A pragmatics-driven theory of intonational meaning

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1. Introduction

Aim: a theory of Dutch/English intonational meaning that is:

i. *compositional*, focusing on: (section 2)
   - nuclear accents H* / L* (not distinguished here);
   - suffixes H(-) / L(-) / null (also 'phrase accents');
   - and boundary tones H% / L% / % (= 'continuation').

ii. *empirically adequate*, e.g.:
   - rising declaratives;
   - fall-rise contour; (section 4)
   - topic and focus; (section 5)
   - question intonation (tentative); (section 6)

iii. *explanatory*: (appendix A)
   - the assumed meanings are *non-arbitrary* and *useful*;
   - with cross-linguistic potential.

Crucial ingredient: (Westera, 2013)
High suffix/boundary tone marks a *maxim violation*.

What this implies depends on one's *pragmatic theory*:

- **attentive pragmatics**; (section 3, appendix C)
- motivated largely by *exhaustivity* (Westera, 2014a).

2. The proposal

Assumed intonational building blocks:
Gussenhoven's (2005) Dutch intonation phrase (IP)
(German and English being 'essentially the same'):

$$\textbf{IP} = \left\{\begin{matrix}\%\text{H}\\ \%\text{L}\end{matrix}\right\}\left(n \times \left\{\begin{matrix}\text{H*}\\ \text{L*}\\ \text{H*L}\\ \text{L*H}\\ \text{H*LH}\end{matrix}\right\}\right)\left\{\begin{matrix}\text{H*}\\ \text{L*}\\ \text{H*L}\\ \text{L*H}\\ \text{H*+H}\end{matrix}\right\}\left\{\begin{matrix}\text{H\%}\\ \text{L\%}\\ \%\end{matrix}\right\}$$

A. **H*/L*** (not distinguished) mark the existence of relevant *focus alternatives* (in a non-standard sense, see section 5).
B. **H/L suffix**: the utterance (up to the next %) {violates a maxim / complies with the maxims} relative to (or due to) the accented constituent('s alternatives);
C. **H%/L%**: the utterance so far {violates a maxim / complies with the maxims} relative to the prior discourse context;
D. **null suffix / %**: the maxims don't apply (yet).
E. **relative pitch** of suffixes/boundaries marks the degree of violation/compliance, e.g., high H for *Quality* violations.
F. intonational meaning is a *conventional implicature*.

(1) A: What about John; what did he have?
B: John had the beans.
L*H^a H*L^b L%^{c}
a. a maxim is violated relative to John(-alternatives);
b. but not relative to the beans(-alternatives);
c. nor relative to the prior conversational goal.

Notes:

I. **The crucial ingredient (maxim violation) is new in its generality, but not in spirit.** Ward and Hirschberg (1985) take fall-rise to convey *uncertain relevance*. Gunlogson (2008) takes rising declaratives to signal *lack of commitment*, in a discourse model where such commitment is required. High suffixes (as marking contrastive topic) are analysed as leaving an overarching question unresolved, though phrased in terms of *strategies* (Büring, 2003).

II. **Some of the assumed meanings can hardly be called 'meanings'**, e.g., a null boundary % just *is* unfinishedness; and a low boundary L% as well as compliance with the maxims are the unmarked case. Indeed, I argue that *all* assumed meanings are similarly natural (appendix A); Westera, 2014b).

3. Pragmatic background theory

3.1. Three levels of semantic content

i. **Informative content**: a set of worlds, corresponding (when uttered) to the Gricean *what is said*.
ii. **Implicated content**: a set of worlds, corresponding (when uttered) to the Gricean *conventional implicature*.
iii. **Attentive content**: a set of sets of worlds, the *possibilities* to which the sentence (when uttered) would *draw attention*. (Ciardelli, 2009; Hamblin, 1973; Alonso-Ovalle, 2006);

Attentive content distinguishes:

(2) a. John was there, or Mary was there.
b. John was there, or Mary, or both were there.

For our purposes: the set of *nucl. accent-containing disjuncts*.
(Too simplistic for quantification, embedding...)

3.2. Conversational maxims

(Phrased in terms of *possibilities* (sets of worlds).)

'Attentive Pragmatics':

A.	**I-Quality**	Confirm only possibilities that are true.
B.	**I-Relation**	Confirm only relevant possibilities.
C.	**I-Quantity**	Confirm all relevant possibilities, respecting I-Quality. (essentially Grice, 1989)
D.	**A-Quality**	Draw attention only to live possibilities.
E.	**A-Relation**	Draw attention only to relevant possibilities.
F.	**A-Quantity**	Draw attention to all relevant possibilities, respecting A-Quality. (Westera, 2014a)
G.	**Impl-Quality**	Implicate only what is true.
H.	**Manner**	Be clear, concise, etc.

Conversational implicature: Information the speaker intends to convey, for the recognition of which she relies on the hearer's presumption of the speaker's compliance with the maxims.

(3) A: Who were at the party?
B: That bastard John was there, or Mary was.
H* % H*L L%
Informative: that John or Mary was there;
Attentive: {John was there, Mary was there};
Implicated: that John is a bastard;
Conv. impl.: not both, and no one else was there.
1. both/others being there would be relevant;
2. B didn't draw attention to it;
3. hence she must not consider it possible.
(A-Quantity/A-Quality)

Notes:

I. **Attentive pragmatics explains *exhaustivity/scalar implicatures* in a new way**, without the *competence assumption*. For motivation see appendix B.

II. **A partial characterisation of the notion of relevance is given in appendix C** (but it is kept out of the maxims for several reasons). Intuitively, think of a proposition as 'relevant' if its truth being known to an agent would contribute wholly (or 'optimally') to one of her goals.

III. **The Quality/Quantity clashes are built into the Quantity maxims**, unlike (Grice, 1989) (but like, e.g., Harnish, 1976), for two reasons:
i. conceptually: unless we'd assume that all relevant possibilities are true, a Quantity/Quality clash would be inevitable;
ii. empirically/theory-driven: unlike other maxim violations, the violation of Quantity to comply with Quality cannot be indicated by a H%.

IV. **"Attentive content seems to be more a Manner thing than a semantic thing"**. Perhaps, but:
i. *some* abstraction is necessary to obtain from a sentence its attentive content (e.g., stuttering);
ii. merely *mentioning* is not enough, e.g., attentive content is about top-level, focus-containing, 'proposition-sized' constituents, and behaves like *pointwise intersection* under conjunction;
iii. I see semantics primarily as a concise way to draw the relevant distinctions.

V. **Reduction of the maxims to a more general notion of rationality** (e.g., Relevance Theory, Game theory) is ultimately necessary (and alluded to by Grice), but this does not mean that the best explanations are to be found at the reduced level.

(IV. **Technical detail**: I-Relation shouldn't care about possibilities confirmed *as a side effect*, i.e., ones entailed by another confirmed possibility.)

(V. **Impl-Quality need not also apply to *conversational* implicatures**, because their truth is already required to maintain the cooperativity presumption.)

3.3. Complying, violating

We can distinguish:
i. **A(bsolute)-compliance**: a maxim's requirement is met;
ii. **A-violation**: a maxim's requirement is not met;
iii. **R(elative)-compliance**:
the *speaker* takes the requirement to be met;
iv. **R-violation** (= non-R-compliance):
the *speaker* doesn't [take the requirement to be met];

I assume that H suffix/H% indicate R(elative)-violations:

(4) **I-Quality violation:** (Truckenbrodt, 2006)
A: John went to pick up his sister.
B: John has a sister?
L*H^a H%^{b}
a/b. B doesn't take it to be true that John has a sister.
(Inferred: B finds it hard to believe.)

(5) **I-Quantity violation:**
John was there, Mary was there, and Sue was there.
L*H^a % L*H^b % H*L^c L%^{d}
a/b. additional relevant things happened
(but I'm facilitating comprehension here);
c. no other relevant things happened;
d. and this is sufficient for the conversational goal.

(6) **I/A-Relation violation:** ((rise-)fall-rise, section 4)
A: Was John at the party? (Ward & Hirschberg, 1985)
B: (Well,) it was raining...
H*L^a H%^{b}
a. I've been compliant as far as the weather goes;
b. but I'm not sure if this relates to John.

(1) **A-Quantity violation:** (topic/focus, section 5)
John had the beans.
L*H^a H*L^b L%^{c}
a. other relevant things might have happened;
b. John had no other relevant things (only beans);
c. this is sufficient for the current conversational goal.

Note:

I. ***Which* maxim may've been violated is constrained by:**
i. high/low H/H%, discriminating between Quality violations and Quantity/Relation violations;
ii. the presumption of cooperativity (see note II);
iii. facial expressions, gestures, ...
iv. nested falls and rises, which generate interesting constraints (see sections 4, 5).

II. **A coop. speaker needs a *reason* for violating a maxim:**
i. there doesn't seem to be a cooperative reason to violate A-Quality (adding disjuncts you take to be false);
ii. the only cooperative reason to violate I/A-Quantity may be a clash with Manner: e.g., for clarity;
iii. violating I-Quantity then implies violating A-Quantity, because confirming and drawing attention to a possibility *both* clutter the sentence;
iv. the main cooperative reason for violating I-Quality or I/A-Relation might be that the speaker *suspects* she A-complies, and at least *tries* to make a contribution.

III. **Other things to do with maxims (Grice, 1989)**:
- *silent violations* mislead (liars won't use H%);
- *flouting* is not *openly*, but *obviously* violating;
- to *opt out* of a maxim would be to indicate that it *doesn't apply* ("On an unrelated note...").

(- to *cancel* a conversational implicature is to *opt out* of the respective maxims, although this is not how it is commonly understood (Westera, 2014c).)

4. The fall-rise contour

- '(Rise-)fall-rise' is often transcribed as L*H L-H%; (although Gussenhoven doesn't seem to allow for it...)
- I assume instead H*L H%, 'fall-rise';
- I remain agnostic about the initial 'rise'.

4.1. Uncertain relevance

For H*L H%, a reading of **uncertain relevance** (Ward & Hirschberg, 1985) is predicted:

(6) A: Was John at the party?
B: It was raining...
H*L^a H%^{b}
a. I've been compliant as far as the weather goes;
b. but not relative to the conversational goal.
1. it cannot be A/I/Impl-Quality, which would have been a violation also 'locally';
2. it cannot reasonably be Manner;
3. it cannot be A/I-Quantity, for then she should have continued by "so John was(n't) there";
4. hence, it can only be I/A-Relation: she's unsure if the rain was relevant to the party question.

Some further predictions:

- **this reading is impossible on complete answers to the prior question** (or it implies another, higher question);
- **exhaustivity implicatures may arise under fall-rise** (contra (Constant, 2012); as they seem to do more than with a simple fall (Tonhauser & de Marneffe, 2014)).

4.2. Incredulity

An **incredulity reading** has been observed for (it seems) the same contour with higher H pitch (Ward & Hirschberg, 1992):

(7) A: It was raining.
B: It was raining?!
H*L H%

This may *seem* to follow from a Quality violation as in (4), but that would be problematic:

- the Quality violation is ruled out by the L suffix on 'raining' (see above);
- if the source of incredulity had been a *mere* Quality violation, fall-rise should be available also on, e.g., *guessing*, but I think it isn't:

(8) A: Time's up, you have to guess, now!
a. B: Ok... Obama?
H* H%
b. B: ?? Ok... Obama?!
H*L H%

A better explanation exists under the following assumptions:

- Incredulity occurs only with *meta-linguistic* use;
- meta-linguistic(S) = "It was(/can be?) said that [S]";
- intonational meaning is speaker-oriented; it doesn't embed (Ladd, 1996).

Now (7) is seen to trigger the following inference:

1. B's utterance is meta-linguistic: "you said that it was raining" (= ML);
2. if (i) A was known to be truthful, and (ii) "it was raining" was relevant, then ML would be relevant (closure under *contextual entailment*, see appendix C);
3. but B doubts whether ML is relevant (fall-rise);
4. hence, either (i) she does not take A to be truthful, or (ii) she does not take the rain to be relevant.

Thus, metalinguistic fall-rise *gains* an incredulity reading.

Notes:

I. **The higher pitch for incredulity** may reflect *emotional activation* (Banziger & Scherer, 2005), and this, together with, e.g., facial expression, should be sufficient to disambiguate fall-rise towards incredulity.

II. **An ordinary *rise* on a meta-linguistic response is predicted to mean "did I hear it correctly?"** (compared to fall-rise: "why did you say that?").

5. Topic and focus

I assume that the essential contours are:

- **Topic**: L*H;
- **Focus**: H*L;

i.e., the (essential) difference for our purposes lies in the suffix.

(In section 5.3 we consider a 'fall-rise' topic: H*L H%.)

5.1. Focus alternatives

I assume, as is customary, an ancillary notion 'focus' (here intended to work for both topic and focus), the details of which do not matter (but see, e.g., Selkirk, 1984).

Let a **focus** of an utterance be (*very roughly)* any constituent containing one accent, in a rightmost branch.

(9) John went to the party [on thursday]$_F$.
John [went to the party on thursday]$_F$.
[John went to the party on thursday]$_F$.
H*L L%

I adopt a *non-standard* notion of focus alternative:

Focus alternatives of an utterance Γ, for a focused constituent α, are obtained from Γ by replacing α itself *plus potentially everything in its scope*. (Rooth (1992) replaces only α itself.)

This is a weaker constraint than usual, enabling:

- an account of topic and focus, see below;
- a straightforward account of the following example:

(10) A: Wow, you're back already? Was John at the party, perhaps, or did you have a headache again?
B: John was at the party.
H*L L%
Rooth's alternatives: X was at the party
My alternatives: X [i.e., anything]

We can *explain away* Rooth's intuition pragmatically:

1. Accent on "John" in (10B) means it was not predictable.
2. But given "John", the rest (unaccented) *was* predictable.
3. We could not have known beforehand that John was at the party, for then the utterance would not have been informative, and should not have been made.
4. Thus, we must have known something slightly weaker, *plausibly*, that the utterance would answer the question "who was at the party?".

5.2. Why topic must scope over focus

Intonational meaning becomes scope-sensitive because focus alternatives are. Consider (1), now explicitly surface scope:

(1) A: What about John; what did he have?
B: John had the beans. (John $>$ the beans)
L*H^a H*L^b L%^{c}
a. other relevant things may have happened;

b. John had no other relevant things (only beans);
c. this is sufficient for the current conversational goal.

But with inverse scope, **topic and focus contradict eachother:**

(11) # John had the beans. (with the beans > John)
L*H^a H*L^b L%^{c}
a. ! relevantly, other people may have had beans;
b. ! no other relevant things happened;
c. this is sufficient for the current conversational goal.

Similarly, the opposite intonation pattern forces *inverse scope*:

(12) # John had the beans. (with John > the beans)
H*L^a L*H^b H%^{c}
a. ! no other relevant things happened;
b. ! relevantly, John may have had other things;
c. this is insufficient for the conversational goal.

(13) John had the beans. (with the beans > John)
H*L^a L*H^b H%^{c}
a. no one else had the beans;
b. relevantly, other things may have happened;
c. this is insufficient for the conversational goal.

Hence the prediction: topic (the constituent marked by L*H) must take scope over focus (H*L).

Indeed, this was argued in (Büring, 2003; Wagner, 2012), in light of (a.o.) the unavailability of the contour (12,13) in German, a language that seems to resist inverse scope.

Note:

I. (1) is often treated as answering "who had what" *by individual* (and (13) the same question, but *by food item*) (Roberts, 1996; Büring, 2003). But in fact, the L% in (1) implies that the prior question couldn't have been "who had what". I think this is correct.

5.3. The 'fall-rise' topic

The literature associates topic also with a *fall-rise*: (Gussenhoven's H*LH?)

(14) John had the beans.
H*L H% H*L L%

(15) Straks, als ik dat zeg, gaan we opruimen.
H*L H% H*L H% H*L L%
"Later, when I say so, we are going to clean up"

Predictions (consequences not yet entirely explored):
- H% at a non-propositional constituent can only mark a Manner violation (hence the 'didactic' flavour);
- the L in fall-rising topic implies exhaustivity (hence the 'authoritative' flavour of (15));
- in (14), this may amount to the other individuals being deemed *irrelevant*, highlighting John.

Thus, it is quite different from a simple rising accent...

6. Intonation in questions

***The* distinguishing prediction for a maxim-based account:**
- different speech acts are subject to different maxims;
- the readings for H and H% should vary accordingly.

Let's assume:

- interrogatives are conventionally used as questions;
- the I-maxims do not apply to questions; that is:
- interrogative mood is used to *opt out* from these maxims.

Opting out needs a reason (just like violating a maxim):
- the reason might be that it is *undesirable* for you to assert something (e.g., you're a quizmaster);
- more plausibly, the reason might be that you considered it very unlikely that you would have A(bsolutely)-complied with either I-Quality or I-Relation;

(• expected A-violation of I-Quantity would not be a valid reason.)

If, *in addition*, the interrogative comes with H%:
- it must mean that one of the A-maxims is R-violated;
- it cannot reasonably be A-Quality (see above);
- **it must be A-Quantity or A-Relation**.

Some examples:

(16) Was John at the party?
H*L L%
a. Interrogative: I don't know this (or it is irrelevant);
b. L%: and there are no other relevant possibilities.

(17) Was John at the party?
L*H H%
a. Interrogative: I don't know this (or it is irrelevant);
b. H%: either (i) there are other relevant, live possibilities, or (ii) not sure if this is relevant.

(18) Was John at the party, or Bob?
L*H H% H*L L%
a. Interrogative: I don't know this *or it is irrelevant*;
b. L%: there are no other relevant, live possibilities.
(this yields a 'not neither' presupposition, note IV.)

Notes:

I. **Rising declaratives and rising interrogatives are semantically potentially quite different:** H% marks a violation of I-Quality on declaratives, but A-Quantity on interrogatives. With broad focus, however, the difference may be unnoticable.

II. **For imperatives a similar analysis could be given.** A Quality-maxim for imperatives could be "only order what you find desirable", which would predict that rising imperatives convey uncertainty in this respect.

III. **Intonation contours need not be treated as 'speech act operators'**, even though compliance/violation is a property of speech acts, because they could mean, e.g., "the sentence *would* violate a maxim *if* it were uttered".

IV. **A 'not neither'-presupposition is predicted, for (18), as follows**. Suppose that the possibility that *neither* was at the party was relevant; it is then pragmatically excluded by A-Quantity (L%), hence the speaker *must take the disjunction as a whole to be true*. This means she opted out of the I-maxims not because of I-Quality, but because of I-Relation, i.e., she deemed the disjunction to be *irrelevant*. This can be for two reasons (cf. appendix C):
i. the disjunction *is* irrelevant, because no other partial answers will be given together with which it yields a complete answer; or
ii. she takes the disjunction to be already known.
Now, reason (i) is unlikely, because she asked the question hoping it would be resolved. Hence it must be (ii): the disjunction is presupposed. This enables an account of the following contrast (Westera, 2014d):

(19) a. A: John was there, or Mary was there.
B: Yes / No.
b. A: Was John there, or was Mary there?
B: # Yes / # No.
c. A: Was John there?
B: Yes / No.

7. Final remarks

Intonation modulates Grice's *cooperative principle*:

- although the assumed meanings are general/flexible, the ability to mark (non-)cooperativity *relative to different sets of alternatives* constrains the possible readings;
- taking intonation into account makes semantic/pragmatic theories *stronger* (fewer/no exceptions).

Intonational meaning is ultimately *conventional*. This duplicates the cooperative principle in the semantics...

- that's okay: Grice saw the convention/conversation distinction as an *explanatory device*, not as cognitively real;
- Grice's theory explains *why* intonational meaning is the way it is, e.g., why L%, the default boundary, 'means' compliance with the maxims (cf. appendix A);
- the *cancellability* of conversational implicatures is maintained (cancellability = *systematic context-dependence*, although this is not how it's commonly understood (Westera, 2014c)).

Crucially, intonational meaning still applies only *globally*, at the speech act level, hence:

- my proposal is *not* the long-awaited reconciliation of the Gricean and the grammatical approach;
- (• but attentive pragmatics itself may have something to say about *some* embedded implicatures, cf. appendix B.)

A. Cross-linguistic potential

The assumed meanings are useful:

- Non-obvious maxim violations *must* be signalled, lest the hearer be misled (Grice, 1989).
- H/L suffixes: an accent evokes relevant alternatives, potentially raising the Quantity-bar for subsequent discourse. Suffixes make clear whether this the bar is, indeed, raised.

The assumed meanings are 'natural' (Westera, 2014b), in the sense of (Gussenhoven, 2002):

- Increased effort (accents) is naturally spent on words that are *important to convey*, i.e., that are left-to-right *unpredictable*. This may have grammaticalized to become *scope-sensitive*, as assumed.
- Pitch decreases with lung pressure, hence a high pitch 'means' *unfinishedness*. Sentence-finally, it cannot be syntactic/semantic unfinishedness, but only *pragmatic* unfinishedness – and maxim violations are one way of spelling this out.

This lends the theory cross-linguistic potential:

- the same meanings are expected across languages;
- where the intonation channel is available, there will be a universal tendency for the meanings to be realized approximately in the way proposed;
- in tonal languages perhaps mainly by discourse particles.

Note:

I. **High pitch may also be linked to *vulnerability***, which may be hard to distinguish from the *uncertainty* involved in certain maxim violations – but I think it can be.

B. Exhaustivity in attentive pragmatics

Attentive pragmatics is motivated by *exhaustivity/scalar implicatures* (Westera, 2014a):

i. attentive content is necessary to distinguish (2a,b):

(2) a. John was there, or Mary was there.
b. John was there, or Mary, or both were there.

ii. exhaustivity occurs when I-Quantity is not observed, e.g., a quiz-master (Fox, 2014).

(20) Quiz-master: There's money in box A or in box B.
Conv. implicature: not in both.

iii. Attentive pragmatics enables the 'epistemic step' *without a contextual competence assumption*:

(21) A: I'm probably asking the wrong person, but among John, Bill, Mary and Sue, who were at the party?
B: John and Mary. (L%)
Conv. implicature: not Bill, not Sue.

Effectively, A-Quantity compares "John and Mary" to equally informative, but *more attentive* things one could have said, e.g., "John and Mary *or John, Mary and Bill*". Why didn't B say that? Mere not-knowing isn't enough.

I. **Attentive pragmatics derives Alonso-Ovalle's (2008) *innocent exclusion***, though slightly generalized (A = utterance's attentive content; R = relevant possibilities):

(22) $\textsc{Exh}(A,R) = \bigcap_{b\in(R-A)}(\overline{b} \cup \bigcup_{\substack{a\in A\\ a\subset b}} a)$

II. **In bypassing the competence assumption, attentive pragmatics can derive *any* exhaustivity implicature** $\neg p$, provided that p was relevant in the context and that no attention was drawn to it. Thus, 'embedded' implicatures are predicted to exist and are no problem *in principle*.

III. **Grice (1989) probably wouldn't mind the enriched *attentive semantics*.** Grice acknowledged that there's more to sentences than truth conditions (as witnessed by his Maxim of Manner or his conventional implicatures). His main aim was to keep the *truth-conditions* as classical/logical as possible, and my account contributes to that.

C. The underlying notion of relevance

Relevance: a possibility is relevant to a speaker if its truth being known to a speaker would wholly/optimally contribute to reaching one of the speaker's goals.

A certain *view*; not a definition. What does it commit us to?

A. **Relevance need not be closed under *negation*** (contra Groenendijk & Stokhof, 1984; Roberts, 1996), because (23) is consistent. Indeed, an 'uncertain relevance' contour is possible on negative answers (24):

(23) I'm hungry; I want to know where's a good restaurant, not where there isn't a good restaurant.
(24) A: Where's a good restaurant?
B: Not at Fleet Street...
H*L H*L H%

B. **Relevance need not be closed under partial answerhood (disjunction)** (also contra Groenendijk & Stokhof, 1984; Roberts, 1996), because (25) is consistent. Indeed, 'uncertain relevance' is possible in (26):

(25) I need to know *exactly* who came to the party, and you're the only person who could possibly know, so a partial answer will do no good.

(26) A: Who were at the party?
B: John or Bob...
H*L H*L H%

But typically, partial answers *will* be relevant (because the remaining information may be found by other means).

C. **Relevance *is* closed under 'contextual entailment'** (like Groenendijk & Stokhof, 1984; Roberts, 1996): if something entails a relevant possibility (only) together with salient common knowledge, it is relevant.

(27) A: I'm going out tonight... Should I bring my umbrella?
B: It's pouring. (L%)

D. **Relevance is (typically) closed under 'altruism'**:
E.g., if someone asks a question, we try to answer; if we know the question is pointless, we cut it short:

(28) A: Who was present? (Don't care about who wasn't.)
B: No one was(, sorry). (L%)

and if a falsehood is uttered, we signal this:

(29) A: Man, I'm hungry. Where can I get some food?
a. C: ?? There's no good restaurant at Fleet st.
b. B: There's a good restaurant at Fleet st.
C: No there isn't.

Notes:

I. **Such properties of relevance are *not* incorporated into the maxims** (unlike Groenendijk & Stokhof, 1984; Roberts, 1996), for several reasons:

i. The maxims should capture only the *language-rationality interface* – understanding relevance and its constraints is an entirely extra-linguistic skill;

ii. I think our pre-theoretic intuitions about what is relevant in a given context are very sharp; formalizing this need not be our priority;

iii. while language use is driven by *what* is relevant, I think it is (and therefore the maxims ought to be) largely blind to *how and why* something is relevant (this is, of course, an empirical claim).

II. **Closure under negation would render a pragmatic account of exhaustivity implicatures unavailable** (Groenendijk & Stokhof, 1984): both positive and negative possibilities would be pragmatically excluded ('symmetry problem'). This has in part motivated 'lexical scales' and the grammatical approach to exhaustivity.

D. References

References

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