Most: Reversing some of the roles of semantics and pragmatics

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Since Horn 1972, semanticists and pragmatists alike have assumed only a lower-bounded lexical meaning for scalar quantifiers such as *most* (more than half), relegating to pragmatics the common bilateral meaning (more than half but not all). Thus, compatibility with all is semantically accounted for, whereas the common upper bound is pragmatically inferred. In this talk I will first argue that pragmatic explanations cannot provide the upper bound for *most*, and second, that it is the semantics of *most* which is responsible for it. The result is a partial reversal in the roles of semantics and pragmatics: Compatibility with all is inferred, and the upper bound is semantically accounted for.

Based primarily on The Santa Barbara Corpus of Spoken American English and the London-Lund Corpus of Spoken British English (127 examples), I will first argue that not all is not a frequent implicature in actual discourse. Consider (1):

1. a. **MOST** UCSB students have 0...1...2...3 or 4 drinks per week (Anti-drinking ad, 2.02).
   b. **Most** (Israelis) decided for peace. Me too (Originally Hebrew sticker, 4.02)

While the writers of (1) are probably not committed to all , it is unreasonable to attribute to them an actual **intention** to implicate not all (conversational implicatures are intended meanings according to Grice 1975). The reason is that the writers intend the addressee to draw some conclusion based only on the majority reference set: You too should drink up to 4 drinks.../decide for peace . Generating the not all implicature (Not all UCSB students drink up to 4 drinks... , Not all decided for peace) may actually encourage the addressee to follow the example set by the minority (and e.g., drink more than 4 drinks...). This would defeat the writers purpose, so attributing to them an intention to communicate an interpretation that works against the generalization they are relying on in their argument is an unreasonable theoretical step (see also Levinson 2000 for the role of speaker goals in canceling implicatures).

Now, implicatures must be relevant (see Horn 1984, Matsumoto 1995, Levinson 2000). The received view can correctly reason that not all are irrelevant in (1), and hence, not generated. Still, despite the lack of implicature, the interpretation of *most* is upper bounded here. Corpora searches reveal that (1) exemplify the common *most* case (74%[1]). This means that scalar implicatures cannot account for the common bilateral interpretation of *most*.

Laurence Horn (p.c.) then proposes to justify the implicature view as follows: Despite the fact that the scalar implicature works contra the speaker s goals, she does intend to convey it, in order to obey the Maxim of Quality. Although all would have made her case stronger, since she s not in a position to commit to all , she is obliged to concede that not all . If this is true, we will have to assume that speakers routinely generate forced implicatures, an unwelcome conclusion. Fred Landman (2000, p.c.) also proposes to maintain the received semantic view, but he offers a different extralinguistic explanation for the upper bound. Accepting that scalar implicatures are not routinely generated, he suggests that *most* is rarely interpreted as all simply because the statistical probability for the addressee to interpret *most* as 100% is quite slim. I will first argue against Landman s proposal, and then suggest that we do not need to assume that scalar

[1] The implicature is generated in 17.3% at most. *Most* is not necessarily upper-bounded in 8.7%.

implicatures are forced implicatures. The reason is that an upper bound is provided by the semantics.

In order to argue against Landman s proposal, I administered questionnaires about (Hebrew) *most* and *more than half* (Ariel in press). Note that according to the received view, these two expressions should not differ semantically, although they might differ pragmatically. Indeed, they do. *More than half* is associated more strongly with smaller majorities than *most*, and *most* is more strongly associated with larger majorities. For example, the values 51%, 60% and 75% were confirmed by 72.1% of the subjects for *most*, but by 95.2% of the subjects for *more than half*. Conversely, 84.4% of the subjects selected 90% for *most*, but only 52.6% did so for *more than half*. Contra Landman, these skewed findings demonstrate that pure probabilities cannot account for the interpretation of *most*, then. Another pragmatic explanation readily suggests itself, however: Whereas *more than half* is oriented towards the half point, *most* connotes a significant quantity (which can be traced to its etymological source in both languages). This pragmatic analysis can account for the following example:

2. **Most** of the ladies and **more than half** of the gentlemen wore evening clothes
(Sinclair Lewis, *It can t happen here*, McCawley's example 14.1.5, p. 427).

As McCawley 1981: 427 explains, this quote strongly suggests that a greater proportion of ladies than of gentlemen were dressed in evening clothes .

However, the pragmatic explanation cannot account for the seemingly puzzling fact that preferences are reversed once 100% is the target value. According to the pragmatic tendencies above, we should expect a higher acceptance rate of 100% for *most* than for *more than half*, because, *most* is associated with higher majorities than *more than half* is. According to Landman, an equal and very low acceptance of 100% is predicted for both expressions, and I believe that the same prediction holds for the implicature analyses.[2] Table 1 presents the results from 3 questions concerning 100% and the minimally lower 99%:[3]

	100%	**99%**
Most	6/96=6.25%	80/96=83.3%
More than half	21/56=37.5%	37/56=66.1%

Table 1: 99% and 100% as options for *most* and *more than half*

First, note that the pragmatic tendency observed above is maintained up to the 99% level, *most* receiving 26% more confirmations for 99%. Second, almost two thirds of the subjects did not select 100% as a potential value for *more than half* (62.5%). Both results are compatible with pragmatic explanations. The same pattern should have emerged for *most*, but it didn t. Practically all responses avoided 100% for *most* (93.75%). While the ratio between 99% and 100% for *more than half* is 1.75 (times more 99%), the counterpart ratio for *most* is 13.3 (times more 99%). The gap here for *most* is 7.4 times larger than that for *more than half*.

[2] Researchers do not discuss *more than half*, but it stands to reason that it too should trigger the not all implicature according to the received view.

[3] In order to help subjects suppress their pragmatic tendencies in this questionnaire in general, I asked them to circle as many answers as they thought possible, even if they found them implausible. In addition, in one of the three questions about 99% and 100%, I substituted *more than half* and *most* with *a lot more than half* and *an overwhelming majority*.

In fact, Table 2 shows that the 93.75% ban on 100% on *most* should count as categorical, for it s actually stronger than the ban on 49% and 50% (for *most*):

	49%	**50%**	**51%**
Most	3/32=9.4%	7/64=10.9%	47/64=73.4%
More than half	1/19=5.3%	3/38=7.9%	35/38=92.1%

Table 2: Acceptance of 49%, 50% and 51% values for *most* and *more than half*

A comparison between the two tables shows that subjects accepted 49% and 50% 1.5 and 1.7 times more (respectively) than they accepted 100% for *most.* If we wish to maintain the semantic status of the lower bound (51%), as we should (see the very large gap between the acceptance rates for 50% and 51% for both expressions), the conclusion must be that the same status should be attributed to the upper bound for *most*. Note that if anything, subjects find the upper bound harder to cross than the lower bound for *most*. Whereas the 50%/51% acceptance ratio is 6.7 in favor of 51%, the 99%/100% acceptance ratio is twice that, 13.3, in favor of 99%.

I therefore propose that what pragmatics cannot deliver (relevant implicatures), or should not deliver (irrelevant forced implicatures), semantics must. I suggest that *most* carries an upper (in addition to a lower) bounded lexical meaning, namely, that the quantity denoted by *most* is more than half and less than all (translating into 50% plus something up to 100% minus something). Evidence for the upper-bounded meaning of *most* other than the corpus data and the assessment questions comes from wise-guy interpretations and from discourse anaphora patterns. Wise-guy interpretations (Ariel 2002), are contextually **in**appropriate interpretations which can be insisted upon. Such insistence is successful only if the inappropriate meaning is semantic rather than pragmatic. Note the following adapted example (the original, Hebrew example centers around the numbers):

3. A couple offered to sell four CD s because they needed 100 sheqels to repair their CD player. The store manager offered the couple 40 sheqels. The guy said that in the store across the street he can get **most** of the repair money. The store manager said that not on his life will he get **that**. They took a bet... The guy... sold the CDs and got **100 sheqels**. He took a receipt and went back. Sorry, said the manager, you lost. I said you won t get **most of the repair money**, and indeed, you did not get **it**. I got more, explained the astonished Kibbutznik, but the sales woman laughed in his face".

Since the manager can insist on the inappropriate upper bounded most in a context where at least most is called for, upper-bounded most is a legitimate wise-guy interpretation, and must form part of *most* s lexical meaning. Note that an attempt to insist on an at least most interpretation when an upper-bounded most is called for is not as successful:

4. Income tax clerk: In how many of the past ten years did you fail to file your tax return?
   Tax payer: **Most** years.
   Income tax clerk: Our information shows that you failed to file in **all** those years.
   Tax payer: ?? That s what I meant. **At least most**, and possibly **all** the years!

If it can t be a successful wise-guy interpretation, at least most must not constitute *most* s lexical meaning.

Next, another set of questions on the questionnaire tested subjects about the interpretations of *most* and numbers as antecedents. Results here show that *most* behaves just like the numbers

regarding the upper bound. Since the numbers are now taken as semantically bilateral (see Geurts 1998 and references cited therein), I argue that so should *most.* Based on Kadmon s observation that *at least n* (e.g., *at least 11 kids*) can provide a unique antecedent for a later *they* referring to at least n kids , but *n* (e.g., *11 kids*) cannot serve as an antecedent for such an at least n anaphoric interpretation, Fred Landman (p.c.) predicts that if *most* is lexically specified for more than half it should pattern with *at least n* antecedents, and not with *n* antecedents. In other words, unlike the numbers, *most* should be able to provide a unique antecedent for a *they* referring to all (at least most). Still, results show that *most* patterns with unmodified number antecedents.

The questions concerned presented *most* or some number as an antecedent for a later discourse anaphoric *they*. Subjects were told that reality is such that all (for *most*) or a higher number (for the number antecedent) was the case for the antecedent clause. In the relevant questions, the context was such that subjects could view the anaphoric set as possibly distinct from the antecedent set. Here is one such case:

5. Ruti told me that **most** of the teachers are interested in changing the school principal in Karmiel. **They** even signed a petition against him, which was sent to the Minister of Education , she added.
   Question: It became apparent that **all** the school teachers are interested in changing the principal. Who are those that Ruti meant that **They** even signed a petition against him, which was sent to the Minister of Education ?
   Answers: A. Between 51% and 99% of the school teachers
   Or:
   B. 100% of the school teachers
   Or:
   C. Impossible to know.

Thus, in terms of states of affairs in the world, while all the teachers may have been interested in changing the principal, it is not necessarily the case that all signed the petition. One subject (out of 24, 4.2%) said that *They* refers to all (answer B), in line with Landman s prediction. 7/24 (29.2%) chose Answer C, which is what Kadmon predicts for the numbers. Crucially, two thirds of the subjects (16/24) chose most but not all as the intended referent (Answer A). This is clearly contra Landman s prediction. If *most* can denote all and we know that all is the case, the pronoun should have referred to all . But it didn t in most cases. A similar question with a number antecedent produced similar results: 6% chose the higher number, 52% chose impossible to know and 42% chose the antecedent number (see Ariel in press for further details).

For both the numbers and for *most*, then, in a context where subjects could see a potential difference between the antecedent set and the anaphoric set, they interpreted *they* as bilateral n/most . In such cases, I claim, subjects could not be sure that the anaphoric *they* should receive what I consider the enriched (higher value) at least interpretation, so they adhered to the lexical meaning of the antecedent, because it is all they could be confident that the speaker intended. This lexical meaning is equally upper bounded for the numbers and for *most*. Thus, value assessments, wise-guy interpretations and discourse anaphora all attest to a semantic upper bound for *most*.

Now, if we assume that *most* only denotes 51-99%, we must somehow account for the fact that *most* is nonetheless often compatible with all . For this we need to distinguish between the meaning of X and the states of affairs it is compatible with (as proposed by Koenig 1991 for the numbers). Actually, The same is true of *mother*:

6. Benny Avraham, Adi Avitan, Omar Su ad
Mother is waiting at home (Originally Hebrew sticker, 2002).

(6) is compatible with the family (and all of Israel) also waiting for the missing soldiers, which is known to be true. Still, the meaning of *mother* is not analyzed as at least mother, and possibly the family . The writers are only committed to mother & upper-bounded most in (6) & (1). The propositions they express are nonetheless compatible with a reality in which the family / all is true.

While I suggest that *most* codes a range with both lower and upper bounds, crucially, this meaning is silent about the complement of *most*, and specifically on whether the predicate holds for the complement. Unlike the upper bound assumed by received views (of whatever version), it does not entail not all are x . If so, since our world knowledge tells us that parts (as most is) are often compatible with states of affairs in which wholes (all) hold, the received view assumption of the compatibility of *most* with all is accounted for, though inferentially so. This analysis echoes Kadmon s 1987 analysis of the numbers, which she views as lexically bilateral, though compatible with there being additional entities bearing the same property outside the set.

All in all, I propose to shift some of the semantic burden of *most* to inferential processes (compatibility with all), and some of the pragmatic burden to lexical semantics (a weaker version of the upper bound). In addition, however, (pragmatic) implicatures are still responsible for classical pragmatic phenomena: The generation of strong not all implicatures in a minority of cases where these are intended by the speaker (not here exemplified), as well as for the understanding that the quantity denoted by *most* is significant.

References

Ariel, Mira. 2002. Privileged interactional interpretations. *Journal of Pragmatics* 34: 8. 1003-44.
--- in press. Does *most* mean more than half ? *BLS* 29.

Geurts, Bart. 1998. Scalars. in P. Ludewig & B. Geurts (eds.) *Lexikalische Semantik aus kognitiver Sicht*, 95-117. T bingen: Gunter Narr Verlag.

Grice, Paul H 1975. Logic and conversation. In P Cole and J L Morgan eds. *Syntax and semantics 3: Speech acts*. New-York: Academic Press. 41-58.

Horn, Laurence R. 1972. *On the semantic properties of logical operators in English*. Mimeo, Indiana University Linguistics Club, Bloomington, IN.

--- 1984. A new taxonomy for pragmatic inference: Q-based and R-based implicatures. In D Schiffrin (ed.). *Meaning, form and use in context: Linguistic applications* (GURT 84). Washington, DC: Georgetown University Press .11-42.

--- 1989. *A natural history of negation*. Chicago: University of Chicago Press.

Kadmon, Nirit. 1987. *On unique and non-unique reference and asymmetric quantification*. Ph.D. dissertation, University of Massachusetts, Amherst. Published 1992. Garland Press.

Koenig, Jean-Pierre. 1991. Scalar predicates and negation: Punctual semantics and interval interpretations. *CLS* 27. 140-55.

Landman, Fred. 2000. *Events and plurality*. Dordrecht: Kluwer.

Levinson, Stephen C. 2000. *Presumptive meanings*: *The theory of generalized conversational implicature*. Cambridge, Mass.: The MIT Press.

Matsumoto, Yo. 1995. The conversational condition on Horn scales. *Linguistics and Philosophy* 18. 21-60.

McCawley, James D. 1981. *Everything that linguists have always wanted to know about logic but were ashamed to ask*. Oxford: Blackwell.