LIN6049 Advanced Semantics: Puzzles in Meaning
2022/2023

Handout 7: quantification II

Obligatory reading: Kearns (2011), pp. 118-121, in QMPlus

Optional reading: Fintel and Matthewson (2008), pp. 139-201, in QMPlus

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Today: quantified determiners have a number of interesting properties. Some allow us to formulate universals regarding their meaning. Others have proven useful in explaining certain natural language phenomena

You will find the expression 'Q (A) (B)' a lot below. Q, A and B are as follows:

Q = quantified determiner
A = NP (or first argument)
B = VP (or second argument)

1. A semantic universal: conservativity

A quantifier Q is conservative if for all sets A and B, Q (A)(B) is equivalent to Q (A)(A ∩ B)

Examples:

every is conservative ('Every vampire yawns' is equivalent to 'Every vampire is a vampire who yawns')

most is conservative ('Most vampires yawn' is equivalent to 'Most vampires are vampires who yawn')

some is conservative ('Some vampires yawn' is equivalent to 'Some vampires are vampires who yawn')

All natural language quantifiers are conservative. Intuitively, that means that in order to determine the truth of Q (A) (B), we look only at elements in A, not at elements in A'. So, to determine the truth of *Every vampire yawns*, you look at vampires (and then check whether they yawn or not), not at **non**-vampires

Suppose English had a non-conservative version of *some*. Let's call it *somenon*. This is what *somenon* would mean:

Somenon (A) (B) is true if something that is not in A is in B

You can write down non-conservative versions of other quantifiers. But no natural language has anything like *somenon* (even though the concept it expresses is not strange or impossible). Conservativity is one of the few pure semantic universals we know of (see von Fintel and Matthewson 2008: 160-4)!

2. Symmetry

A quantifier Q is symmetric if for all sets A and B, Q(A)(B) is equivalent to Q(B)(A)

Examples:

some is symmetric ('Some dogs snore' is equivalent to 'Some snorers are dogs')

every is not symmetric ('Every dog snores' is not equivalent to 'Every snorer is a dog')

3. Monotonicity

There are four types of monotonicity:

A quantifier Q is downward monotonic in the left argument if for all sets A, B and C, if $A \subseteq B$ and Q(B)(C), then Q(A)(C)

A quantifier Q is upward monotonic in the left argument if for all sets A, B and C, if $A \subseteq B$ and Q(A)(C), then Q(B)(C)

A quantifier Q is downward monotonic in the right argument if for all sets A, B and C, if $A \subseteq B$ and Q(C)(B), then Q(C)(A)

A quantifier Q is upward monotonic in the right argument if for all sets A, B and C, if $A \subseteq B$ and Q(C)(A), then Q(C)(B)

Examples:

no is downward monotonic in the right argument ('No vampire yawns' entails 'No vampire yawns noisily') and in the left argument ('No vampire yawns' entails 'No blonde vampire yawns')

some is upward monotonic in the right argument ('Some vampire yawns noisily' entails 'Some vampire yawns') and in the left argument ('Some blonde vampire yawns' entails 'Some vampire yawns')

every is downward monotonic in the left argument ('Every vampire yawns' entails 'Every blonde vampire yawns') but upward monotonic in the right argument ('Every vampire yawns noisily' entails 'Every vampire yawns')

4. Transitivity

A quantifier Q is transitive if for all sets A, B and C, if Q (A)(B) and Q (B)(C), then Q (A)(C)

Examples:

every is transitive (if 'Every vampire yawns' is true and 'Every yawner is red-haired' is true, then 'Every vampire is red-haired' is necessarily true)

some is not transitive (if 'Some vampires yawn' is true and 'Some yawners are red-haired' is true, it is not necessarily true that 'Some vampires are red-haired')

3 Using formal properties of quantifiers to express linguistic generalizations: NPIs

Negative polarity items (NPIs) are licensed by items that can be roughly characterized as negative:

(1) Richard had **never** seen *any students* more cool and mannered
(2) *Richard had seen *any students* more cool and mannered

(3) They did **not** meet *anyone* at the supermarket
(4) *They met *anyone* at the supermarket

(5) Henry did **not** discuss the poem *at all*
(6) *Henry discussed the poem *at all*

(7) Henry did **not** *ever* discuss the poem
(8) *Henry *ever* discussed the poem

(9) Henry has **not** discussed the poem *yet*
(10) *Henry has discussed the poem *yet*

(11) Henry did **not** *lift a finger* to prevent Cloke being incriminated
(12) *Henry *lifted a finger* to prevent Cloke being incriminated

(13) Henry did **not** contribute *one red cent* towards Cloke's drug-dealing business
(14) *Henry contributed *one red cent* towards Cloke's drug-dealing business

(15) **No** student gave *any hint* of what had happened that night in the woods
(16) **No** student who gave *any hint* of what had happened that night in the woods was reprimanded

But NPIs are also licensed by quantifiers which are not strictly speaking negative:

(17) **Every** student who gave *any hint* of what had happened that night in the woods was reprimanded
(18) **Few** students who gave *any hint* of what had happened that night in the woods were reprimanded
(19) **Few** students gave *any hint* of what had happened that night in the woods

(20) *Every student gave *any hint* of what had happened that night in the woods
(21) *Some students gave *any hint* of what had happened that night in the woods
(22) *Many students gave *any hint* of what had happened that night in the woods
(23) *Some students who gave *any hint* of what had happened that night in the woods were reprimanded
(24) *Many students who gave *any hint* of what had happened that night in the woods were reprimanded

NPIs are licensed in downward-entailing environments

Note. *Not* and *never* are not quantifiers but are still downward entailing, since they allow entailments from supersets to subsets, and not the other way around:

(25) John does**n't** snore → John does**n't** snore noisily
(26) John does**n't** snore noisily ↛ John does**n't** snore

Note. The licensing item also has to be in the right syntactic relationship with the NPI:

(27) **Anyone* did **not** come
(28) **Anyone* **never** came
(29) *Joe Shmoe, a man of **no** intellectual accomplishment, has *ever* been in trouble with the police