Some notes on *only*, maximization, and a certain historical advance

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The present text is intended as a probe into the meaning of the focus-sensitive operator 'only'. Special attention is devoted to the interaction between the operator and partition orders, also known as exact scales. A discussion about the problematic predictions apparently generated by standard treatments is offered. A repair mechanism of scales is presented and treated as part of a general dynamics of linguistic maximization.

1. Prologue

As a political activist in Italy, I know all too well that the Roman Catholic Church needs to be patiently sustained, sometimes assisted, or even directed, while it strives, ancient institution that it is, to reform herself. Yet, as convinced of this insight as I might have been, I certainly wasn't expecting that I would be assisting the Roman Church as a researcher on language.

A few days ago, the Italian newspaper *La Repubblica*[1] published an article entitled: "Divorced People Are Not Only Sinners, the Roman Church Says". The problem I was presented with was the following. To acknowledge that the Roman Church was indeed achieving some form of historical advance, I had to interpret the reported quote along the lines of something like (2). Yet, given the possible interpretations that might be assigned to the exclusive particle 'only', (1) was available to me as well.

(1) CONSERVATIVE READING
Divorced people are in fact sinners, and they may be of poorer moral quality than their marital status implies

(2) PROGRESSIVE READING
Divorced people are not in fact sinners, they are more or perhaps better than that

[1] *La Repubblica*, 22 October 2012.

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As it turns out, it is far from obvious that a standard treatment of 'only', to which I had immediately resorted in order to derive (2), can in fact account for the kind of progress we would all like to encourage.

2. The ingredients

2.1 Focus

I shall treat 'only' (henceforth: O) as a sentential operator that modifies a *praeiacens* proposition by associating with a proper constituent bearing focal stress (the praeiacens proposition here being the proposition obtained via subtraction of the exclusive particle from the initial sentence). Being a sentential operator, I maintain that structures like [X O [Y_f] Z] get parsed as [O [X Y_f Z]]. In addition, O is ranging over a set of propositional alternatives, call it C. This counts as a subset of (i.e. is formally constrained by) the *focus structure* set, i.e. a set of propositional alternatives obtained by substituting the focussed constituent with alternative denotations of the same semantic type within the focussed-marked phrase. Take the following sentence (3), for instance.

(3) Only Vittorio Grigolo can boast a genuine claim of being Pavarotti's heir

(3') O [C] [Vittorio Grigolo_f can boast a genuine claim of being Pavarotti's heir]

In order to explain how focus is affecting this sentence, one has to begin by deriving what I shall call the *constituent alternatives* of the focussed element, in this case pertaining to semantic type <e>. If we are sensible enough, we will force contextual restriction to apply at this level, for it is obvious, if we further consider that I'm quoting (3) from an Opera magazine, that tenors are the sole candidates for being the heirs of Pavarotti, and, quite likely, many of them would not be able to convincingly promote their own candidacy for such a role. Next, one needs to transfer the constituent alternatives to a higher level of the computation, so to speak, so as to yield set C of propositional alternatives of the form *x can boast a genuine claim of being Pavarotti's heir.* That is how an alternative semantics treats focus in the general case; I shall gloss over discussions regarding, for instance, when does the set of constituent alternatives exactly 'gets elected' to be the set of propositional alternatives C, for any further details of this derivation would bore me in the extreme. What I'm really interested in here is what one should do with such a set. Suppose that likely candidates for being considered the heirs of Pavarotti are Vittorio Grigolo, Roberto Alagna and Salvatore Licitra. By using (3) the journalist would be excluding the possibility that Alagna and Licitra might also claim to be Pavarotti's heir. But that doesn't end the story.

2.2 Meaning contribution

Let me offer a preliminary analysis of what I've referred to in the opening section as the standard account of O with regard to its meaning contribution (henceforth: StO). According to StO, O makes a twofold contribution to the overall meaning of the exclusive sentence. The first, negatively oriented contribution, to which I have already alluded, is assumed to carry the asserted content of the sentence (*pace* Atlas

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(1991), (1993), (1996)). It is described as the negation of all of the alternative propositions in C that are more informative than the praeiacens. The second positively oriented contribution is treated as a definiteness condition imposed on the sentence (a presupposition, that is), and it is said to be an inference to the truth of the praeiacens. Versions of a StO are famously argued for in Horn (1969) and Roberts (1996). Putting the pieces together, in what immediately follows we can see the semantic value of O, along with an informal translation.

(4) $[\![O]\!] = \lambda C\, \lambda w\, \lambda p\colon p(w)=1.\ \forall q \in C\, [\, q(w)=1 \rightarrow [p \subseteq q]\,]$.

A sentence is defined if the praeiacens *p* is the case. If defined, it is True if *p* and its entailment are the only true propositions in C.

2.3 Orders

It is important to notice that O is normally interacting with (or else inducing) a partial order, or, as they are also called, a scale. This is a lexically-constrained combination of an underlying set of semantically comparable elements plus an ordering relation. In case the latter is quantity of information, namely classic logical entailment, a StO will predict a pattern of inference that clearly coincides with our intuitions. C will now appear as below.

(5) O [C] [Vittorio Grigolo$_f$ can boast a genuine claim of being Pavarotti's heir]

$\mapsto_{\text{presupposition}}$ Vittorio Grigolo can boast a genuine claim of being Pavarotti's heir

$\mapsto_{\text{assertion}}$ Nobody beyond Vittorio Grigolo can boast a genuine claim of being Pavarotti's heir

(6) $\neg$ O [C] [Vittorio Grigolo$_f$ can boast a genuine claim of being Pavarotti's heir]

$\mapsto_{\text{presupposition}}$ Vittorio Grigolo can boast a genuine claim of being Pavarotti's heir

$\mapsto_{\text{assertion}}$ There are other people who can boast a genuine claim of being Pavarotti's heir

C: ($\uparrow$ direction of entailment)

⟨

(**boast**)Grigolo; (**boast**)Alagna; (**boast**)Licitra;

(**boast**)Grigolo$\oplus$Alagna; (**boast**)Alagna$\oplus$Licitra; (**boast**)Licitra$\oplus$Grigolo;

(**boast**)Grigolo$\oplus$Alagna$\oplus$Licitra

⟩

3. The problem

Let us now return to the problematic reading in (2) above. The crucial observation to be made is that in (2) O is interacting with a *partition* order, in which the relevant ordering relation is not quantity of information, but, rather, something that

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resembles a contextually-enriched relation of "closeness to God". In a partition order, or equivalently in what the literature calls an *exact* scale[2], every single element does not entail, nor is it being entailed by, any of its scale-mates. A StO device appears to break down quite soon when it encounters a partition order. The fact is that, with regard to the positive case, the content that the assertion is trying to establish, namely that no alternative propositions in C are the case except for the praeiacens, could also be established by asserting the pure praeiacens, as a result of which O would seem to apply vacuously. With regard to the negative case, things get even worse, for the content that is being asserted, namely that alternative propositions in C are in fact the case, is incompatible with the presuppositional status of the praeiacens.

(8) O [C] [Divorced people are sinners$_f$]
$\mapsto_{\text{presupposition}}$ Divorced people are sinners
$\mapsto_{\text{assertion}}$ Divorced people are (just) sinners

(9) $\neg$ O [C] [Divorced people are sinners$_f$]
$\mapsto_{\text{presupposition}}$ Divorced people are sinners
$\mapsto_{\text{assertion}}$ Divorced people are more than just sinners (they are not in fact sinners)

C: ($\rightarrow$ direction of increasing closeness to God)

⟨
(**sinners**)Dp; (**ordinary moral agents**)Dp;(**good Christians**)Dp
⟩

There must be something we are missing.

4. The proposal

4.1 A repair mechanism

Theorists might be tempted to abandon a good old StO and to replace it with certain more recent treatments of O. Here I shall not investigate in any details such proposals, but I should like to mention the innovative hearer-leaned line of inquiry proposed in Beaver and Clark (2008). While foundational reasons keep me away from (enthusiastically) endorsing their account (some of these I shall mention in the conclusion), I take their idea to be intuitively on the right track (see also Klinedinst (2004)). Indeed, the proposal I shall present below might be intended as a way to (promise to) implement their intuition in a different framework. Never mind how reactionary this might make me seem; after all I'm doing all this to support the Roman Church.

I shall say that the piece we are missing is a sort of 'repair mechanism of scales', that I define along the lines of (10) below. It amounts to a reinterpretation rule that gets activated when certain conditions obtain. What these conditions may be will be partially explained with example (12), where we see that the very same

[2] Here is a brief list of exact scales:⟨freshman, sophomore, junior, senior⟩, ⟨general, colonel, lieutenant⟩; ⟨full professor, associate professor, assistant professor⟩; *et cetera*.

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rule is to be at work in environments with specific logical properties. I should like to emphasize that the line of action I'm proposing here is intended to restore the centrality of logical orders and to describe contextually-enriched orders as part of 'logical' dynamics. At the end, we will have our StO back on track again. Let me show how I intend such mechanism to be implemented. Suppose that alpha|[3], member of a partition order, falls within the scope of a suitably defined operator, call it φ. As a result, the following interpretation rule gets activated:

(10) `If`: φ [… $\alpha_{|}$ …]

`Then, read`: [$\alpha_{|}$] `as`: [$\bigvee_{i}^{n} \alpha$]
i is the original position of the element in the order, and *n* is the position of the order's maximal item

As I'm presenting it here, such a mechanism is tantamount to inserting an implicit 'at least' operator internally, that is at the level of the constituent. The outcome of the insertion is a canonical order, i.e. an order in which the right hand elements a-entail the left hand elements. Being a local mechanism, (10) can feed the computation of the praeiacens, and modify the ordering in C. Hence, in cases where φ=O, alternative treatments of O are plainly unnecessary. Let me make this point clearer by presenting a simplified calculation of the positive exclusive sentence.

(11) [$_{YP}$ O [C] [$_{XP}$ Divorced people are sinners|$_{f}$]]
⟦XP⟧= [Divorced people are sinners| ∨ ordinary moral agents| ∨ good Christians|]
⟦YP⟧ is defined if divorced people are sinners| ∨ ordinary moral agents| ∨ good Christians|. If defined, it is True if divorced people are not ordinary moral agents ∨ good Christians.

C: (→ direction of entailment)

⟨
(**sinners**|)Dp; (**ordinary moral agents**|)Dp; (**good Christians|)**Dp
⟩

As readers can easily verify, there is no vacuous application of O in our last prediction. Similarly, they can see that the contradictory content, previously predicted by a StO in the negative case, has now been eliminated. I argue, further, that this approach explains the so-called 'qualitative flavor', clearly produced with partition orders, as a result of the reiterated operations that such orders are now predicted to undergo. However, I maintain that the concrete implementation of the meaning of the sentences should have to be considered as independent from global consequences possibly generated in context. At this point, I will pass over the

[3] For concreteness, I'm turning to constituent alternatives here.

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details of a more complete rendering of the approach, for what interests me now is to discuss *why*, on balance, it should be considered a theoretical option.

4.2 Maximization

Up to now, I have merely shown that there may be a way to preserve a StO while giving an account of the problematic reading in (2). But then what principle is responsible for activating the repair mechanism here? I take it that such a mechanism is to be intended as part of a general dynamic of linguistic maximization, as a result of which a scalar sentence gets normally parsed on the basis of the most informative interpretation available. As part of this general dynamics, vacuous or contradictory applications of any exhaustifying operators, like overt O we have been discussing, are avoided. But, in addition, and crucially if our reasoning is correct, we predict the very same mechanism to be at work, for instance, in the case φ=DownwardEntailing-operator, for in such environments the insertion of an 'at least' operator would result in a more informative overall contribution. The pattern reported in (12) seems to corroborate our prediction[4].

(12) $[_{ZP}$ [If $[_{XP}$ Mark is an ordinary moral agent|] $[_{YP}$ Mark will go to heaven]]
⟦XP⟧= [Mark is a ordinary moral agent| ∨ Mark is a good Christian|]
⟦YP⟧ is True in case Mark is an ordinary moral agent ∨ Mark is a good Christian and Mark will go to heaven

It should be underlined that alternative treatments of O cannot explain this fact, since there is no instance of an exclusive operator in (12).

5. Epilogue

In the preceding section, I proposed a solution to the problem of apparently complicated readings of exclusive sentences. Further investigation may demonstrate that the proposed line of action is indeed preferable to the opposing approaches that might be taken. I shall mention the following three reasons in support of such a consideration: first, we needn't abandon a StO that works effectively in crucial cases; second, we needn't assume the centrality of the notion of a contextually-enriched order; third, the solution I proposed is rooted in an independently motivated principle of linguistic maximization.

I consider that the mentioned principle of linguistic maximization affects the meaning contribution of sentences non-monotonically, hence it produces interpretations that, while cannot be detached if the detachment would result in contradictions or ineffective applications, can in fact be weakened if other considerations suggested speakers to do so. While I should be introducing new

[4] Up to this point, we have been dealing with a 'two-faced' order (different from the orders reported in fn. 2). So, since in a DE environment we need to pick an orientation, I'm now turning to the positive portion of the order. I take it that this is due to reasons that are 'internal' to a DE environment, and hence I do not consider the (partial) switch to be problematic for our current proposal. One should remember that our whole story can be rephrased in terms of one of the exact scales mentioned above, so as to avoid any such complications from emerging.

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discussions at this point (for instance: what is the general form of the principle? What are the connections of the resulting account with a grammatical view of scalar implicatures? What is the status of such a 'weakened' interpretation?), I cannot, and will not. For I need to go celebrate the great news.

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