

Whatever

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1. Introduction

This paper is an extended meditation on issues raised in Dayal's (1997) paper on the role of the morpheme *-ever* in free relatives (FRs) as in this example:

- (1) There's a lot of garlic in whatever (it is that) Arlo is cooking.¹
- (2) There's a lot of garlic in what Arlo is cooking.
- (3) There's a lot of violence in whatever Parker writes.

Our immediate intuition about (1) is that *-ever* indicates speaker's ignorance. We hear the speaker as signaling that she doesn't know what Arlo is cooking, while at the same time asserting that no matter what Arlo is cooking, there's a lot of garlic in it. The FR without *-ever* in (2) carries no such signal of ignorance.

The task before us is to make precise the nature of the contribution of *-ever* in (1). If at all possible, we would like to relate this use of FRs with *-ever* to the one in (3), which seems to call for a treatment of *whatever* as a universal quantifier of some sort.

Let's look at one recent characterization of the speaker's ignorance reading of *whatever*: "In the speaker's ignorance reading, *whatever* quantifies over epistemic worlds. So in a sentence like *Whatever I cooked is green* on the reading 'Whatever it is that I cooked, it is green', *whatever* quantifies over epistemically accessible worlds in which I cooked something. Such worlds will include this thing being green and a tomato, it being green and a potato, and so on" (Iatridou and Varlokosta, 1998). The obvious idea then appears to be to treat *whatever* as introducing universal quantification over epistemic alternatives. We would give (1) a paraphrase like "In all epistemically accessible worlds, there's a lot of garlic in the thing that Arlo is cooking".

Dayal presents an analysis precisely along these lines. The technical aspects of her proposal are as follows:

- (4) Analysis D (Dayal's Implementation)
 - a. $\text{whatever}_j [\dots t_j \dots]_{\text{IP}}$ denotes at $w =$
 $\lambda Q \forall i\text{-alternatives} \in f(w)(s) [Q(i)(\lambda x [P(i)(x)])]$
where P is the property derived by abstracting over x_j in the IP denotation.

- b. $f(w)(s) = \{w' : \forall p [s \text{ believes } p(w) \rightarrow p(w')]\}$
for a world of evaluation w and speaker s , $f(w)(s)$ is the set of worlds in which the speaker's beliefs about w hold.
- c. a world $w' \in f(w)(s)$ is an i -alternative iff
there exists some $w'' \in f(w)(s)$ such that $\iota x [P(w')(x)] \neq \iota x [P(w'')(x)]$.

Following earlier work by Jacobson (1995), Dayal (1995), and Rullmann (1995), this proposal starts with the idea that FRs are definite descriptions (*what Arlo is cooking = the thing that Arlo is cooking*). On top of that, *whatever* introduces a layer of epistemic quantification, which necessitates giving *whatever*-FRs a quantificational type. In essence, *whatever* asserts that in each epistemic alternative, the sentence without *-ever* is true. However, instead of simply quantifying over epistemically accessible worlds, Dayal employs the new concept of i -alternatives. In her prose, she gives the following characterization: i -alternatives “can differ from the actual world only in the denotation of the FR” and “the notion of i -alternatives [...] characterizes a world as an alternative iff it can be distinguished from another world solely on the basis of the denotation of the FR”.

But note that the formal definition in (4) does not really capture the desired intuition. Nothing in it ensures that i -alternatives only differ in the denotation of the FR. In fact, the set of i -alternatives will be identical to the entire set of epistemic alternatives (which can differ wildly depending on the extent of ignorance present) as soon as there are two epistemically accessible worlds that differ in the denotation of the FR. If there is no such variation among the epistemically accessible worlds, then there are no i -alternatives.

Dayal recognizes the latter case. She says that “if the speaker has a belief about the identity of the unique relevant individual, there cannot be two worlds in $f(w)(s)$ that will qualify as i -alternatives. The *ever* FR will be infelicitous because quantification will be over an empty domain”. From this, we might conclude that Dayal imputes a presupposition to *whatever*-FRs that the domain of alternatives is non-empty. Later in the paper, when she turns to NPI-licensing in FRs, she seems to have a different view: “[g]iven a degenerate domain of quantification [...] the FR sentence] will come out vacuously true”.

I propose to reformulate Dayal's analysis by explicitly assuming a presupposition of uncertainty and by dispensing with the intermediary concept of i -alternative.

(5) Analysis D' (A reformulation of Dayal's Implementation)

whatever (w) (F) (P) (Q)

- a. presupposes: $\exists w', w'' \in F: \iota x. P(w')(x) \neq \iota x. P(w'')(x)$
- b. asserts: $\forall w' \in F: Q(w')(\iota x. P(w')(x))$

Here, F is the modal base for *whatever*, a set of worlds (in the simple case the set of epistemically accessible worlds of the speaker of the sentence) with respect to which a presupposition of variation and an assertion of epistemic necessity are formulated. In words: *whatever*-statements presuppose that the speaker cannot identify the referent of the free relative and assert that the referent – whatever it is – has the matrix property in all of the speaker’s doxastic/epistemic alternatives.

Our example in (1) will receive a logical form like this:

- (6) $\lambda w. \text{whatever}(w) (f(w)(s)) (\lambda w. \lambda x. \text{Arlo is cooking } x \text{ in } w)$
 $(\lambda w. \lambda x. \text{there's a lot of garlic in } x \text{ in } w)$

The sentence presupposes that there are two worlds in $f(w)(s)$ which differ in what Arlo is cooking and asserts that in all the worlds in $f(w)(s)$, there’s a lot of garlic in what Arlo is cooking.

Before we move on, let me present a curiosity:

- (7) There’s a lot of garlic in whatever it is that I am cooking.

As before, there is a speaker ignorance reading: perhaps I don’t know what I am cooking because I am rather blindly following some set of instructions. What is interesting is that in addition, there is a hearer’s ignorance reading. The sentence could be used when I fully know what I am cooking but am deliberately keeping it a secret from you. You can almost hear the teasing tone with which this could be said. What this example indicates is that the modal base with respect to which the contribution of *-ever* is formulated does not have to be the speaker’s epistemic alternatives, but can take on other flavors.

We will now consider two variations on Analysis D/D’, one of which further develops the idea of presupposed variation in the denotation of the FR, while the other comes closer to Dayal’s informal intuition of *i*-alternatives as differing minimally from each other in the denotation of the FR.

2. Ignorance (Analysis N)²

The modification we undertake in this section is motivated by worries about whether *whatever* truly introduces an assertion that universally quantifies over epistemic alternatives. One odd prediction of Analysis D/D’ is that (1) would be false in a scenario where there is in fact a lot of garlic in what Arlo is cooking but where the speaker is actually uncertain about whether that is so. Our intuition seems to be rather that the sentence would be true in such a case (although we might judge the speaker to have merely lucked onto the truth). In response one might say that this concern arises in all kinds of epistemic statements, not just with *whatever*-FRs. What after all is the truth-value judgment when a speaker asserts *it must be raining* in a situation where it is in fact raining but does so on completely inconclusive evidence? The issue is far from settled in general, it appears to me, so we might want to steer clear of it.³

A more troubling issue is that Analysis D/D' makes clearly incorrect predictions for embedded occurrences of *whatever*-FRs:

- (8) Unless there's a lot of garlic in whatever Arlo is cooking, I will eat out tonight. [\neq Unless I'm sure that there's a lot of garlic in what Arlo is cooking, I will eat out tonight.]
- (9) I suspect that there's a lot of garlic in whatever Arlo is cooking. [\neq I suspect that I'm sure that ...]
- (10) When Emma finds whatever she is looking for, she certainly won't tell me. [\neq When I'm sure that Emma finds/has found what she is looking for, she certainly won't tell me.]

As indicated, in none of these cases do we perceive an embedded contribution of epistemic certainty to the assertion of the sentence. Furthermore, in all three cases, it appears that the presupposition of speaker ignorance as to the denotation of the FR projects (as expected) to the matrix level. That is, all three examples signal that the speaker doesn't know the denotation of the FR, but in none of the examples is there an embedded epistemic assertion. This contrasts quite sharply with what happens when we embed an epistemic *must*:

- (11) ??Unless it must be raining, I will go out tonight.

One obvious difference is that epistemic *must* resists embedding in the first place while the allegedly epistemic *whatever* does not. And but once we think about what (11) would mean, it seems that we would have an embedded epistemic assertion: Unless I'm certain that it is raining, I will go out tonight.⁴

Let us therefore modify the analysis so that *whatever* does not make an epistemic assertion at all. We continue to have a presupposition of variation of the FR-denotation across the modal base, but combine this with a simple definite description denotation for the FR. This also allows us to give *whatever* a simpler type than before:

- (12) Analysis N

whatever (w) (F) (P)

- a. presupposes: $\exists w', w'' \in F: \lambda x. P(w')(x) \neq \lambda x. P(w'')(x)$
- b. denotes: $\lambda x. P(w)(x)$

In a simple example such as our (1), the *whatever*-FR now introduces the presupposition that among the worlds in the modal base supplied by context (in the normal case, the speaker's epistemic alternatives) there is variation as to what Arlo is cooking – that is, it is presupposed that the speaker doesn't know what Arlo is cooking. But on the level of asserted content, the *whatever*-FR is equivalent to a simple FR – it denotes the thing Arlo is cooking.

In embedded contexts, the presupposition of variation/ignorance is projected according to the usual principles of presupposition projection. So, in example (8), the speaker's ignorance becomes a presupposition of the entire sentence. The example thus presupposes that the speaker doesn't know what Arlo is cooking and asserts that unless there's a lot of garlic in what Arlo is cooking, the speaker will eat out. This is the correct meaning, so Analysis N has a significant advantage over Analysis D/D'.

When *whatever*-FRs occur in the complement to an attitude verb, a further possibility arises:

- (13) Pascal correctly suspected that whatever he was eating was not vegetarian.

Note that (13) can be read as involving uncertainty/ignorance on the part of Pascal, the subject of the attitude ascription, and not necessarily on the part of the speaker (as strongly suggested by the use of the adverb *correctly*). This subject-oriented reading of *whatever* is fully compatible with Analysis N. All that is needed is to allow the option of tying the modal base of *whatever* to the subject of the matrix predicate. Here is a logical form that indicates this:

- (14) $\lambda w.$ Pascal suspected in w that
- $$\left(\lambda w'. \left[\text{whatever } (w') (f(w)(p)) (\lambda w''. \lambda y. p \text{ is eating } y \text{ in } w'') \right] \right) \text{ is not vegetarian in } w'$$

This kind of structure is also possible with a quantified subject:

- (15) Every one of the contestants suspected that whatever (it was that) he was eating was not vegetarian.

- (16) $\lambda w.$ every $(\lambda x. x \text{ is a contestant in } w)$
- $$\left[\lambda x. x \text{ suspected in } w \text{ that} \left(\lambda w'. \left[\text{whatever } (w') (f(w)(x)) (\lambda w''. \lambda y. x \text{ is eating } y \text{ in } w'') \right] \right) \text{ is not vegetarian in } w' \right]$$

Analysis N works just fine for (15). According to generally assumed principles of presupposition projection, there will be a presupposition that each contestant did not know what he was eating. There is no embedded modal assertion. Each contestant simply suspected that what he was eating was not vegetarian.

I conclude this section by claiming that Analysis N is a conservative modification of Dayal's formal system and captures successfully a number of examples that her proposal could not account for. In the next section, we will encounter examples that seem to urge a different approach.

3. Indifference (Analysis I)

Consider the following examples:

- (17) I grabbed whatever tool was handy.
- (18) Zack simply voted for whoever was at the top of the ballot.

In both examples, the preferred reading does not signal speaker's ignorance. Instead, a kind of indifference on the part of an agent is conveyed. I grabbed the tool that was handy and I didn't care what tool it was (even though I probably knew what it was). Zack indiscriminately voted for the person at the top of the ballot.

We might try to subsume this indifference reading under Analysis N. Why not say that in these cases the modal base that *whatever* works with is not anyone's epistemic state but instead an agent's deontic alternatives? Then, the presupposition of variation would amount to saying that at least two different referents for the FR are compatible with the agent's preferences. If this approach could be maintained, it would make for a very pleasing story. The various uses of *whatever* would simply be the product of the context-dependency of modal expressions as analyzed in Kratzer's well-known system (e.g. Kratzer, 1991). Just like the modal auxiliary *must* can take on epistemic readings and deontic readings, depending on what kind of modal base the context supplies, *whatever* would take on speaker ignorance, subject ignorance, or subject indifference readings depending on the modal base supplied.

Unfortunately, Analysis N does not correctly capture the meaning of indifference uses of *whatever*. Consider (17): What we would predict is that (17) presupposes that there are at least two worlds compatible with my preferences that differ as to which tool was handy. First of all, that doesn't really say that I didn't care which tool was handy. All it requires is that my preferences are not so particular that there aren't two different tools that would satisfy them. I may in fact have cared very much which tool was handy: it had to be either my favorite hammer or the new wrench I bought last weekend. That doesn't seem right: (17) conveys a much stronger sense of indifference. And the same goes for (18). If George W. Bush, Al Gore, and Ralph Nader are candidates who may well be at the top of the ballot, the sentence is not in fact compatible with Zack strongly wanting either Bush or Gore (but definitely not Nader) to be at the top.

Furthermore, the indifference that *whatever* conveys in these examples is not just stronger than what the analysis would predict, it is also not quite directed at the referent of the FR. Consider (18): the meaning we perceive is not merely that Zack didn't care who was at the top of the ballot and voted for the person that was in fact at the top. What we hear is that Zack didn't care who he voted for and that he made his decision based on the criterion of who was at the top of the ballot. This meaning is not at all captured by applying Analysis N with a deontic modal base. As a final nail in the coffin, consider this additional example:

- (19) I had no time to play around, so I grudgingly used whatever email program was installed on the computer.

This sentence clearly suggests that the speaker did have preferences as to what email program should have been installed on the computer. Nevertheless, the example has the flavor of an indifference use of *whatever*.

Let me suggest that we should try to derive paraphrases of our examples that look like these:

- (20) a. I grabbed the tool that was handy, and if a different tool had been handy, I would have grabbed that.
 b. Zack voted for the person that was at the top of the ballot, and if a different person had been at the top of the ballot, Zack would have voted for that person.
 c. I used the email program that was installed on the computer, and if a different email program had been installed, I would have used that one.

In essence, the idea is that *whatever* has a conditional semantics: instead of presupposing variation/ignorance, it presupposes indifference in the sense that a minimal change in the identity of the FR referent would not make a difference to the truth of the sentence. Here is a concrete statement of the new Analysis I:

- (21) Analysis I (i-indifference)

whatever (*w*) (*F*) (*P*) (*Q*)

- a. presupposes: $\forall w' \in \min_w \left[F \cap \left(\lambda w'. \lambda x. P(w')(x) \neq \lambda x. P(w)(x) \right) \right]$:
 $Q(w')(\lambda x. P(w')(x)) = Q(w)(\lambda x. P(w)(x))$
 b. asserts: $Q(w)(\lambda x. P(w)(x))$

As before the assertion of a *whatever*-FR will be identical to the one of an FR without *-ever*. But the presupposition it introduces is quite different from the one we had in Analyses D/D' and N. What is presupposed is what I would like to call i-indifference: all of the worlds in the modal base *F* that are minimally different from *w* but where the referent of the FR is different from that in *w* are such that the truth of the whole sentence that *whatever* operates on is still the same as in *w*.⁵ If we assume that the *min*-operator employed here itself triggers an existential presupposition, that is, that it presupposes that there are worlds in its argument, we derive as a corollary a presupposition of variation.

Let us experiment and apply this analysis to Zack. Here is the logical form we need:

$$(22) \quad \lambda w. \text{whoever}(w) \left(f(w)(s) \right) \left(\lambda w'. \lambda x. x \text{ is at the top of the ballot in } w' \right) \\ \left(\lambda w'. \lambda x. \text{Zack votes for } x \text{ in } w' \right)$$

We now compute presupposition and assertion:

$$(23) \quad \text{Assertion:} \quad \text{In } w, \text{ Zack votes for the person at the top of the ballot in } w.$$

Presupposition: In all worlds w' minimally different from w in which someone different is at the top of the ballot, Zack votes for that person iff in w he votes for the person at the top of the ballot in w .

The quantification is over counterfactual alternatives which differ from the actual world in who is at the top of the ballot but which agree with it in Zack's tendencies, specifically his basis for deciding who he votes for.

At this point, I conclude that Analysis I deals satisfactorily with our indifference examples. Further, it seems to come quite close to what may have lain behind Dayal's original idea of *i*-alternatives. The *whatever*-FRs say that in worlds that differ "only" in the identity of the FR referent, the truth of the sentence is still the same. But instead of postulating that we can construct such worlds, we rely on the independently given semantics for conditionals.

4. Unification?

What is disconcerting, however, is that we now have two analyses tailor-made for two different kinds of examples. Analysis N works like a charm for ignorance uses of *whatever* and Analysis I deals beautifully with indifference uses. Wouldn't it be nice if we could simplify the story? We already saw that Analysis N is not well suited to deal with indifference examples. So, perhaps Analysis I can be tweaked to account for ignorance examples? Let us see what Analysis I would say about our initial example:

$$(24) \quad \text{There's a lot of garlic in whatever (it is that) Arlo is cooking.}$$

Assertion: There's a lot of garlic in the thing Arlo is cooking.

Presupposition: In all of the minimally different F-worlds where Arlo is cooking something different from what he is actually cooking, there's the same amount of garlic in what he is cooking.

This will in fact work quite well if we are assuming that the modal base F here can be identified with the epistemic alternatives of the speaker. If we do that, what is presupposed is that across the epistemic state of the speaker the amount of garlic in the dish is indifferent to the identity of the dish Arlo is cooking. Further, since we can assume an existential presupposition for the conditional operator, it is presupposed that the speaker's epistemic state shows variation as to what Arlo is cooking.

In other words, something very close to Analysis N comes out of a special case of Analysis I. Ignorance uses of *whatever* arise out of giving the conditional hidden in the meaning of *whatever* an epistemic modal base. Our paradigm indifference uses arise out of a counterfactual modal base. That's quite pretty and related on a grander scale to similar hopes of giving a context-dependent unified semantics for epistemic and counterfactual conditionals.

There are some other cases where the analyses seem to converge quite nicely:

- (25) Pick whatever apple you want.

The use of *whatever* in such “free choice” imperatives is of course well-known. Both of our analyses would derive reasonable interpretations, it appears. Analysis N or the epistemic resolution of Analysis I would derive a presupposition of ignorance: the speaker doesn't know which apple the hearer wants. When added to the ordinary meaning of the permission imperative whose import is that the hearer may pick the apple s/he wants, this presupposition would naturally enhance the impression that the speaker is giving the hearer a free hand. If the speaker doesn't know which apple the hearer wants but permits her/him to pick the one s/he wants, the permission must be a very liberal one.

The counterfactual/indifference resolution of Analysis I might also give a reasonable interpretation. The idea would be that the speaker gives the hearer permission to pick the apple s/he wants with the presupposition that the speaker would do the same if the hearer wanted a different apple than the one s/he actually wants.

Unfortunately, I have to rain on our parade by introducing this stubborn old friend:

- (26) Unless there's a lot of garlic in whatever Arlo is cooking, I will eat out tonight.

Out of an epistemic resolution of Analysis I, we would derive roughly the following presupposition: the speaker's epistemic state is such that in all accessible worlds what Arlo is cooking (and he cooks different things across these worlds) has the same amount of garlic in it. That is devastatingly wrong. The sentence in fact makes it clear that the speaker doesn't know how much garlic is in what Arlo is cooking. Our project of unification appears doomed.

Here's an idea which may be too desperate to be correct. When we give *whatever* widest scope in this example, we get something that comes much closer to being right. The presupposition would essentially be that across the epistemic

space of the speaker no matter what Arlo is cooking, the connection between the amount of garlic in it and my going out stays the same. And as before, the existential presupposition of the conditional operator ensures that the speaker doesn't know what Arlo is cooking. That's good, but it comes at a price. We need to give the *whatever*-FR scope outside the *unless*-clause, which is a strong island for all kinds of overt and covert extraction and scope mechanisms. I don't know whether this is too high a price to pay. Special scope possibilities are under current discussion for a number of constructions. One perhaps quite close parallel might be the claim that for computing the presupposition triggered by *even*, we sometimes need to give it wide scope out of scope islands (Wilkinson, 1993).

Another possible problem with Analysis I surfaces when we try to see what happens when an indifference FR appears in an embedded context. An obvious example to consider would be something like this:

- (27) Unless Zack simply voted for whoever was at the top of the ballot, he must have spend at least 5 minutes in the voting booth.

My impression is that this example has a (preferred) reading that goes counter to the idea we have pursued so far, that *whatever* is a presuppositional operator only. What we observed with speaker ignorance was that it projects out of embedded contexts. But in (27), Zack's indifference seems to enter the truth-conditions at the embedded level. The sentence is read as meaning "Unless Zack indifferently voted for the person at the top of the ballot, he must have ...". So, there appears to be a big difference between ignorance and indifference uses as far as their behavior in embedded contexts is concerned. Perhaps, we should relate the possibility illustrated in (27) to the option of similar readings with *any*:

- (28) Maeve isn't just any lawyer – she is the best in the business.

But I will leave this to others or at least to another occasion.

My preliminary conclusion is that Analysis I can capture all readings of *whatever* that we have so far discussed, *if* (and that's a pretty big *if*) one can be comfortable with saying that (i) when its modal base is epistemic it receives widest scope even outside scope islands, and (ii) when its modal base is counterfactual its presuppositional content of i-indifference becomes asserted content in embedded occurrences. If this proves too much to swallow, we are left with an ambiguity between N-*whatever* and I-*whatever*.

5. Extensions

As promised at the beginning, we have to explore how our analyses fare when confronted with generalizing *whatever*-free relatives like this:

- (29) There's a lot of violence in whatever Parker writes.

It seems that our example is largely synonymous with a run-of-the-mill quantified sentence:

- (30) There's a lot of violence in everything Parker writes.

This fact has led many people to suggest an analysis of *whatever* as a universal quantifier over individuals. But then we would be left with no good uniform analysis covering also the ignorance and indifference uses that we have been concerned with so far.

Dayal proposes that even (29) falls under Analysis D. The idea can be motivated by examples that involve an overt adverbial quantifier:

- (31) People usually honor whoever is elected.

Dayal's suggestion is that the contribution of *whatever* is embedded under the adverbial quantifier here:

- (32) $\lambda w. \text{usually} \left(\lambda o. o \text{ is contextually relevant in } w \right)$
 $\left(\lambda o. \text{people honor whoever} (w) (f(o)(s)) \left(\lambda o. \lambda x. x \text{ is elected in } o \right) \right)$

The adverbial *usually* quantifies over contextually relevant occasions and claims that in most of those occasions people honor the person that is elected. It can be assumed that *whatever* is given as its modal base the same set of occasions that *usually* quantifies over, i.e. we say that $f(o)(s)$ = the set of contextually relevant occasions. The contribution of *whatever* according to Analysis D' and Analysis N would then be the presupposition that among this set there is variation as to who is elected.⁶ Note that with such a modal base, variation does not mean ignorance, it simply means that different people get elected in some of the situations quantified over. What about Analysis I? We would predict a presupposition that in each of the relevant situations people's behavior towards the person who is elected is indifferent to counterfactual changes.

Can this carry over to examples like (29)? The idea would be that there as well *whatever* contributes what it always contributes and that the universal quantification is due to a silent generic operator. This is not so implausible since we can give quite similar examples where the universal force is present even though *-ever* is absent:

- (33) There's a lot of violence in what Parker writes.

- (34) There's a lot of violence in the things Parker writes.

I am, however, not quite convinced. One reason to be skeptical is that the universal reading of (29) is actually quite fragile. It goes away when we look at *whatever*-FRs with nominal heads:

- (35) ??There's a lot of violence in whatever book(s) Parker writes.⁷

It seems to me that only unadorned occurrences of *whatever* give rise to the universal reading. Furthermore, I was told at the SALT conference that there are languages that make even more obvious distinctions between universal *whatever* and ignorance/indifference *whatever*, such as Hungarian which simply lacks the latter (Anna Szabolcsi, p.c.).

If it turns out that there is a separate item *whatever* which quantifies universally over individuals, it is still possible that in addition to the universal quantification *-ever* contributes a presupposition of indifference, which it would share with the other item *whatever*.

6. Conclusion

We have surveyed some occurrences and uses of *whatever*-FRs that go beyond what has been discussed in the previous literature. Most of what we have encountered can be captured by variations on Dayal's proposal. Of course, we are left with many open questions and much discomfort about the bumpy terrain. Whatever comes next might get us closer to a resolution.

Endnotes

¹ Whenever it helps to bring out the special nature of the meaning contributed by *-ever*, I will use an embedded *it*-cleft in the free relative. I will leave it to future research to investigate what lies behind the effect of the *it*-cleft.

² N is supposed to be somewhat mnemonic for **knowledge**.

³ Westmoreland (1995) argues that epistemic *must* is not a universal quantifier over epistemic possibilities but functions as an evidential label separate from the truth-conditional semantics of a sentence.

⁴ Note that, unlike *whatever*-free relatives, *whatever*-conditionals furiously resist embedding: #*Unless whatever Arlo is cooking, there's a lot of garlic in it, ...*

⁵ For our purposes here, we don't need to worry about details of conditional semantics. I have chosen a formulation that is very close to the standard Stalnaker-Lewis semantics for counterfactuals. For a recent exploration of variations on this theme, see von Fintel (2000).

⁶ The story according to Analysis D is more complicated. See Dayal's paper for some discussion.

⁷ Of course, ignorance/indifference uses of *whatever* perfectly well tolerate nominal heads: *There's a lot of violence in whatever book (it is that) Parker is writing*.

References

- Dayal, Veneeta. 1995. Quantification in Correlatives. In *Quantification in Natural Languages*, eds. Emmon Bach, Eloise Jelinek, Angelika Kratzer and Barbara Partee, 179-205. Dordrecht: Kluwer.
- Dayal, Veneeta. 1997. Free Relatives and *Ever*: Identity and Free Choice Readings. *Semantics and Linguistic Theory* 7.
- von Fintel, Kai. 2000. Counterfactuals in a Dynamic Context. In *Ken Hale: A Life in Language*, ed. Michael Kenstowicz. Cambridge, MA: MIT Press.
- Iatridou, Sabine, and Varlokosta, Spyridoula. 1998. Pseudoclefts Crosslinguistically. *Natural Language Semantics* 6:3-28.
- Jacobson, Pauline. 1995. On the Quantificational Force of Free Relatives. In *Quantification in Natural Languages*, eds. Emmon Bach, Eloise Jelinek, Angelika Kratzer and Barbara Partee, 451-486. Dordrecht: Kluwer.
- Kratzer, Angelika. 1991. Modality. In *Semantik: Ein internationales Handbuch der zeitgenössischen Forschung*, eds. Arnim von Stechow and Dieter Wunderlich, 639-650. Berlin: Walter de Gruyter.
- Rullmann, Hotze. 1995. Maximality in the Semantics of *Wh*-Constructions, University of Massachusetts: Ph.D. Dissertation.
- Westmoreland, Robert. 1995. Epistemic *must* as Evidential. In *Proceedings of the Tenth Amsterdam Colloquium. December 18-21, 1995. Part III*, eds. Paul Dekker and Martin Stokhof, 683-702. Amsterdam: ILLC, University of Amsterdam.
- Wilkinson, Karina. 1993. The Scope of *Even*. *Natural Language Semantics* 4:193-215.