necessary, actual, possible)
- (always, often, sometimes)

one notices that we have synonyms in English for the *negation* of the entries on the very right:

- "not (p or q)" is "neither p nor q".
- "not some F's are G's" is "no F's are G's".
- "not possible" is "impossible"
- "not sometimes" is "never"

However, we do not have synonyms in English for the *negation* of the entries on the very left.

- There is no English one-word synonym for the "not and" in "not (p and q)".
- There is no English one-word synonym for the "not all" in "not all F's are G's"
- There is no English one-word synonym for "not necessary"
- There is no English one-word synonym for "not always"

One hypothesis for this is that since these negations are conversationally implicated by the entries more towards the right, such an inclusion in the lexicon would be redundant. This of course presupposes that most of the time you are committing to "not always" is via conversational implicature from the assertion of an entry further to the right.

This is a section notes for this course. It is run on the Carnap software, which is an:

An Open Tower project. Copyright 2015-2019 G. Leach-Krouse <gleachkr@ksu.edu> and J. Ehrlich

This section all derives from the discussion on p. 133 ff of Levinson, Stephen C. 1983. "Chapter 3: Conversational Implicature." In Pragmatics, 97–166. Cambridge University Press. →