Supplements
Within a Unidimensional Semantics[1]

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Abstract. Potts (2005, 2007) claims that Grice's 'conventional implicatures' offer a powerful argument in favor of a multidimensional semantics, one in which certain expressions fail to interact scopally with various operators because their meaning is located in a separate dimension. Potts discusses in detail two classes of phenomena: 'expressives' (e.g. honorifics, ethnic slurs, etc.), and 'supplements', especially Non-Restrictive Relative Clauses (= NRRs). But the former have been re-analyzed in presuppositional terms by several researchers, who have suggested that expressives trigger presuppositions that are i. *indexical* and ii. concern the *speaker's attitudes* - hence the fact that i. they appear to have matrix scope, and ii. they are automatically accommodated (Sauerland 2007, Schlenker 2007). Thus supplements arguably remain the best argument in favor of a separate dimension for conventional implicatures. We explore an alternative in which **(1)** NRRs can be syntactically attached with matrix scope, despite their appearance in embedded positions; **(2)** NRRs can in some cases be syntactically attached within the scope of other operators, in which case they semantically interact with them; **(3)** NRRs are semantically conjoined with the rest of the sentence, but **(4)** they are subject to a pragmatic rule that requires that their content be relatively easy to accommodate – hence some non-trivial projection facts when NRRs do not have matrix scope. **(1)**, which is in full agreement with the 'high attachment' analysis of NRRs (e.g. Ross 1967, Emonds 1979, McCawley 1998, Del Gobbo 2003), shows that Potts's semantic machinery is *redundant*: its effects follow from more conservative semantic assumptions once an adequate syntax is postulated. **(2)**, which disagrees with most accounts of NRRs, shows that Potts's machinery makes *incorrect predictions* when NRRs have a non-matrix attachment. **(4)** explains why NRRs sometimes display a projection behavior similar to presuppositions.

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1 Bidimensional vs. Unidimensional Analyses

The contrast between (1)a and (1)b suggests that appositive relative clauses are 'scopeless', i.e. that they do not interact semantically with operators in whose scope they appear.

(1)   a. I doubt that John, who is smart, is competent.
        => John is smart.
        b. I doubt that John is smart and competent.
        ≠> John is smart

This behavior was taken by Potts 2000, 2005 and Nouwen 2006 to argue for a *bidimensional semantics*, one in which 'supplements' (= the semantic content of appositives) are computed in a separate dimension from assertive content. Their analysis is sketched in (2)

(2)   **Bidimensional Analysis** (Potts 2000, 2005; Nouwen 2006)
        (i) Syntax: Appositives are attached in their surface position.
        (ii) Semantics: Supplements are computed in a separate dimension, which has two effects.
        A. They appear to have 'wide scope'.
        Version 1 (Potts): They do not interact scopally with other operators.
        Version 2 (Nouwen): They only interact scopally with operators *to the extent that unembedded E-type pronouns do* (e.g. in *John invited few people, who had a good time*, the NRR does interact with the quantifier; but the truth conditions are similar to those of the discourse *John invited few people. They had a good time*).
        B. Supplements have a special epistemic status (they are not 'at issue').

We explore an alternative account within a unidimensional semantics. In brief, we take NRRs to be preferably attached to the matrix level, although lower attachments are also possible; we take NRR to have a conjunctive semantics; and we take them to be subject to a pragmatic constraint that requires that their content be both non-trivial and not too surprising. These assumptions are stated more precisely in (3).

(3)   **Unidimensional Analysis**
        (i) Syntax (see McCawley 1988, Del Gobbo 2003)
        -A NRR can be attached to any node of propositional type that dominates its associated NP.
        -Preferences: highest attachment >> lower attachment – attitudinal >> lower attachment – non attitudinal
        (ii) Semantics (Del Gobbo 2003)
        a. A NR pro can be interpreted as an E-type or referential pronoun.
        b. An NRR is interpreted conjunctively.
        (iii) Pragmatics
        The content of a NRR must be 'easy to accommodate', but non-trivial – which gives rise to non-trivial pattern of projection.

We provide three arguments in favor of our approach:

(4)   **Arguments**
        (i) Bidimensionalism is unnecessary because there are independent arguments for postulating that high syntactic attachment is possible.
        (ii) Bidimensionalism is undesirable because there are other cases in which low attachment is possible (though often dispreferred). Potts & Harris 2009 allow for such a possibility, but only in the context of implicit or explicit attitude reports; we display examples that do not involve those.
        (iii) Pragmatics: some supplements give rise to non-trivial patterns of projection which are formally similar to presupposition projection. This suggests that there is a non-trivial interaction between the appositive content and other operators.

2   The Possibility of High Syntactic Attachment

Cinque 2008 distinguished between two types of nonrestrictive relative clauses:

(5)   a. 'Integrated NRRs' are 'essentially identical to the ordinary restrictive construction (as such part of sentence grammar)'. Such NRRs are not available in English. In French, these are exemplified by relative clauses intorduced by *qui*.
        b. 'Non-integrated NRR' are 'distinct from the ordinary restrictive construction (with characteristics of the grammar of discourse)'. All English NRRs are of this type. In French, it is represented by relative clauses introduced by *lequel*.

Focusing on French, we show that *even* integrated NRRs have the ability to attach syntactically at the matrix level when their surface position appears to be embedded.
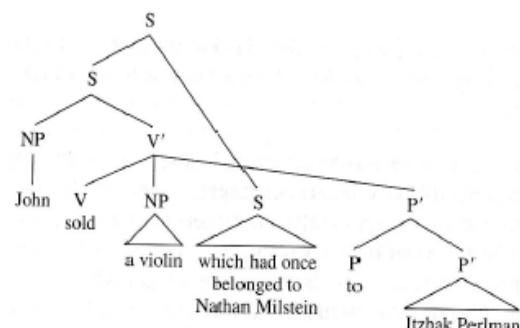
2.1. Ellipsis

Our first argument replicates in French a paradigm discussed by McCawley 1988 for English:

(6)   John sold a violin, which had once belonged to Nathan Milstein, to Itzhak Perlman, and Mary did too.

McCawley 1988 observed that the second sentence does not imply that the violin that Mary sold to Perlman had once belonged to Nathan Milstein. On the assumption that ellipsis targets a constituent, this suggests that the NRR can be attached outside the constituent which is the antecedent of the elided VP. This reasoning lead McCawley to posit the structure in (7), which crucially involves a discontinuous constituent. (We do not need in the present discussion to adopt McCawley's ternary branching structure for the VP; all that matters for our purposes is that the NRR can be attached must higher than its surface position).

(7)

The same conclusion must be reached about NRRs introduced by *qui* in French; in this respect, they contrast rather clearly with restrictive relative clauses:

(8)　　*Context:* In each generation, the most famous cellist gets to meet the most talented young musicians.

a. Yo Yo Ma a présenté ses élèves préférés, qui vivent à Cambridge, à Rostropovitch. Paul Tortelier aussi, bien sûr.
Yo Yo Ma introduced his favorite students, who live in Cambridge, to Rostropovich. Paul Tortelier did too, of course
≠> Tortelier has students in Cambridge.

b. Yo Yo Ma a présenté ses élèves qui vivent à Cambridge, à Rostropovitch. Paul Tortelier aussi, bien sûr.
Yo Yo Ma introduced his students who live in Cambridge to Rostropovich. Paul Tortelier did too, of course.
=> Tortelier has students in Cambridge.

2.2. Condition C Effects

Our second argument concerns Condition C effects, which are weakened or obviated in some cases that involve NRRs, as in (9).

(9)　　[Le Président]$_i$ est si compliqué qu'
[The President]$_i$ is so complicated that

a. * il$_i$ a donné au ministre qui n' aime pas Sarkozy$_i$ une tâche impossible.
he$_i$ gave the minister who doesn't like Sarkozy$_i$ an impossible task.

b. (?) il$_i$ a donné au ministre de la Justice, qui n'aime pas Sarkozy$_i$, une tâche impossible.
he$_i$ gave the minister the minister of Justice, who doesn't like Sarkozy$_i$, an impossible task.

65

(10)   [Le Président]$_i$ est si compliqué qu'
[The President]$_i$ is so complicated that

a. *il$_i$ n'a envoyé qu'à un seul journaliste qui adore Sarkozy$_i$ son$_i$ dernier livre.
he$_i$ sent to only one journalist who loves Sarkozy$_i$ his$_i$ latest book.

b. il$_i$ n'a envoyé qu'à un seul journaliste, qui adore Sarkozy$_i$, son$_i$ dernier livre.
he$_i$ sent to only one journalist, who loves Sarkozy$_i$, his latest book.

The data involving high syntactic attachment show that an analysis that posits a separate semantic dimension in order to handle the apparent 'wide scope' behavior of NRRs is not necessary, since these are sometimes *syntactically* attached to the matrix level. Of course it remains to understand why such high attachments are possible, given that they would seem to violate standard syntactic constraints. We leave this question for future research.

2   The Possibility of Low Syntactic Attachment

We will now suggest that the bidimensional analysis in its usual form – which implies that NRRs *always* display wide scope behavior – is not just unnecessary, but also undesirable because there are cases in which NRRs display a *narrow* scope behavior.

Proving this is usually difficult if one accepts the hypothesis that the *wh* pronoun of a NRR has the semantics of a donkey pronoun. This hypothesis, developed by Del Gobbo 2003, is certainly compatible with a bidimensional approach, and it was in fact implemented in great detail in Nouwen 2006. The difficulty is that E-type pronouns that have wide scope can often 'imitate' the behavior of variables that are bound under other operators. Thus an example such as (11)a cannot really show that NRRs may have scope under a quantifier, because the control sentence in (11)b doesn't sound too bad, and suggests that some semantic or pragmatic mechanism (call it 'quantificational subordination') allows the pronouns in the second sentence to be interpreted as if they had scope under the universal quantifier in the first sentence.

(11)   a. On Mother's day, every little boy calls his mother, who tells him she loves him.
b. On Mother's day, every little boy calls his mother. She tells him that she loves him.

Still, other cases cannot be explained away in this fashion. Thus (12)a-b gives rise to a very sharp contrast between the NRR and the case of anaphora in discourse.

(12)   Context: There was incident at school[2].

a. Il est concevable que Jean ait appelé sa mère, qui ait appelé son avocat.
It's conceivable that Jean has-sub called his mother, who had-subj called her

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[2] Thanks to B. Spector for discussion of this and related examples.

lawyer.
≠> If Jean had called his mother, she would have called her lawyer.

b. *Il est concevable que Jean ait appelé sa mère. Elle ait appelé son avocat.
It's conceivable that Jean has-sub called his mother. She had-subj called her lawyer.

a'. Il est concevable que Jean ait appelé sa mère, qui aurait/aura appelé son avocat.
It's conceivable that Jean has-subj called his mother, who would/will have called her lawyer.
=> If Jean had called his mother, she would have called her lawyer.

b'. Il est concevable que Jean ait appelé sa mère. Elle aurait/aura appelé son avocat.
It's conceivable that Jean has-subj called his mother. She would/will have called her lawyer.
=> If Jean had called his mother, she would have called her lawyer.

The reason for the contrast between (12)a and (12)b is not hard to find: the subjunctive is always ungrammatical unless it is embedded under operators with a particular semantics – in the case at hand *it is conceivable that*. This suggests that (12)a is not a case in which the NRR has wide scope syntactically. Furthermore, the truth conditions of the sentence suggest that the NRR really is interpreted within the scope of the existential modal. This can be seen by contrasting the truth conditions of (12)a with those of (12)a'-b': the latter imply that *if John had called his mother, she would have called her lawyer*; this, in turn, is unsurprising if the mood corresponding to *would* behaves like an E-type world pronoun, which picks out *those (relevant) worlds in which John calls his mother*. But no such effect is obtained in (12)a, where the NRR genuinely appears to be interpreted within the scope of the existential modal.

3 Patterns of Projection

We will now suggest that the bidimensional fails to account for some non-trivial patterns of projection with NRRs that do not have wide scope. We will sketch in Section 4 a pragmatic account of these patterns, but for the moment we will describe them and show that they are formally analogous to some patterns of presupposition projection.
Let us start by reminding ourselves of patterns of presupposition projection in conjunctions and disjunction. The important point is that in a conjunction the first conjunct must entail (given the shared assumptions of the conversation) the presupposition of the second conjunct. And in disjunctions, a presupposition must be entailed by the negation of the other disjunct.

(13)   **Projection in conjunctions**
Is it true that John is over 60 and that he knows that he can't apply?
=> If John is over 60, he can't apply

(14)   **Projection in disjunctions**
a. *Canonical Order*
John isn't over 60, or he knows that he can't apply.
b. *Inverse Order*
John knows that he can't apply, or he isn't over 60.
=> If John is over 60, he can't apply.

Let us turn to supplements. We start by noting that (15) gives rise to a *conditional* inference that if the President murdered his wife, he will be indicted; one does not have to derive the unconditional (and implausible) inference that the President will in fact be indicted.

(15)   Est-il vrai que Sarkozy vient d'assassiner sa femme, et que le Président, qui va être mis en examen, est sur le point de démissionner?
Is is true that Sarkozy has just murdered his wife, and that the President, who will be indicted, is about to resign.
≠> Sarkozy will be indicted.
=> If Sarkozy murdered his wife, he will be indicted.

The case of disjunctions is similar, except that we obtain a conditional inference that involves the negation of one of the disjuncts – as is the case in presupposition projection.

(16)   a. Tu ne vas pas épouser Sam, ou ta mère, qui sera furieuse, te déshéritera.
You will not marry Sam, or your mother, who will be furious, will disown you.
=> If you don't marry Sam, your mother will be furious

b. Est-il vrai que tu ne vas pas épouser Sam, ou que ta mère, qui sera furieuse, te déshéritera?
Is is true that you will not marry Sam, or that your mother, who will be furious, will disown you?
=> If you don't marry Sam, your mother will be furious.

I believe that the same patterns hold when the order of the disjuncts is reversed – although the conditional inference is certainly more natural when the NRR appears in the second disjunct. This patterns is also reminiscent of presupposition projection: when the negation of a disjunct is needed to satisfy the presupposition of the other, one tends to prefer the order in which the presupposition trigger appears in the second disjunct.

(17)   a. (?) Ta mère, qui sera furieuse, te déshéritera, ou alors tu n'épouseras pas Sam.
Your mother, who will be furious, will disown you, or you will not marry Sam.
=> If you don't marry Sam, your mother will be furious

b. ?Est-il vrai que tu que ta mère, qui sera furieuse, te déshéritera, ou alors que tu n'épouseras pas Sam?
Is it true that your mother, who will be furious, will disown you, or that you will not marry Sam?
=> If you don't marry Sam, your mother will be furious

We conclude that some supplements do in fact give rise to non-trivial patterns of projection, and that these are formally analogous to presupposition projection.

4 Epistemic Status

As was forcefully argued in Potts 2005, there are clear differences between the epistemic status of supplements and that of presuppositions: the latter are normally trivial (i.e. entailed by their local context), while the former usually make a non-trivial contribution, as is suggested by the contrast in (18).

(18)   a. Armstrong survived cancer. #Lance, who survived cancer, won the Tour de France (after Potts 2005)
        b. Armstrong survived cancer. Mary knows he did (after Potts 2005)

Still, NRRs should not be *too* informative, as is suggested by the contrast in (19):

(19)   a. Sarkozy, qui est le chef des armées, vient d'assassiner sa femme.
        Sarkozy, who is the commander in chief, has just murdered his wife.
        b. (#)Sarkozy, qui vient d'assassiner sa femme, est le chef des armées.
        Sarkozy, who has just murdered his wife, is the commander in chief.
        Ok if the news that S. murdered his wife is already out.

(19)b is rather odd if I am breaking the news that the President has just murdered his wife. The sentence becomes fine if the news is already out – in which case the function of the NRR is to remind the addressee of a fact that is already well-known. By contrast, (19)a could well be used to announce that the President has murdered his wife; the content of the NRR can in this case be taken to be uncontroversial, since the Constitution stipulates that the President is the commander in chief.
A similar contrast is found in cases that involve non-trivial patterns of projection, as was discussed above.

(20)   a. Est-il vrai que Sarkozy vient d'assassiner sa femme, et que le Président, qui va être mis en examen, est sur le point de démissionner?
        Is it true that Sarkozy just murdered his wife, and that the President, who will be indicted, is about to resign?
        => If the President murdered his wife, he'll be indicted.

        b. ?Est-il vrai que Sarkozy est sur le point de démissionner, et que le Président, qui vient d'assassiner sa femme, va être jugé?
        Is it true that S. is about to resign and that the President, who has just

murdered his wife, will be indicted?
? unless the news is already out that S. murdered his wife.

(20)a gives rise to the inference that *if the President murdered his wife, he will be indicted* – an uncontroversial claim in normally functioning democracies. If it were acceptable, (20)b would yield the inference that *if the President is about to resign, he has murdered his wife* – a conditional which is by no means uncontroversial; this, in turn, explains the deviance of the sentence.

So we end up with a dual conclusion:
-Supplements that do not have matrix scope may give rise to patterns of projection that are reminiscent of presuppositions.
-How they have a different epistemic status: supplements generally make a contribution which is neither entirely trivial, nor too controversial.

The generalization can be stated as follows:

(21) **Presuppositions vs. Supplements**

a. A presupposition must usually be locally trivial, i.e. it must follow from its local context.

b. A supplement should not be locally trivial. But the minimal revision C+ of the global context C which guarantees that it is trivial should not be too surprising given C. In other words, the assumptions that should be added to C in order to get C+ should be 'weak'.

A bit more specifically, supplements can be handled within a pragmatics that is based on the notions in (22).

(22) **Pragmatics of Supplements**

i. C+
In a global context C, define C+ to be the most conservative (weakest) strengthening of C which guarantees that the supplement is locally trivial.

ii. Felicity
A supplement is felicitous only if C+ is (i) different from C, and (ii) not too surprising given C.

iii. Update
If Felicity is satisfied, update C to C+.

These assumptions explain why supplements project in the same way as presuppositions: in both cases, the crucial notion is that of being entailed by a local context. At the same time, we also understand why supplements do not have the same epistemic status as presuppositions, since the requirement for supplements is not that they should be entailed by their local context given the global context C, but rather given a modified (strengthened) global context C+. The fact that the latter must neither be equivalent to C nor too surprising given C accounts for the special epistemic status of supplement.