

Anatomy of a Modal Construction

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Languages can express the existence of an easy way of achieving a goal in a construction we call the *sufficiency modal construction* (SMC), which combines a minimizing/exclusive operator like *only* or *ne . . . que* and a goal-oriented necessity modal like *have to* or *need to*, as in *To get good cheese, you only have to go to the North End*. We show that the morphosyntactic makeup of the SMC is crosslinguistically stable. We show that the semantics of the construction poses a severe compositionality problem. We solve the problem by giving the negation and the exclusive operator differential scope. For *only*, this means decomposing it into negation and an exclusive *other than* component.

Keywords: modality, necessity, sufficiency, exclusive operators, minimizers, *only*, scope, intervention, negative polarity

1 Introduction

Imagine that you come to visit us in Boston. You want to make some tiramisu for us but you complain that you cannot get good mascarpone, nor for that matter any other good cheese, in Boston. Incensed, we exclaim, “What do you mean you can’t get good cheese in Boston?!!?”, followed by (1).

(1) To get good cheese, you only have to go to the North End!

What do we convey with (1)? We somehow manage to say at least this: going to the North End is (part of) a way of getting good cheese and going to the North End is relatively easy. Furthermore, we are leaving it open whether there are other places (in Boston) to get good cheese; that is, with (1) we are not claiming that the North End is the only place to get good cheese.

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At first glance at least, (1) seems to say that going to the North End is *enough* or *sufficient* to get good cheese, so we will call the construction in (1) the *sufficiency modal construction* (SMC).¹

As we will show, the SMC raises a serious compositionality puzzle revolving around the interaction of negation, exclusives/*only*, and modals. In the end, we will have explored novel ideas about all of these elements. In the remainder of this introduction, we sketch briefly how the SMC is constructed crosslinguistically. In section 2, we show why the construction presents a compositionality puzzle. In section 3, we proceed gradually toward a compositional analysis. In section 4, we tie up some loose ends and explore whether the SMC really expresses sufficiency, how easiness enters into its meaning, and whether there is reason to use “more than” in its semantics.

1.1 The Sufficiency Modal Construction Crosslinguistically

In (1), the SMC morphosyntax consists of the modal verb *have to* and the element *only*. Crosslinguistically, the SMC consists of the following ingredients:

- a modal verb (*have to* in (1), but also other modals, as we will show)
- and one² of
 - an element like *only*³ (the “*only* languages”: English, German, Finnish, Spanish, and more), or
 - negation and an exceptive phrase (the “NEG + EXCEPTIVE languages”: Greek, French, Spanish, and more).

We already gave an example from English, an *only* language. In (2)–(4), we give examples from Greek, French, and Irish, three NEG + EXCEPTIVE languages.⁴

- (2) An thelis kalo tiri, dhen echis para na pas sto North End.
 if want.2SG good cheese NEG have.2SG EXCEPT NA go.2SG to.the North End
 ‘If you want good cheese, you only have to go to the North End.’
- (3) Si tu veux du bon fromage, tu n’as qu’à aller au North End.
 if you want of.the good cheese you NE-have QUE-to go to.the North End
 ‘If you want good cheese, you only have to go to the North End.’

¹ We use the term *modal* in its semantic sense and not to refer to the narrow morphosyntactic class of modal auxiliaries in English. We thank the *LI* reviewer for raising this point.

² Some languages (e.g., Spanish) fall into both categories; that is, they can use either *only* or the NEG + EXCEPTIVE form.

³ Related elements like *just*, *merely*, and the somewhat archaic *but* can also serve this purpose in English.

(i) You just/merely have to go to the North End.

(ii) You have but to go to the North End.

Something similar to the SMC can also be expressed with *at most*.

(iii) You at most have to go to the North End.

Given the productivity of ways of expressing the SMC, we would want to insist on a compositional analysis, rather than some kind of lexical stipulation.

⁴ French data are from Valentine Hacquard (pers. comm.). Irish data are from Jim McCloskey (pers. comm.).

- (4) Más cáis atá uait, nííl agat ach a dhul go Co. Chorcaigh.
 if + COP cheese C + is from.you NEG + is at.you but go[-FIN] to County Cork
 'If it's cheese you want, you only have to go to County Cork.'

At first blush, it seems intuitive that *only* can do the same job as NEG + EXCEPTIVE. After all, the following are equivalent:

- (5) Only John came.
 (6) Nobody came except John.

However, it will turn out that, as always, things are not as simple as they seem.

The SMC does not just occur in Indo-European languages. Here is an example from Tagalog (courtesy of Norvin Richards (pers. comm.)):

- (7) Kung gusto mong bumili ng mainam na keso, kailangan mo lang pumunta sa
 if want you.COMP buy tasty cheese need you only go to
 North End.
 North End

Here is one from Finnish (from Liina Pylkkänen (pers. comm.)):

- (8) Jos haluat hyvää juustoa, sinun on vain mentävä North End:iin.
 if want.2SG good.PART cheese.PART you.GEN is only go.PART North End.ILLAT

Here is one from Hebrew (from Danny Fox (pers. comm.)):

- (9) Ata rak carix lalexet larexov hasamux kede? limco gvina tova.
 you only need to.go to.the.street the.nearby in.order to.find cheese good
 'In order to find good cheese, you only need to go to the nearby street.'

And finally an example from Arabic (from Abbas Benmamoun (pers. comm.)):

- (10) Yla byiti lhut ma-xəSSə/lazəm təmfi ?illa Itəmma.
 if want fish NEG-need/should go except there
 'If you want fish, you only need to go there.'

1.2 Some Frames in Which the Sufficiency Modal Construction Appears

We have found three environments in which the SMC tends to appear:

- In construction with a purpose clause:

(11) To get good cheese, you only have to go to the North End.
- In what have been called *anankastic* conditionals (see Sæbø 2001, von Fintel and Iatridou 2004, Huitink 2005, Nissenbaum 2005, von Stechow, Krasikova, and Penka 2006):

(12) If you want good cheese, you only have to go to the North End.
- In what we would like to call *causal conjunction* (see von Fintel and Iatridou 2005 and work in progress):

(13) You only have to go to the North End and you will get good cheese.

In this article, we will mostly be using examples with purpose clauses, although comparison with the causal conjunction cases will prove crucial at a certain point.

2 The Compositionality Puzzle

Ideally, we would just reach for existing off-the-shelf analyses of the crucial components of the SMC, and once assembled according to standard composition principles, they would result in the sufficiency meaning that the SMC clearly has. Unfortunately, if we follow that recipe, we will not get the right result, as we will demonstrate in this section. We will look first at the modal component of the SMC and then at the exceptive/exclusive element.

2.1 *The Modal in the Sufficiency Modal Construction*

What kinds of modals appear in the SMC? Let's look at a sentence very much like our paradigm sentence (1), but lacking the exceptive/exclusive element. This should give a sense of what the modal component of the SMC is.

(14) To get the best cannoli, you have to go to Sicily.

We will assume a more or less standard possible-worlds semantics for modals like *have to*. In particular, we assume that *have to* is a necessity modal that effects universal quantification over a set of worlds (its *modal base*). In our paradigm examples, the modal base is given by the interplay of a *circumstantial* accessibility relation (using terminology from Kratzer 1981, 1991) and the infinitival purpose clause.

The worlds we are quantifying over are those where the facts (circumstances) about cuisine, culture, intercontinental trade, the quality of American supermarkets, and so on, are the same as here in the actual world. This set of worlds is then further restricted by the purpose clause to those worlds where you get the best cannoli. (14) therefore conveys that given the circumstances, all of the worlds where you get the best cannoli are such that you go to Sicily. In other words, going to Sicily is a *necessary* condition for getting the best cannoli.

We note that (14) clearly conveys that getting the best cannoli is a goal or desire and therefore the sentence expresses a kind of *goal-oriented* (or *teleological*) modality. However, we should emphasize that it is not the modal *have to* that is the source of the goal orientation; instead, it is the infinitival purpose clause that signals that getting the best cannoli is a goal. This will be important when we look at the causal conjunction cases, where no goal orientation is implied.⁵

Our SMC examples so far have only showcased the possessive modal *have to*.⁶ But other modals can be involved in the expression of goal-oriented modality. In particular, there are other

⁵ The fine details of the semantics of the modals involved here are explored further in von Fintel and Iatridou 2004.

⁶ By *possessive modal* we mean the modal verb that is pulled morphologically from the morphosyntax that expresses possession in the language. Languages expressing possession with 'have' often use 'have' as a modal. Languages expressing possession with 'be to' often use 'be to' as a modal. See Bhatt 1997.

modals with (quasi-)universal force such as *need to*, *must*, *ought to*, and *should*. Which ones can participate in the SMC?

In English, the modal *need to* can also be the verbal element in the SMC, in all environments that we find it in.

- (15) a. To get good cheese, you only need to go to the North End.
 b. If you want good cheese, you only need to go to the North End.
 c. The skies need only to darken a little bit and my dog runs under the table.

But other goal-oriented modals with universal force cannot.⁷

- (16) *If you want good cheese, you (only) must (only) go to the North End.
 (17) *If you want good cheese, you (only) ought (only) to go to the North End.
 (18) *If you want good cheese, you (only) should (only) go to the North End.

And no modal with existential force like *can* or *may* can yield the SMC reading, even though at least *can* has a goal-oriented reading.⁸

- (19) If you want good cheese, you can go to the North End.
 (20) *If you want good cheese, you (only) can/may (only) go to the North End.

In short, in English, a modal verb can be an ingredient of the SMC only if it has universal force; yet not all universals will do. Indeed, in all languages that we have looked at, no modal verb with existential force is to be found in the SMC. And as in English, not all modals with universal force will do either.

In Greek, we find a similar situation in that the modal glossed as ‘must’ cannot participate in the SMC, even though it is fine in the plain goal-oriented reading.

- (21) An thes kalo tiri, prepri na pas sto North End.
 if want.2SG good cheese must NA go.2SG to.the North End
 ‘If you want good cheese, you must go to the North End.’
 (22) *An thes kalo tiri, dhen prepri para na pas sto North End.
 if want.2SG good cheese NEG must EXCEPT NA go.2SG to.the North End

But as in English, the universal modal glossed as ‘need’ can occur in the SMC.

- (23) An thes kalo tiri, dhen chriazete para na pas sto North End.
 if want.2SG good cheese NEG need EXCEPT NA go.2SG to.the North End
 ‘If you want good cheese, you only need to go to the North End.’

⁷ Some of these sentences have a reading where what you ought to do is go to the North End and nowhere else. What is important here is that there is no SMC reading of these sentences.

⁸ Once we have our semantic analysis fully in place, it will be clear why (20) does not have an SMC reading. There are good readings of (20), of course, where it says that the only thing that is compatible with the goal is going to the North End, or that it is compatible with the goal that you go to the North End and nowhere else.

Similarly, Hindi has two modals with universal force, one that we will gloss as ‘be-to’ (this is Hindi’s possessive modal) and one that we will gloss as ‘should’.⁹

- (24) agar tum sacmuch yeh exam paas kar-naa caah-te ho, to tumhen
 if you truly this exam pass do-INF want-HAB.MPL be.PRES.2PL then you.DAT
 kaRii mehnat kar-nii caahiye.
 hard.F hardwork.F do-INF.F should
 ‘If you truly want to pass this exam, you should work hard.’

- (25) agar tum sacmuch yeh exam paas kar-naa caah-te ho, to tumhen
 if you truly this exam pass do-INF want-HAB.MPL be.PRES.2PL then you.DAT
 kaRii mehnat kar-nii ho-gii.
 hard.F hardwork.F do-INF.F be-FUT.F
 ‘If you truly want to pass this exam, you will have to work hard.’

However, only ‘be-to’ can be used in the SMC.

- (26) ram-ko ghar aa-naa-hii thaa ki baccoN-ne ro-naa shuruu kar di-yaa.
 Ram-DAT home come-INF-only be.PAST that children-ERG cry-INF start do give-PFV
 ‘Ram had only to come home and the children started crying.’
- (27) *ram-ko ghar aa-naa-hii caahiye thaa ki baccoN-ne ro-naa shuruu kar
 Ram-DAT home come-INF-only should be.PAST that children-ERG cry-INF start do
 di-yaa.
 give-PFV

The modal verbs *have to*, *need to*, Greek ‘have to’, Greek ‘need’, and Hindi ‘be-to’ pattern together in being able to participate in the SMC, while *must*, *ought to*, *should*, Greek ‘must’, and Hindi ‘should’ pattern together in not being able to. Why would this be? What else splits the universal modals in a similar way?

It appears that their scope properties with respect to negation do. The modals that can occur in the SMC take scope *under* negation.

- (28) a. He doesn’t have to go there. NEG > modal (deontic)
 b. He doesn’t have to have done that. NEG > modal (epistemic)
 c. If you want good cheese, you don’t have to go to the North End. NEG > modal (goal-oriented)
 d. He doesn’t need to do that. NEG > modal
 e. He need not do that. NEG > modal
- (29) Dhen chriazete na figis.
 NEG need NA leave
 ‘You don’t need to leave.’ NEG > modal (deontic)

⁹ Our Hindi data were provided by Rajesh Bhatt (pers. comm.).

- (30) tumhen Dilli nahiiN jaa-naa hai.
 you.DAT Delhi NEG go-INF be.PRES
 ‘You don’t have to go to Delhi.’
 [You don’t have an obligation to go to Delhi.]
 NEG > modal

On the other hand, the universal modals that cannot occur in the SMC take scope *over* negation.

- (31) You should not leave. modal > NEG (deontic)
 (32) He should not be there now. modal > NEG (epistemic)
 (33) He must not leave. modal > NEG (deontic)
 (34) He must not be there now. modal > NEG (epistemic)
 (35) You ought not to leave. modal > NEG (deontic)
 (36) Dhen prepi na ine eki.
 NEG must NA be there
 ‘He must not be there.’ modal > NEG (epistemic)
 (37) Dhen prepi na to kanume afto.
 NEG must NA it do this
 ‘We must not do this.’ modal > NEG (deontic)
 (38) Prepi na min ine eki.
 must NA NEG be there
 ‘He must not be there.’ modal > NEG (epistemic)
 (39) tumhen Dilli nahiiN jaa-naa caahiye.
 you.DAT Delhi NEG go-INF should
 ‘You should not go to Delhi.’ modal > NEG

The same results hold for all the languages that we have investigated in this regard.

So here is our generalization on this matter:

- (40) Universal modal verbs can participate in the SMC only if they take scope under negation.

We have found no counterexample to this.¹⁰

Which modals take scope under negation in a given language depends on many factors and seems very idiosyncratic (see, e.g., Picallo 1990, Cormack and Smith 2002). For example, English *must* takes scope over negation, as just noted, while German *müssen* takes scope under it.

- (41) Du musst das nicht machen.
 you must that not do
 ‘You don’t have to do that.’
 NEG > modal (deontic)

¹⁰ It should be noted, though, that this is a necessary but probably not sufficient condition. That is, there may be necessity modals that take scope under negation but cannot give rise to an SMC interpretation. We have some suggestive data from Hebrew and Norwegian but cannot pursue this topic here.

But even in the face of such capriciousness, the generalization in (40) seems to hold absolutely. For example, unlike English *must*, German *müssen* can appear in the SMC.

- (42) Du musst nur ins North End gehen.
 you must only in.the North End go
 ‘You only have to go to the North End.’

Finally, note that languages sometimes have modals that appear specialized for occurrence under negation, sometimes called *negative polarity item (NPI) modals*. An example is German *brauchen*.

- (43) Du brauchst das nicht machen.
 you need that not do
 ‘You don’t have to do that.’
- (44) *Du brauchst das machen.

This item can be used in the SMC, as expected by now.

- (45) Du brauchst nur ins North End gehen.
 you need only in.the North End go
 ‘You only have to go to the North End.’

In summary: we have shown that the modal in the SMC has to be a goal-oriented necessity modal that can take scope under negation.¹¹

2.2 The Exclusive/Exceptive Marker in the Sufficiency Modal Construction

Next, we need to look at the other characteristic ingredient of the SMC, the exceptive/exclusive marker, crosslinguistically an element like *only* or a NEG + EXCEPTIVE combination.

The benchmark analysis of *only* goes back to Horn 1969, where Horn argues for two distinct components. Sentence (46), for example, *asserts* that nobody other than John was in the room and *presupposes* that John was in the room.

- (46) Only John was in the room.

In general, given a sentence ϕ (the so-called *prejacent*), *only* ϕ will assert that no alternative to ϕ is true and will presuppose that the prejacent ϕ is true. For (46), the prejacent is (47).

¹¹ A few crosslinguistic observations are in order. Apparently, in Norwegian, bare verbs can form an SMC, as pointed out by Tarald Taraldsen (pers. comm.). Many thanks for discussion of this and related points to Anders Holmberg, Øystein Nilsen, and Peter Svenonius. A relevant example is this:

- (i) Hvis du vil til Oslo, er det bare å sette seg på toget.
 if you want to Oslo is it only to sit REFL on the.train
 ‘If you want to go to Oslo, you only have to get on a train.’

We have shown that the verbal element in the SMC is a universal goal-oriented modal that takes scope under negation. This is actually somewhat of a problem because in some languages (at least Greek, Italian, French, Romanian, Bulgarian, and Hindi), the plain possessive modal lacks the goal-oriented meaning. See von Fintel and Iatridou 2005:sec. 5.1 for more on this point.

(47) John was in the room.

The set of relevant alternatives is as usual contextually determined. Rooth (1985) argues that the focus structure of a sentence helps to signal what the relevant alternatives are. For (46), alternatives could be *Mary was in the room*, *Susan was in the room*, and so on.

Looking at the NEG + EXCEPTIVE languages, we will take the proposition without NEG + EXCEPTIVE to be the prejacent. Just as with *only*, the truth of the prejacent is also conveyed in the NEG + EXCEPTIVE construction. Consider the Greek sentences (48a) and (49a) and their prejacent propositions (48b) and (49b), which are clearly presupposed or entailed.

(48) a. Dhen irthe para mono o Yanis.
NEG came EXCEPT only the Yanis
 ‘Nobody came except Yanis.’

b. Irthe o Yanis.
came the Yanis
 ‘Yanis came.’

(49) a. Dhen idha para mono ton Yani.
NEG I.saw EXCEPT only the Yanis
 ‘I didn’t see anyone except Yanis.’

b. Idha ton Yani.
I.saw the Yanis
 ‘I saw Yanis.’

2.3 The Prejacent Problem

With these assumptions in place, let us consider our paradigm example in an *only* language.

(50) To get good cheese, you only have to go to the North End.

We will proceed the way we would with any sentence containing *only*. We have to identify the set of relevant alternatives that *only* is operating on (for the assertion), and we have to identify the prejacent (for the presupposition). To identify the set of alternatives, we need to determine the focus of *only*. It would appear that the natural focus in such examples is on the infinitival complement of the modal. So, we would expect the alternatives to be propositions like *you have to go to Milan*, *you have to go to Reykjavik*, *you have to order from amazon.com*, and so forth.

Given such a set of alternatives, (50) would then assert that none of these alternatives is true. That is, to get good cheese, you do not have to go to Milan, you do not have to go to Reykjavik, and you do not have to order from amazon.com. This prediction seems to be just right: the SMC does convey that other ways of achieving one’s goal may exist but are not necessary.

As for identifying the prejacent, for (50) this would be (51) (basically (50) without *only*).

(51) To get good cheese, you have to go to the North End.

And here is where the problem lies. In the previous section, we noted that the standard analysis

of *only* includes the truth of the prejacent as a presupposition. But in the SMC, the prejacent is not automatically understood to be true. We can correctly utter (50) in a situation where there are other places in the Boston area to get good cheese, as long as going to the North End is relatively easy. But then (51) is not true because according to it the only place to get good cheese in the Boston area is the North End.

We will call this the *Prejacent Problem*, and we take it to be the central problem for the compositional analysis of the SMC.

The Prejacent Problem arises regardless of the morphosyntax of the SMC. We can also set up the equivalent of the Prejacent Problem in languages that use NEG + EXCEPTIVE in the SMC. Following the assumptions in the previous section, the prejacent of (52) is (53) (i.e., (52) without NEG and the exceptive).

(52) Ya na vris kalo tiri, dhen chriazete para na pas sto North End.
 to NA find good cheese NEG need EXCEPT NA go to.the North End
 ‘To get good cheese, you only need to go to the North End.’

(53) Ya na vris kalo tiri, chriazete na pas sto North End.
 to NA find good cheese need NA go to.the North End
 ‘To get good cheese, you need to go to the North End.’

The problem again is that (52) does not entail or presuppose (53), since according to the latter you need to go to the North End to get good cheese. That is, according to (53) the only place where you can get good cheese in the Boston area is the North End, while (52) is fully compatible with there being many such places.

In short, the Prejacent Problem surfaces no matter how the SMC is constructed morphosyntactically. It is a problem of compositionality. Any analysis of the SMC will have to deal with this issue.

Here are some quick attempts at solving the problem that will show this is not easy. One might think that perhaps the problem lies with the assumption that sentences with *only* and NEG + EXCEPTIVE presuppose (or entail) their prejacent. What if at least in the SMC, the prejacent presupposition is canceled in some way? One might say that any appearance of a prejacent entailment is due to some kind of defeasible implicature and for some reason or other, the implicature does not arise in the SMC. Our paradigm sentence would then simply claim that to get good cheese, you do not have to go to Milan, you do not have to go to Reykjavik, you do not have to order from amazon.com, and so on. There would be no presupposition that to get good cheese, you have to go to the North End.

The problem is that we would now have no obvious way of deriving that going to the North End is in fact a way of getting good cheese (the component of meaning we called *sufficiency*). Imagine that both Milan and Reykjavik are very good places to get good cheese, but that the North End is not. Then the SMC sentence would—as it now stands—be incorrectly predicted to be true, since you don’t *have to* go to Milan (you can go to Reykjavik) and you don’t *have to* go to Reykjavik (you can go to Milan). This is not good.

Another possibility would be to claim that the presupposition triggered by *only* and NEG + EXCEPTIVE is weaker than we thought. In fact, in his 1996 paper Horn proposes that the presupposi-

tion carried by *only*-sentences is weaker than he had originally suggested in his 1969 paper. The idea is that *only* ϕ asserts that within a given set C no alternative to ϕ is true and presupposes that there is an element in C that *is* true (without saying that it is ϕ that is true).

Note that—as is—this makes no new and improved predictions for unembedded cases of *only*. If something is true and no alternative to ϕ is true, then it must be ϕ that is true. Indeed, Horn's arguments for his new analysis all hinge on embedded occurrences of *only*, which doesn't appear to be what we have in the SMC. Again, no luck.

Clearly, then, playing with the prejacent presupposition of *only* and NEG + EXCEPTIVE does not obviously lead to solving the compositionality puzzle.

At this point, one might wonder what our options are, given that we combined what seemed like independently motivated existing analyses of the apparent key components of the construction. Abstractly speaking, enlightenment could come from playing with any or all of the following:

1. the nature of the underlying modal (e.g., maybe it is not a necessity modal after all),
2. the semantics of *only* and of NEG + EXCEPTIVE (e.g., maybe we need to rethink the exact nature of the prejacent presupposition after all, although we just pointed out that there are obstacles),
3. the logical structure of the construction (e.g., maybe the components are not what we thought they were or maybe they do not take scope quite the way we thought they did).

The puzzle we are faced with is not one that has previously been treated.¹² Our solution will combine aspects of options 2 and 3. We propose that the solution can be found by looking closely at the NEG + EXCEPTIVE type of SMC.

2.4 Precursors

Before we develop our analysis of the SMC, we would like to draw attention to an intriguing passage in a paper by Beck and Rullmann (1999:261), which briefly touches on the notion of sufficiency (we reproduce their numbering).

We suggest that (30) means (31a) or equivalently (31b):

(30) Four eggs are sufficient (to bake this cake).

(31) a. It is not necessary (given the rules for your cake baking) that you have more than four eggs.

b. It is possible (given the rules for your cake baking) that you have only four eggs.

We will derive this semantics via the lexical meaning of *sufficient*. We will take as our guideline the paraphrase in (31b). We will assume that semantically the argument of *sufficient* is propositional in nature. *Sufficient* then contributes modal possibility as well as a meaning component amounting to *only*.

Note also that Beck and Rullmann's example could easily be rephrased as an SMC sentence.

¹² An exception is recent unpublished work by von Stechow (2004), where he cites relevant passages from Beck 1955/57 and where he ends up resorting to a noncompositional solution to our puzzle.

- (54) You only need (to have) four eggs.
 (Sigrid Beck, pers. comm.)

What Beck and Rullmann are doing in the quoted passage is unpacking the notion of sufficiency into two complex paraphrases:

1. negation > necessity > *more than* (Beck and Rullmann's (31a))
2. possibility > *only* (Beck and Rullmann's (31b))

Beck and Rullmann adopt the second structure, where possibility takes scope over *only*, as their working analysis of the notion of sufficiency. We do not think we can work with this structure as an analysis of the SMC, for two reasons: (a) in the SMC, *only* appears to have scope *over*—not *under*—the modal, not just because of its surface position but also because, as shown earlier, the SMC is restricted to modals that take scope under negation, a crosslinguistically stable fact;¹³ and (b) the SMC clearly contains a necessity modal and not a possibility modal, again a crosslinguistically stable fact.

So, contrary to Beck and Rullmann, we have come to the conclusion that something like the three-part structure in their option 1 lies behind the mystery of the SMC. We will develop this proposal in what follows. Again, we should emphasize that Beck and Rullmann intended their discussion to be about the hidden logical structure of the lexical item *sufficient* and not about the compositional structure of *only have to* or NEG + *have to* + EXCEPTIVE.

3 The Semantic Composition of the Sufficiency Modal Construction

3.1 Ne . . . que under the Microscope

3.1.1 *Basic Assumptions* Recall that in French, the SMC looks like this:

- (55) Tu n'as qu'à aller au North End.
 you NE-have QUE-to go to.the North End
 'You only have to go to the North End.'

We propose to analyze this type of SMC as containing three elements: negation taking scope over a necessity modal, which in turn takes scope over an “exceptive quantifier.” We will show that with some work, this gives an adequate compositional analysis for the SMC. After that, we will return to the *only* type of SMC and try to argue that it too involves three elements.

In what follows, we will sometimes use French as perhaps the most familiar kind of example, but it should be clear that we are talking about the NEG + EXCEPTIVE construction as found not just in French but also in Greek, Irish, and so on. We will use *QUE* to represent the relevant notion for both French and other languages.

¹³ We assume here that the scope of *only* with respect to modals mirrors that of negation. We will develop this in a surprising way later in the article.

First, we need to put some working assumptions about NEG + EXCEPTIVE in place.¹⁴ Consider a simple nonmodal example.

- (56) Je n'ai vu que Jean.
 I NE-have seen QUE Jean
 'I only saw Jean.'

Our basic idea is that semantically the QUE-phrase introduces an existential quantifier over individuals “other than” Jean.¹⁵ There is a syntactic question here as to whether there is a covert quantifier “something”/“anything” hosting (i.e., being modified by) the QUE-phrase, or whether the entire quantifier meaning is all wrapped up in the meaning of the QUE-phrase. For simplicity, we will adopt the latter answer.¹⁶

¹⁴ Dekydtspotter (1993) provides an extensive discussion of *ne . . . que*. We will not adopt his proposal in any detail. See also Azoulay-Vicente 1988. We are not familiar with detailed semantic work on the NEG + EXCEPTIVE construction in languages other than French.

¹⁵ Readers familiar with the existing work on exceptives in formal semantics, especially von Stechow 1993, will realize that we are not treating *que* as a bona fide exceptive in the strict sense. The nonidentity “other than” condition it expresses is very weak compared with the conditions expressed by English exceptives like *but* or *except*. To some degree, the difference is actually masked in the case where the operator modifies an existential quantifier in the scope of a negation. It has always been a puzzle why exceptives can modify NPI *any* as in *I didn't see anyone but John* (see Gajewski 2004 for a recent attempt at solving that puzzle). Here, we just note that if the exceptive in its NPI-like use only expresses a nonidentity condition, there is no need to go to heroic measures like the ones explored by Gajewski. Having said that, there are reasons to at least modify the simple “other than” semantics, as will be discussed in footnotes 20 and 22.

¹⁶ Historically, at least, one would expect that there used to be an *overt* host. Jay Jasanoff (pers. comm.) tells us that the *que* of *ne . . . que* comes from Latin *quam* (‘than’) and not from *quod* (the complementizer ‘that’). More specifically, the source would be this:

- (i) Non vidi alium (hominem) quam Iohannem.
 not saw other (man) than Iohan
 'I didn't see any man other than Iohan.'/‘I saw only Iohan.’

The innovation that would have had to have happened to yield the Modern French string is the deletion of *alium* (*hominem* was optional, as the adjective could stand on its own in Latin). Since the equivalent of *ne . . . que* occurs in Spanish, Irish, Greek, and other languages, we are faced with the question of its development there as well. One possibility is that the construction appeared in a shared mother language; but given the spread of these languages, it would have to be Proto-Indo-European of circa 4000 BC. And if the *ne . . . que* construction did indeed go back to that time, we would expect to find it in intermediate stages, but this is not so. Latin, for example, lacks any equivalent of *ne . . . que*. This leaves only the possibility that the development happened independently in all these languages. So perhaps this was an early feature spread from one language to another by imperfect bilinguals serving as the vehicle of transmission. (We are very grateful to Jay Jasanoff and his informants for discussing these points with us.)

Although we do not wish to thoroughly address the question of the syntactic presence of a *covert* host, one might consider the following, possibly weak argument in favor of the position that hostless exceptives are truly hostless—namely, that there is no covert quantificational element like “somebody other than.”

In languages where there is no doubt what Case we are dealing with, given the form of the noun, we see that the Case on the argument of (the equivalent of) *que* depends on the grammatical role the covert host would have held. In other words, the Case on the argument of *que* can be nominative, accusative, and so on.

- (ii) Dhen irthe para o Yanis.
 NEG came EXCEPT the Yanis.NOM
 'Nobody came except Yanis.'
- (iii) Dhen idha para ton Yani.
 NEG saw EXCEPT the Yanis.ACC
 'I did not see anyone except Yanis.'

So, we will be working with the following meaning for QUE *Jean*:

$$(57) \llbracket \text{QUE Jean} \rrbracket = \lambda P. \exists x(x \neq \text{Jean} \ \& \ P(x) = 1)$$

We will further assume that the QUE-phrase stands in an NPI-like licensing relation to the negation NEG—to capture the fact that it is only under negation that exceptive QUE-phrases are grammatical. Later on, we will give more arguments for the NPI nature of QUE-phrases.¹⁷

When we combine the meanings of negation and the QUE-phrase, (56) therefore means that it is not the case that there is someone other than Jean that I have seen, which appears to be adequate at first glance. But we will soon enough have reason to refine this analysis.

3.1.2 A Possible Concern Before we go on to apply this analysis to the SMC, we address a concern regarding French negation.¹⁸ We are treating the exceptive *que* as devoid of negative force and attributing the negative meaning to the negative element *ne*. But this is not obviously correct. The complication is that in French, plain sentential negation also has two parts that straddle the verb: *ne* Verb *pas*. In spoken French, *ne* is often dropped.

- (58) Il (ne) lit pas *Le Monde*.
 he (NE) reads PAS *Le Monde*
 ‘He does not read *Le Monde*.’

One might therefore be tempted to treat only *pas* as the contentful item. If this analysis were correct, it would have several repercussions for the NEG + EXCEPTIVE construction in French, since *ne* can also be dropped there, as it can in all similar environments.

- (59) Il (ne) lit que *Le Monde*.
 he (NE) reads QUE *Le Monde*
 ‘He reads only *Le Monde*.’/‘He does not read anything except *Le Monde*.’

- (60) Il (ne) lit rien.
 he (NE) reads RIEN
 ‘He reads nothing.’/‘He doesn’t read anything.’

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- (iv) Dhen milisa para me ton Yani.
 NEG talked EXCEPT P the Yanis.(PREP)ACC
 ‘I did not speak to anyone except Yanis.’

This differs from hosted exceptives, which always come with their own Case; for example, Greek *ektos* ‘except’ always comes with (prepositional) accusative (or genitive, depending on the dialect). Compare (v) with (ii).

- (v) Oli i andres irthan ektos apo ton Yani.
 all the men.NOM came EXCEPT from the Yanis.ACC
 ‘All the men came except Yanis.’

It seems, then, that the argument of *para* has direct access to the Case assignment process that the covert quantificational element would have undergone if it existed. One could stipulate that the covert host is still there and that there is some sort of unusual concord going on, but it is, of course, simpler to hypothesize that the *para*-phrase itself stands in the relevant Case position and there is no covert host.

¹⁷ See Giannakidou 2002 for another use of the Greek NPI *para*.

¹⁸ We thank Jean-Yves Pollock for discussion of the issues addressed in this section.

- (61) Il (ne) lit plus.
 he (NE) reads PLUS
 ‘He does not read anymore.’
- (62) Il (ne) lit jamais.
 he (NE) reads JAMAIS
 ‘He doesn’t ever read.’/‘He never reads.’

If the omissibility of *ne* means that it is *pas* that carries the semantic force of negation, then by analogy one would have to say that *que* does as well in (59), *rien* in (60), and so on. This would mean that *rien* means ‘nothing’, *plus* ‘no more’, and *jamais* ‘never’. Such conclusions might be acceptable, but things are more complicated in the *ne . . . que* case, as now *que* would have to mean ‘only’. However, this conclusion overgeneralizes, as it wrongly predicts (63) to be grammatical.

- (63) *Que Jean aime Marie.
 QUE Jean loves Marie
 Attempted: ‘Only Jean loves Marie.’

It seems, then, that even though *que* does not have to follow overt *ne*, it does have to follow the position in which *ne* might have appeared. From this we conclude that French *que* is not the sole carrier of the semantic force of the construction, even though its partner is not always overtly there. This means that French *que* is still an NPI exceptive and that it does not mean ‘only’.

We could follow Pollock (1989) in taking *ne* to be the overt head of a projection of negation (NegP), which could also contain a covert head. For Pollock, the element *pas* is the specifier of NegP. He also argues that the other partners of *ne* in (59)–(62) are specifiers of projections that have overt or covert *ne* as head, though these are projections lower in the tree than the one that contains sentential negation. In short, the omissibility of *ne* is not truly a complication for our approach, once we adopt Pollock’s framework. For Pollock, even in plain sentential negation, *ne . . . pas*, *ne* carries the semantic force and *pas* is a ‘reinforcer’ of sorts (Jean-Yves Pollock, pers. comm.).¹⁹

We conclude that our analysis, which splits the negative force off from the exceptive *que*, is compatible with the general facts about French negation.

3.1.3 Splitting the Sufficiency Modal Construction Now, in the SMC, a necessity modal intervenes between the negation and the QUE-phrase.

- (64) NEG > necessity > QUE

¹⁹ Pollock also points out that this view is supported by the fact that in his speech it is *pas* that can be dropped with certain modals.

(i) Je ne {peux, saurais} dire qui a eu cette idée pour la première fois.
 I NE {can, would know} say who has had this idea for the first time
 ‘I {cannot, would not be able to} say who had this idea for the first time.’

The QUE-phrase here would be an existential quantifier over verb phrase meanings “other than” going to the North End. We expect the following interpretation:

(65) (To get good cheese), it is not necessary that you do something other than going to the North End.

Or in other words ($\neg \square \exists \equiv \diamond \neg \exists$), as in (66).

(66) In some worlds where you get good cheese, there is nothing you do other than going to the North End.

This sounds right.²⁰ Time to wrap up? Unfortunately, not yet.

3.1.4 The Prejacent Problem, Again We still need to consider the presuppositional part of the meaning of *only*/NEG + EXCEPTIVE. Consider again the simple sentence (56), repeated here:

(56) Je n’ai vu que Jean.

With what we have said so far, this sentence would mean that I saw nobody other than Jean. But (56) says more than that. The sentence reliably conveys that I saw Jean, not just that I saw nobody other than him (which might have left it open whether I saw him or not). In this, (56) behaves just like an analogous *only*-sentence.

(67) I only saw John.

As we showed earlier, the part of the meaning of (67) that conveys that I, in fact, saw John (not just that I didn’t see anybody other than him) is attributed to a presuppositional component of the meaning of *only*. We should then try to apply the same move to (56) to get this sentence to convey that I saw Jean. But once we have that result, we will need to see whether the Prejacent Problem is still present. That is, once the exceptive triggers a presupposition, is the fact that we have a split structure enough to prevent the Prejacent Problem from arising?

We will look at two options from the literature about the relevant presupposition of *only*: Horn’s (1969) and (1996) analyses, already touched on in sections 2.2 and 2.3. We will apply each in turn to the NEG + EXCEPTIVE construction and to the SMC.

Option A is strong presupposition, as proposed in Horn 1969.

(68) (QUE Jean) P

A(ssertion): $\exists y(y \neq \text{Jean} \ \& \ P(y) = 1)$

P(resupposition): $P(\text{Jean}) = 1$

²⁰ To make sure this is indeed right, we have to be clear about what it means for something to be “other than” going to the North End. First of all, it is logically impossible to go to the North End without incurring some other properties as well, such as changing position. As is familiar from the semantics of *only* (see, e.g., von Fintel 1997 for a summary), such entailed properties do not count as “other.” But beyond that, going to the North End to get good cheese may also involve entering one of the many stores there, something that is not entailed by going to the North End but would still count as “part of” going there and thus shouldn’t count as “other” either. We suspect that the notion of lumping, which has proved useful in the semantics of *only* (again see von Fintel 1997), could be appealed to here as well. We leave the obvious moves to the reader’s imagination. (We discuss similar issues in footnote 22.)

Under this analysis, (56) presupposes that I saw Jean and asserts that I didn't see anybody other than Jean. This sounds right. But the question now is what happens to the presupposition in the SMC, where we have a modal to complicate matters.

To answer that question, we need to establish what happens to presuppositions under modals in general. Consider an example involving the existence presupposition triggered by a definite possessive phrase.

- (69) To attend this dinner, you don't have to bring your campaign donation (you can mail it in afterwards).

To the naïve ear, it sounds as if (69) either (a) presupposes that the addressee will give a donation anyway or (b) presupposes that to attend the dinner, it is part of the requirements that the addressee make a donation. Most theories of presupposition will deliver one or both of those readings. A straightforward analysis in the Karttunen/Stalnaker/Heim tradition, for example, will deliver the second presupposition, but will make space for additional inferences yielding the first presupposition.

By analogy, then we would predict that the structure in (70)

- (70) NEG > necessity > QUE (go to the North End)

will either (a) presuppose that you do go to the North End (anyway) or (b) presuppose that to achieve the goal you *have to* go to the North End.

That is not a good prediction. It is clear that the sentence can be uttered without presupposing that you go to the North End anyway. And the second presupposition is also undesirable, another instance of the Prejacent Problem: we don't want to derive that going to the North End is a necessary condition, as this is clearly not what (70) conveys.²¹

²¹ Is there wiggle room within option A (Horn 1969)?

Perhaps the presupposition that you go to the North End is *accommodated* into the restriction of the modal; that is, it becomes part of the understood domain restriction of the modal. Incorporating a presupposition into the restrictor of an operator is a process often referred to as "local" or "intermediate" accommodation and is discussed in some detail in Berman 1991 and Kratzer 1995. What would we get if we incorporated the presupposition that you go to the North End into the restrictor of the modal? We would get that the worlds quantified over are assumed to be just the worlds where you go to the North End, narrowing the claim. (55) would then be interpreted as follows:

- (i) In the worlds where you go to the North End, to get good cheese, you don't have to do anything other than going to the North End.

If we could incorporate the presupposition into the restrictor of the modal, deriving (i), we could have our cake and eat it too, so to speak, because the assertion would be that you don't have to do anything other than going to the North End in the worlds where you go to the North End. Our problem is that we do not feel comfortable with this process of incorporating the presupposition into the restrictor of an operator—not just for the case of the SMC but in general.

In fact, local accommodation into a quantifier restriction has been a matter of dispute (see, e.g., Geurts and Van der Sandt 1999, Beaver 2001, von Stechow 2004, for discussion). Here is a simple example, taken from von Stechow 2004, that shows what can go wrong with incorporating presuppositions into the restrictor of an operator. Consider the following sentence:

- (ii) Every man loves his wife.

This sentence presupposes that we quantify over a domain in which all men are married; otherwise, the sentence suffers from presupposition failure. In other words, (ii) makes sense only if we can make it be about married men only. Under

So let's try *option B*: weaker presupposition as proposed in Horn 1996. As discussed briefly in section 2.3, in this newer proposal the presupposition of *only p* is not that the prejacent *p* is true but that there is some relevant alternative (not necessarily *p*) that is true. Transposed to NEG + EXCEPTIVE, this would give the analysis in (71).

- (71) (QUE Jean) P
 A: $\exists y(y \neq \text{Jean} \ \& \ P(y) = 1)$
 P: $\exists x(P(x) = 1)$

As we noted before, in unembedded cases, this weaker presupposition makes no new predictions. The assertion and the weaker presupposition together entail that the prejacent is true.²²

- (72) Je n'ai vu que Jean.
 A: I did not see anybody other than Jean.
 P: I saw someone.
 \Rightarrow I saw Jean.

But significantly different predictions arise when embedding operators are present. Consider what we predict for the SMC.

the process of local accommodation (whereby presuppositions are incorporated into the restrictor), (ii) would be equivalent to (iii).

- (iii) Every man who has a wife loves his wife.

But are (ii) and (iii) in fact equivalent? They are not. Contrast the following two pairs:

- (iv) a. Not every player on the team is married.
 b. #But everyone loves their spouse.
 (v) a. Not every player on the team is married.
 b. But everyone who is married loves their spouse.

If (ii) and (iii) were equivalent, as the process of local accommodation would have it, then we would predict, contrary to fact, that there should be no difference in the discourses in (iv) and (v). Since there is a clear difference, (ii) and (iii) are not equivalent. For reasons like these, we cannot appeal to the process of local accommodation in the SMC with a clear conscience. We would prefer to do without this mechanism. This means that we cannot appeal to Horn's (1969) presupposition of *only* to derive what we want, since we would need local accommodation to obtain our goal.

²² This is not entirely true as it stands. Take a sentence like (i).

- (i) I didn't see anybody other than John and Peter.

This together with the presupposition that the speaker saw someone does not entail that the speaker saw John *and* Peter—instead, it entails only that the speaker saw John *and/or* Peter. The problem lies in the fact that we have to understand “other than” as really meaning nonoverlap and not nonidentity. Otherwise, *I didn't see anybody other than John and Peter* would entail that the speaker didn't see John and didn't see Peter, which would obviously be absurd. But this then means that *I didn't see anybody other than John and Peter* is actually compatible with the speaker's seeing just Peter—perhaps not the best kind of prediction. We might solve this problem by adding considerations about quantity implicature to the mix. A speaker who has only seen John should say *I didn't see anybody other than John* rather than *I didn't see anybody other than John and Peter* because the former is a stronger statement than the latter. We'll live with this fix and leave it open whether implicature considerations could be used in place of presuppositions in other places in our analysis—a topic that is of course the focus of much work on *only*.

(73) Tu n'as qu'à aller au North End.

A: In some of the good-cheese worlds, you don't do anything other than going to the North End.

P: In all of the good-cheese worlds, you do something.

Now we have finally avoided the Prejacent Problem. We no longer predict that you have to go to the North End. The presupposition is the weak (and surely trivial) claim that to get good cheese, you have to do something.²³

So, what we are left with is the assertion that in some worlds where you get good cheese, you do something—but not anything other than going to the North End (i.e., not anything that is not part of going to the North End). In other words, going to the North End is a sufficient but not necessary way of getting good cheese.

Let us spell this out one more time. We assume that a sentence like *He didn't see anyone other than John* presupposes that he saw someone and asserts that there is nobody distinct from John that he saw. Taking the presupposition and the assertion together, we can infer that he saw John. Now, the SMC claims that *you don't have to do anything other than go to the North End*. This presupposes that you have to do something and asserts that it is not the case that in all of the worlds you do something other than going to the North End. From this, it cannot be inferred that in all of the worlds you go to the North End. The prejacent cannot be inferred. The reason is that we have split the scope of NEG and QUE across the universal modal.

So it seems that by accepting Horn's (1996) presupposition for *only* and transposing it to NEG + EXCEPTIVE, we get exactly what we want in the SMC.²⁴ But we are not done yet. We still

²³ The *LI* reviewer asks whether this characterization of the presupposition (that you have to do something to get good cheese) is in fact adequate in light of examples such as these:

- (i) To make your way up in this organization, you only have to sit perfectly still and do absolutely nothing.
- (ii) To be eligible for this job, you only have to have an IQ of 40 and an intimate personal relationship with the boss.

The reviewer's idea is that (i) explicitly asserts that you don't have to do anything. We reply that you are told that you have to sit still, which is doing something, albeit not something very dynamic. In (ii), the notion of "doing" is perhaps even less obviously applicable. In any case, using the concept of "doing" is a possibly misleading artifact of our informal paraphrase of the official semantics. Formally, the presupposition is truly trivial: that in all of the worlds where the goal is achieved, *you have some property or other*.

²⁴ Not all exceptives can appear in the particular form of the SMC we have been using. Greek has two exceptives, *para* (which is what we have been using so far) and *ektos*. If we replace *para* with *ektos* in our examples, ungrammaticality results.

- (i) ... *dhen echis ektos na pas sto North End.
NEG have EXCEPT NA go to.the North End

Similarly in French, the exceptives *sauf* and *à part* cannot replace *que*.

- (ii) a. ... *tu n'as sauf aller au North End.
b. ... *tu n'as à part aller au North End.

The same question arises for all the other languages that we have seen employing NEG + EXCEPTIVE in the SMC. That is, all of these languages have more than one exceptive word, yet only one of them is used in the SMC. Why would this be? The answer, it turns out, is the same for all languages for which it arises: the exceptives that are good in the forms

need to talk about the languages that form the SMC with *only*. We'll get to that soon. First we need to address another possible concern.

3.1.5 Intervention Note that we have split the SMC into three different operators: NEG > necessity > "something other than." We would not have derived the desired result if we had treated the NEG + EXCEPTIVE construction as an indivisible logical element meaning 'nothing other than'. In our analysis, the negation and the existential "exceptive" are separable.²⁵ But we also said that the relation between negation and QUE is an NPI-like licensing relation. One might think that there is a contradiction here. The NPI-licensing relation is known to be subject to intervention effects, originally captured in Linebarger's (1980) Immediate Scope Constraint.

Consider (74), for example.

(74) Mary didn't wear any earrings at every party.

Reading 1: There is no particular earring Mary wore at every party. (NEG > NPI > every)

Reading 2: At every party Mary wore no earrings. (every > NEG > NPI)

Reading 3: Not at every party were there any earrings Mary wore. (*NEG > every > NPI)

Note that while the relative scope of *every* and NEG + NPI is variable in (74), reading 3 (where

of the SMC we have considered so far can all occur "hostless." The host of an exceptive is the quantifier that the exceptive operates on (von Fintel 1993). In (iii), the italicized item is the host.

- (iii) a. *Every boy* except John left.
 b. *No boy* except John left.

The Greek exceptive *ektos* and the French exceptives *sauf* and *à part* can never be hostless, unlike *para* and *ne . . . que*.

- (iv) Dhen irthe para o Yanis sto parti.
 NEG came EXCEPT the Yanis to.the party
 'Nobody came to the party except Yanis.'
- (v) Dhen irthe *(kanenas) ektos apo ton Yanis sto parti.
 NEG came *(anyone) EXCEPT from the Yanis to.the party
- (vi) Je n'ai vu que Jean.
 I NE-have seen QUE Jean
 'I have not seen anyone except Jean.'
- (vii) Je n'ai vu *(personne) à part/sauf Jean.
 I NE-have seen *(anyone) except Jean

This obviously raises the question whether we can construct an SMC with an exceptive that requires a host. This is indeed possible once we add a host.

- (viii) An thes kalo tiri, dhen chiazete na kanis tipota alo ektos apo to na pas sto North End.
 if want good cheese NEG need NA do anything other EXCEPT from the NA go to.the North End
 'If you want good cheese, you do not need to do anything other except go to the North End.'

And it is possible even for English.

- (ix) To get good cheese, you do not have to do anything other than go to the North End.

In other words, once we place more lexical material in the sentence, thereby permitting the appearance of a wider selection of exceptives, more languages can be put in the NEG + EXCEPTIVE category, though some residual issues remain. See von Fintel and Iatridou 2005 for more details on this.

²⁵ This is a crucial difference between our assumptions and those made by Dekydtspotter (1993).

the scope of negation and the NPI is split) is unavailable; that is, there is no reading where a scopal element takes scope in between negation and the NPI.

While Linebarger herself does not go into the question of why the Immediate Scope Constraint should hold, Guerzoni (to appear) argues that the constraint is an intervention effect at LF, similar to so-called Beck effects (Beck 1996). In particular, NPI licensing is a relation that needs to be checked locally, either by quantifier-raising the NPI to its licenser or by covertly moving a feature from the NPI to its licenser. Logical operators such as the universal quantifier *every party* act as barriers for feature movement, which means that the NPI needs to quantifier-raise to its licenser. This explains why in examples such as (74), NEG + NPI acts as one semantic unit.

Now it should be clear that our analysis might look problematic. We crucially assume that the necessity modal in the SMC has logical scope between negation and the existential exceptive QUE-phrase. One might have thought that this contradicts the Immediate Scope Constraint. However, we would like to show that modal operators do not behave as interveners for the NPI-licensing relation. Consider:

(75) You didn't have to bring anything.

Note that (75) means that it was not necessary for you to bring something. It does not mean merely that there was nothing that it was necessary for you to bring. The latter could have been true while it was also true that you had to bring something (without it mattering what in particular you brought). In other words, (75) does have the stronger meaning that results from the scopal order negation > necessity > *anything*.

So, modals do not block the NPI-licensing relation and our conclusion in this section is not imperiled by concerns about the Immediate Scope Constraint.²⁶

3.2 *The Only Languages*

3.2.1 *Decomposing Only* In the previous sections, we investigated the SMC in what we have called the NEG + EXCEPTIVE languages. Now it is time to turn to what we have called the *only* languages, exemplified here with English.

²⁶ In Guerzoni's terms, this means that feature movement is possible across a modal from an NPI to its licenser, without the NPI having to take scope over the modal.

It is interesting to explore for a moment whether modals serve as "Beck interveners" or not. We suspect that they don't there either. In fact, Pesetsky (2000) discusses a relevant set of examples (his (99), p. 61).

- (i) *Intervention effect with not—nonsubjects*
 - a. Which issue should I not discuss ____ with which diplomat?
 - b. ??Which diplomat should I not discuss which issue with ____ ?
- [cf. *Which diplomat should I discuss which issue with ____ ?*]

For Pesetsky, the crucial point here is that negation in (ib) blocks the pair-list reading for the example, because it prevents the in-situ *wh*-phrase from raising at LF. He presents a minimal contrast without negation to show that the pair-list reading emerges without any problem. What is important here is that the example without an intervention effect still contains a deontic *should*, which obviously does not induce an intervention effect, even though it is a quantificational element under standard semantic analyses.

We refrain from speculating about what the fact of the nonintervening nature of modals has to contribute to existing analyses of intervention effects.

(76) If you want good cheese, you only have to go to the North End.

In linguistics, it's thrilling to be able to claim that two groups of languages are basically alike in areas where they look dissimilar at the surface. So let's try to see if we can make it happen here.

Recall that in the NEG + EXCEPTIVE languages, the SMC contains the following scopal order of three elements:

(77) NEG > modal > (\exists other than)

On the other hand, the *only* languages contain only two elements: the modal and *only*. We noted earlier that only the modals that take scope under negation can appear in the SMC. Presuming that *only* is affective enough (in Klima's (1964) sense), this would mean that the scopal order of *only* and the modal would have to be as follows:

(78) *only* > modal

But still, (78) is a far cry from (77). Moreover, simply being "affective" is not enough to bring about an SMC reading, since not all affective elements can pull it off. The following cases lack an SMC reading, even though the modal appears in environments where NPIs are licensed:

- (79) a. Everybody who has to go to the North End . . .
 b. You can get good cheese without having to go to the North End.

So (78), as it stands, doesn't quite do the job. What we will propose is that *only* should be decomposed into two elements: a negation and the quantificational element " \exists other than." Such a decomposition clearly fits the garden-variety environments of *only*.

(80) Only John was in the room.

P: Someone was in the room.

A: It's not the case that there was someone other than John in the room.

Decomposing *only* in this way will bring us a bit closer to assimilating the *only* languages to the NEG + EXCEPTIVE languages, since now we will have three elements to play with. That is, instead of (78), we have (81).

(81) (NEG + \exists other than) > modal

Unfortunately, we still face one of our biggest hurdles, namely, the Prejacent Problem. Consider our initial SMC, repeated in (82). With the decomposition of *only* that we are contemplating, (82) would be equivalent to (83), given the scopal order in (81).

(82) . . . you only have to go to the North End.

(83) . . . there is nothing other than [go to the North End] that you have to do.

But the Prejacent Problem raises its not-so-pretty head again, since (83) entails that you have to go to the North End—a meaning component that is wrong for the SMC, given that the SMC says that going to the North End is a sufficient, not a necessary, condition to get good cheese.

So what do we need to do? The answer is, in a way, simple: we need to make the *only* languages look exactly like the NEG + EXCEPTIVE languages. That is, it's not enough to decompose *only* into two elements; we also have to split its scope. We have to turn (78)/(81) into (84).

$$(84) \text{ NEG } > \text{ modal } > \exists \text{ other than}$$

This will make the *only* languages identical to what the NEG + EXCEPTIVE languages wear on their sleeve, and it will make the Prejacent Problem go away.

But is it possible to decompose an element and split its scope? We address this question next.²⁷

3.2.2 Negative Split Since Jacobs 1980, there has been discussion of a phenomenon widely known as *negative split*. The general idea is that a negative determiner like *no* splits into two elements, negation and an existential quantifier, with negation always taking wider scope than the quantifier.

$$(85) \text{ no } = \text{ NEG } + \exists$$

The reason it is even suspected that *no* should be decomposed like this is that sometimes the two elements can be seen as taking scope across another scopal element, which means that the scope of *no* has “split.”

$$(86) \text{ NEG } > \text{ scopal element } > \exists$$

Much of the literature on negative split focuses on Dutch and German.²⁸ To illustrate the phenomenon, we start by borrowing from the discussion by Rullmann (1995), whose work represents the “lexical decomposition” approach to negative split.²⁹

According to Rullmann, Dutch has an incorporation rule of the type proposed by Klima, as in (87).

$$(87) \text{ niet (NEG) } + \text{ Det}_{\text{indef}} \Rightarrow \text{ geen}$$

²⁷ We should note that while we show in what follows that it makes sense to allow *only* to split, there are some open issues. First, note that splitting will have to be obligatory with goal-oriented modals, since our paradigm sentence cannot be read as requiring one to go to the North End, if one wants good cheese. Second, splitting will have to be impossible with deontic modals, as we show in von Stechow and Iatridou 2005:sec. 5.5.

²⁸ Only limited negative splitting has been reported in English (Larson, Den Dikken, and Ludlow 1997, Potts 2000; see also Heim 2001, although Heim does not end up endorsing a split-based analysis). Here is an English example where the scopal element in question would be a modal.

- (i) I need no secretary. (ambiguous)
- (ii) I need to have no secretary.
- (iii) NEG I need [\exists (secretary) λx .PRO to have x]

If we are right about the proper analysis of the SMC in *only* languages involving a scope split of *only*, we can add another item to the catalogue of negative split phenomena, one that English fully participates in.

²⁹ See Geurts 1996 and de Swart 2000 for approaches based on higher-type entities, and Penka and von Stechow 2001 for an approach based on an abstract negation. Also see Penka and Zeijlstra 2005.

Rullmann is not explicit about the specifics of this incorporation, but he says that at LF the two elements can be separated from each other again. When the two elements go their separate ways at LF, we get negative split. We will be glossing *geen* with English *no*, without making any claims about the plittability of English *no*.

Negative split can happen and result in negation taking scope over a modal element, with $\text{Det}_{\text{indef}}$ taking scope under this same modal element. Consider, for example, the Dutch universal modal *hoeven*, which must take scope under negation, because of its NPI-like nature (for this reason we gloss it with *need*, the closest that English has to an NPI modal). As a result, (88) cannot mean (89).

(88) Ze hoeven geen verpleegkundige te onstlaan.
 they need no nurse to fire

(89) It is necessary that they fire no nurse.

One way to get *hoeven* to take scope under negation is the reading in (90).

(90) For no nurse x does the following hold: it is necessary that they fire x .

This is indeed a possible reading of (88), and it can be truthfully uttered in a context where it was claimed that there might be a specific nurse who has to be fired. According to reading (90), there is no such specific nurse. But by far the most salient reading of (88) is the one that asserts this:

(91) It is not necessary that they fire a nurse.

In this reading, the scopal relations are negation $>$ modal $>$ $\text{Det}_{\text{indef}}$. For this reading to be possible, *geen* must have undergone negative split.

Another type of negative split example possible in Dutch and German depends on the fact that in these languages (as in English), sentential negation that surfaces to the right of a universally quantified subject can take scope over the subject (under the right conditions; see Büring 1997). Here is an example from German:

(92) Jeder Arzt ist nicht anwesend.
 every doctor is not present
 ‘Not every doctor is present.’

We can now set up examples with negative split where negation takes scope over the universally quantified subject while the indefinite determiner takes scope below it.

(93) Jeder Arzt hat kein Auto.
 every doctor has no car
 ‘Not every doctor has a car.’

We would like to remain agnostic about the actual mechanics of negative split. What is important here is that the phenomenon exists and that another negative-like element—namely, *only*—can reasonably be described as undergoing it.

3.2.3 *Negative Split of Only* In section 3.2.1, we proposed that the scope of *only* splits, as evidenced by this element's behavior in the SMC. This move also permitted us to assimilate the *only* languages to the NEG + EXCEPTIVE languages. We suggested that this was part of a larger phenomenon, often referred to as "negative split." In section 3.2.2, we presented some of the basic relevant data and gave an example of one type of approach that has been suggested. In this section, we return to discussing in more detail the "splitting-*only* hypothesis."

Can we find more evidence that *only* splits in the way we suggest? One problem with finding incontrovertible evidence is that in many environments, *only* and its associate can take sentential scope with the same meaning that splitting *only* would yield. Consider for example the modal element *may*, which is ambiguous between an epistemic and a deontic reading.

- (94) a. He may be home by now. (epistemic)
 b. He may go to the movies. (deontic; permission)

On its epistemic use, *may* takes scope over negation, while on its deontic use, it takes scope under negation.

- (95) a. He may not be home. may > not
 b. He may not go to the movies. not > may

When we place *only* in a sentence with *may*, then if *only* did split, we would predict the following scopal orders:

- (96) a. When *may* is epistemic: may > not > other than
 b. When *may* is deontic: not > may > other than

This is indeed what we find.

- (97) a. Epistemic: He may only have one arm. may > NEG > other than
 b. Deontic: He may only have one cookie. NEG > may > other than

Unfortunately, we cannot take this as uncontroversial evidence that *only* splits. The reason is that *only one* could be raising at LF. It would be able to raise above deontic *may*, yielding (98).

- (98) only one λn may (he have n -many cookies)

However, it would not be able to raise above epistemic *may*, with which it could therefore create only (99).

- (99) may (only one λn he have n -many arms)

Obviously, these are the same readings that the splitting-*only* hypothesis predicts and so we cannot take their existence as evidence for the hypothesis. One could push the splitting hypothesis by saying that in order to account for the contrast in (97) without splitting *only*, we would have to postulate an additional stipulation that unsplit *only* + Det cannot take scope over epistemic *may*, whereas the splitting hypothesis would just reduce that restriction to the fact that negation cannot take scope over epistemic *may*. So the argument would boil down to the question of whether we

can restrict the movement of unsplit *only* over epistemic *may* by virtue of *only*'s “negative content at large” or whether the very existence of the restriction is the result of *only* splitting into negation (which, we know independently, cannot take scope over epistemic *may*) and an additional element. Since we do not consider this occasion appropriate to pursue either approach, we will limit ourselves to the position that the facts in (97) are certainly compatible with the hypothesis that *only* splits, but do not constitute uncontroversial evidence for it.³⁰

On the other hand, there appear to be some outright difficulties for the splitting-*only* hypothesis. We noted earlier that elements like German *kein* and Dutch *geen* can split and take scope over a universal quantifier in subject position.

- (100) Jeder Arzt hat kein Auto.
 every doctor has no car
 ‘Not every doctor has a car.’

If *only* and its counterparts split, then we would expect *maar* and *nur* to split in the following cases and bring about a reading where negation takes scope over the universal quantifier and “other than” takes scope under it.

- (101) Iedereen heeft maar één auto.
 everyone has only one car
- (102) Jeder Arzt hat nur ein Auto.
 every doctor has only one car

That is, we would expect the scopal order negation > universal > “other than,” which means that (101)/(102) would be predicted to mean (103).³¹

- (103) Not everyone/every doctor has other/more than one car.

The problem is that this reading is not available. The Dutch and German sentences have only the nonsplit reading according to which everyone/every doctor has only one car. Is this fatal for the splitting-*only* hypothesis?

To answer this, we must first go back to the NEG + EXCEPTIVE languages, where the elements making up *only*, so to speak, are separate items. In both Greek and French, negation can take scope over a universal quantifier in the subject when we are dealing with plain sentential negation.

- (104) Oli i anthropi dhen echun aftokinito.
 all the people NEG have car
 ‘It’s not the case that all people have cars.’ NEG > universal
- (105) Tout le monde n’a pas une voiture.
 all the world NE-has PAS a car
 ‘Not everyone has a car.’

³⁰ Of course, if there were reasons to doubt the possibility of *only* and the numeral taking scope outside the sentence together as one unit, then our splitting hypothesis would provide a good way to account for the facts.

³¹ Note that when *other than* compares numbers, it means the same as *more than*.

- (106) Tout le monde ne veut pas partir.
 all the world NE wants PAS leave
 'Not everyone wants to leave.'

However, when we are dealing with the negation that is part of the Greek *dhen . . . para* construction or the French *ne . . . que* construction, negation cannot take scope over a quantifier in subject position.

- (107) Oli i anthropi dhen echun para ena aftokinito.
 all the people NEG have EXCEPT one car
 'All the people have only one car.' universal > NEG
- (108) Kathe kathigitis dhen echi para enan voitho.
 every professor NEG has EXCEPT one assistant
 'Every professor has only one assistant.' universal > NEG
- (109) Tout le monde n'a qu'une voiture.
 all the world NE-has QUE-one car
 'Everyone has only one car.' universal > NEG
- (110) Tout le monde ne voit que des oiseaux.
 all the world NE sees QUE of.the birds
 'Everyone sees only birds.' universal > NEG
- (111) Tout le monde ne veut que partir.
 all the world NE wants QUE leave
 'Everyone only wants to leave.'/
 'Everyone wants only to leave.' universal > NEG

If negation could have scope over the subject quantifier, then sentence (109), for example, could have the reading 'It is not the case that everyone has more/other than one car'. And (110) could mean 'It is not the case that everyone sees more/other than birds'. But these readings are clearly unavailable.

So here is where we are: We proposed the splitting-*only* hypothesis. But then we saw that *only* does not split in environments where negative split (or just wide scope of negation) is easily available. However, it turns out that in NEG + EXCEPTIVE languages, even though negation can in general take scope over a quantified subject, negation cannot take scope over a quantified subject when it (negation) is part of the NEG + EXCEPTIVE construction. This means that the fact that *only* cannot split across a quantified subject is not an argument against the splitting-*only* hypothesis, since "naturally decomposed" *only*—namely, NEG + EXCEPTIVE—cannot split across a quantified subject either, even in languages where negation otherwise can take scope over a quantified subject. In short, the facts are not fatal to the splitting-*only* hypothesis.

Let us see what else we can learn from this picture. Why would negation not be able to be separated from the exceptive phrase? That is, why is (112) impossible?

- (112) *NEG > quantifier > QUE

Note that this question is the same for both the *only* and the NEG + EXCEPTIVE languages.

Actually, we have already seen the explanation for the impossibility of (112): in section 3.1.5, we proposed that the reason is that the QUE-phrase is (or contains) an NPI (\exists_{NPI} ‘‘other than’’) and that (112) is unacceptable because of an intervention effect (an instance of Linebarger’s (1980) Immediate Scope Constraint).

The natural extension of what we said about NEG + EXCEPTIVE then is that the reason that *only* does not split across a universal subject is that one of the elements that *only* splits into (namely, \exists_{NPI} ‘‘other than’’) is an NPI. For this reason, it cannot be separated from its licensing negation by the intervening universal quantifier.

An additional argument that *only* does not split across a quantified subject because of an intervention effect on NPI licensing comes from the following facts, which do not involve splitting. We have shown many times so far that negation can take scope over a quantified subject. It turns out that this is not possible when the VP contains an NPI.

- | | |
|--|-----------------|
| (113) a. Everyone didn’t leave. | NEG > universal |
| b. ?Everyone didn’t eat anything. | universal > NEG |
| (114) a. Everyone has not been to Paris. | NEG > universal |
| b. ?Everyone has not ever been to Paris. | universal > NEG |

In fact, for quite a few speakers the effect is even stronger in that the (b) variants are degraded sentences. This presumably means that for these speakers, sentential negation really prefers to take scope over the quantified subject, and when this conflicts with the licensing of an NPI, the sentence becomes unacceptable.

The same facts hold in German.

- | | |
|---|---------------------------------|
| (115) Jeder Student ist nicht gekommen. | |
| every student is not come | |
| ‘Not every student came.’ | NEG > universal |
| | (universal > NEG also possible) |
| (116) Jeder Student hat nicht mit der Wimper gezuckt. | |
| every student has not with the eyelash twitched | |
| ‘Every student failed to bat an eyelash.’ | universal > NEG |

In other words, even in environments where negation can take scope over a quantifier subject, a quantifier cannot separate negation from the NPI. So the fact that *only* cannot split across a universal quantifier subject is not evidence that *only* does not split; rather, it is the result of the fact that one of the elements that *only* splits into is an NPI. As we showed, the very same facts hold in NEG + EXCEPTIVE languages.³²

³² Recall from section 3.1 that the relation between NEG and the NPI QUE-phrase is not disrupted by modals. In other words, modals do not create intervention effects for NPI licensing, including the NEG-QUE relation.

We would like to add to this the reinforcing observation that again the two groups of languages behave alike since in the NEG + EXCEPTIVE languages as well, a modal can separate negation and the *quelpara*-phrase.

(i) NEG > modal > *quelpara*

We are now done presenting our proposal that *only* splits in the SMC and that therefore the *only* languages and the NEG + EXCEPTIVE languages do the same job the same way at LF.³³ We are thus also done with solving the compositionality puzzle for both kinds of languages.³⁴

4 Sufficiency, Easiness, and More

Having presented our solution to the compositionality puzzle raised by the SMC, we will now address three points that arise.

In the proposal we are developing, the difference would have to mean that unlike quantifiers, modals do not cause intervention effects for NPI licensing. And this is indeed so:

- (ii) You do not need to bring anything to my party. NEG > need > NPI
- (iii) O Yanis dhen chriazete na fai tipota.
the Yanis_{NEG} needs_{NA} eat anything
'Yanis does not need to eat anything.'
NEG > need > NPI
- (iv) Du brauchst nicht mit der Wimper zu zucken.
you need not with the eyelash to twitch
'You don't need to bat an eyelash.'
NEG > need > NPI
- (v) Du brauchst nichts zur Party mitbringen.
you need nothing to.the party with.bring
'You don't need to bring anything to the party.'
NEG > need > NPI
- (vi) Jeder Student hat nichts mitgebracht.
every student has nothing with.brought
'Every student brought nothing.'
*NEG > every > NPI

Sentences (v) and (vi) show that negation and NPI "anything" can be amalgamated into *nichts*, which can split across a modal but not a quantifier, which is exactly what we argue to be the case for *only* as well. We cannot pursue the interesting typology of split constructions further, but would like to sum up by saying that because of the differential intervention effects, we will have to distinguish the NPI-licensing-type splitting of *only* and *nichts* from the more liberal splitting of *kein/geen*.

³³ The *LI* reviewer points out a possible connection between our *only*-splitting proposal and Paul Postal's unpublished recent work on the representation of NPIs in general (Postal splits a negation off the NPI and raises that negation covertly; see Szabolcsi 2004 for a précis of Postal's work). The reviewer also points out that our analysis leaves it open exactly how *only* + XP triggers negative inversion in English (as in *Only one book has he read: the Bible*). We agree that these are interesting connections and issues to explore.

³⁴ We have discussed two methods of forming the SMC: with NEG + EXCEPTIVE-type elements and with *only*. Some languages (e.g., Spanish) can use both methods. Some languages choose one method and some the other. We have not found a language that has NEG + EXCEPTIVE but does not use it in the SMC. On the other hand, we have found languages (at least Greek, French, and Romanian) that are unable to use *only* in the SMC even though they have elements that at least apparently translate as *only*. Why would a language be unable to form the SMC with its counterpart of *only*? Cleo Condoravdi (pers. comm.) suggests that the crucial difference between Greek, which does not use its *only* to construct an SMC, and English, which does, is that the Greek counterpart of *only* is not truly scalar, whereas English *only*, itself, is. This difference can be seen in the following sentences; the English one is acceptable but the Greek one is not.

- (i) #O Yanis arjise na ksekinisi ke ji' afto eftase mono stis 11 m.m.
the Yanis was late start and for this arrived only at 11 p.m.
'Yanis was late getting started and that's why he only arrived at 11 p.m.'

In the English sentence, the use of *only* conveys that 11 is late. On the contrary, no such thing happens in Greek. The Greek sentence is somewhat nonsensical, as it conveys that the only time at which Yanis arrived was 11 p.m.

There is a topological parallel.

- (ii) O Yanis erchete apo tin Kalifornia me to treno. Ala aftin tin stigmi ine mono sto Chicago. Dhen
the Yanis comes from the California with the train but this the moment is only in.the Chicago_{NEG}
tha ftasi egeros ya ton gamo.
FUT arrive on.time for the wedding

4.1 Sufficiency?

We have called our construction the sufficiency modal construction, but a careful look at our semantics will reveal that we do not seem to give it a sufficiency semantics, in the customary logical sense of *sufficiency*.³⁵ In logical parlance, ϕ is a sufficient condition for ψ iff whenever ϕ is true, ψ will also be true.

So let us look again at our paradigm example. We say that *To get good cheese, you only have to go to the North End* means that in *some* of the worlds where you get good cheese, nothing other than you going to the North End happens. This is a far cry from saying that whenever you go to the North End, you get good cheese. In the following subsections, we will explore the fact that our semantics falls short of logical sufficiency, and we will suggest that our semantics does in fact capture the meaning of the SMC correctly (and also that it is not completely misleading to call it a sufficiency construction).

4.1.1 Additional Requirements First of all, our semantics captures the obvious fact that just going to the North End won't do for getting good cheese. You will have to enter a store, pick out some cheese, pay for it, and so on. This is covered by treating those additional required actions as not "other than" going to the North End—that is, as natural parts of going to the North End. We submit that it is right that our semantics does not deliver logical sufficiency here.

We would like to point out that even examples that use expressions that explicitly introduce the notion of sufficiency do not convey logical sufficiency. We find that the following variants of our sentence still do not convey that going to the North End is by itself logically sufficient for getting good cheese:

(117) To get good cheese, it is enough to go to the North End.

(118) To get good cheese, it suffices/it is sufficient to go to the North End.

'Yanis is coming from California by train. At this point, he is only in Chicago. He will not arrive in time for the wedding.'

Greek appears to have evaluative uses of its *only*, but Condoravdi points out that this is possible only with items that are scalar by themselves ('She is only 4 years old', 'He is only a soldier', etc.). Condoravdi's suggestion may well point to the crucial difference between languages that build an SMC with *only* and those that cannot.

But things are even more mysterious because at least in Greek, while its *only* cannot form an SMC with the possessive modal, it can do so with the equivalent of *need*. And there is a further complication that appears when an SMC is constructed in a relative. Greek, as noted earlier, cannot form an SMC with the possessive modal and *mono* 'only'.

- (iii) *... echis mono na pas sto North End.
have.2SG only NA go to.the North End

However, in a DP, this attempt succeeds with no problem.

- (iv) ... to mono (pragma) pu echis na kanis ine na pas sto North End.
the only (thing) that have.2SG NA do is NA go to.the North End
'... the only thing you have to do is go to the North End.'

Since we cannot explore the SMC in DPs in the current context, we will have to leave the contrast between (iii) and (iv) as a mystery for now, as well.

³⁵ This feature of our analysis was highlighted as a potential problem by Janneke Huitink. We thank her for her comments.

In the end, this should not be surprising. Natural language expressions rarely correspond in their meanings to the stripped-down meanings that simple logical systems traffic in. Since these explicit expressions of sufficiency have the same meaning as our SMC, we conclude that we did not misname the sufficiency modal construction, even though the meaning it carries does not convey logical sufficiency.

4.1.2 Causal Conjunction By the way, we have found that the causal conjunction variant of the SMC seems to convey something much closer to logical sufficiency. Consider the following contrasts:

- (119) If you want to learn what Morris is working on, you only have to go to the Stata Center.
- (120) To find out what Morris is working on, you only have to go to the Stata Center.
- (121) You only have to go to the Stata Center and you will find out what Morris is working on.

There is a difference in meaning between (119)/(120) on the one hand and the causal conjunction in (121) on the other. In (119)/(120), you can go to the Stata Center without necessarily finding out what Morris is working on—because you would have to take some obvious additional steps, asking someone about Morris for example. On the other hand, in the causal conjunction (121), going to the Stata Center will bring about the inescapable result of learning what Morris is working on. The sentence conveys that by the very fact of setting foot inside the Stata Center, you will learn what Morris is working on—because everybody is talking about it or because there is a huge sign on the wall or for some other reason. That is, going to the Stata Center will immediately cause you to learn what Morris is working on.

We have to admit that we do not know precisely how the causal conjunction variant of the SMC acquires this meaning, a meaning that is so much closer to logical sufficiency than the other variants. We leave this to (our) future research on the conjunction variant.

4.1.3 That's Enough There remains a concern. Our semantics seems to fail to match the intuitive meaning of the SMC because it seems to be compatible with there being worlds where you go to the North End *and* do all the other obvious actions but still don't get good cheese. Saying that some good-cheese worlds are worlds where you go to the North End (and do the obvious right things) does not entail that *all* of the worlds where you go to the North End (and do the right things) are worlds where you get good cheese. But the latter does seem to be what the SMC conveys.

Actually, we would like to argue that our semantics does deliver the stronger meaning, against first appearances. The reason is that the worlds we are quantifying over are all supposed to be the same as far as the relevant circumstances are concerned. That is, all the relevant conditions in these worlds are the same as in the evaluation world. So, if in some of the worlds going to the North End (and doing the right things) leads to getting good cheese, then it will do so in all of the worlds. In other words, for this kind of modality, existential and universal force collapse into the same meaning.

Let us illustrate this point. Imagine that to get to a certain island, one can either take a ferry, or swim across the channel, or cross the new and very convenient bridge. So, we would be likely to say that these days *to get to the island, you only have to cross the new bridge*. According to our semantics, this claims that in some of the accessible worlds (where therefore the geographical circumstances and so on are the same as in the actual world) where you get to the island, you do nothing other than taking the new bridge. Is it now conceivable that there are worlds where you cross the bridge but do not get to the island? No, as long as geography (etc.) remains constant, crossing the bridge does take you to the island.

This line of thought predicts that one could express the meaning of the SMC with an existential teleological modal. We think that this is correct. Consider:

(122) If you want good cheese, you can (just) go to the North End.

We submit that (122) has the same meaning as our paradigm sentence.

A thorough and more formal investigation of these issues must await a future occasion.

4.2 *Easiness*

At the outset of the article, we noted that one of the components of the meaning of the SMC is “easiness.” Consider our paradigm example again:

(123) To get good cheese, you only have to go to the North End.

Roughly, (123) is uttered in order to convey that getting good cheese in Boston is easy. How is this achieved? We will argue that the easiness of the “suggested means” (going to the North End) is derived morphosyntactically and that the easiness of the “stated goal” (getting good cheese) is achieved indirectly: if p is a way of achieving q and p is easy, this means that q is easy. That is, if the means to achieve a goal are easily accessible, then the goal is easily achieved. This means that if going to the North End enables you to get good cheese and if going to the North End is easy, perforce getting good cheese is easy.

Both the NEG + EXCEPTIVE and *only*-constructions have “diminishing” functions outside the SMC; that is, they are associated with a scale and their focus is low on the relevant scale. To illustrate with English, French, Greek, and Irish:

(124) He is only a soldier.

(125) Il n'est que soldat.
he NE-is QUE soldier

(126) Dhen ine para stratiotis.
NEG is EXCEPT soldier

(127) Níl ann ach saighdiúir.
NEG + is in.him but soldier
'He is only a soldier.'/'He is nothing but a soldier.'

So it is not surprising that items like NEG + EXCEPTIVE and *only* create an easiness implicature

when they appear in the SMC, by picking an element low on a scale—let us say, a scale of effort.³⁶

What are the elements on this scale of effort? Is it the stated goal as compared with other goals? Is it the suggested means as compared with other means to achieve the stated goal? Is it the suggested means as compared with other possible actions in the world (i.e., not just compared with actions that achieve the same goal)?

The semantic composition we are proposing dictates that the easiness/effort scale ranks the suggested means compared with other possible actions in the world and not compared with other actions that achieve the stated goal. In our analysis, we assign the following compositional structure:

(128) (To achieve stated goal), NEG have to do $\exists P$ other than suggested means.

The suggested means is available as early as the lowest component of the analysis (namely, the ‘‘other than’’ component) comes in. If easiness were sensitive to the stated goal, the easiness effect would have to be associated in a mysterious way with the entire construction.

So we argue that the SMC marks the suggested action as easy per se and not just as relatively easy compared with other ways of achieving the goal. To see this, consider the following example:

(129) To get the Nobel Prize, you only have to find the cure for cancer.

Let us assume that finding the cure for cancer is, in fact, a way of getting the Nobel Prize. Let us also assume that among the different ways there are to get the Nobel Prize, finding the cure for cancer is the easiest. So, if the SMC just required the sufficient action to be *relatively* easy, (129) should be unremarkable. But it certainly feels ‘‘funny,’’ precisely because we all know that finding the cure for cancer *isn't* easy. So, we take this to mean that the sufficient action is marked as easy per se by the construction. At the same time, we would probably not judge (129) as false in the scenario we sketched. Thus, easiness is not a truth-conditional entailment of the SMC but something like an implicature.

One more argument for this position (that easiness is not just comparing the suggested action with other actions that aim for the same goal) is this. A scale has to contain more than one item, as it provides a comparative ranking. So, constructions that rely on a nontrivial scale will ‘‘complain’’ if there is only one member in the scale. Thus, we find sentences like *You are my tallest son*, spoken to a single offspring, anomalous. Now, imagine that there is only one way to achieve a particular goal. That is, imagine for (130) that there is no other way to enter the room and for (131) that there is no other way to reach the island.

(130) If you want to get into that room, you only have to open that door.

³⁶ In fact, we might suspect that it is the common ‘‘other than’’ ingredient that creates the easiness effect. Note that the effect seems to persist in a periphrastic version of the SMC.

(i) If you want good cheese, you don't have to do anything other than go to the North End.

(131) To get to that island, you only have to take a half-hour ferry ride.³⁷

In the above contexts (when there is no other way to enter the room or to reach the island), these sentences are still fine. They are fine because the scales contain opening a door and taking a short ferry ride among the many other things that one can do in the world. If they contained single-element scales of comparison, they would be odd—therefore, we know that the scales in fact do not contain the one way to get to the room or the one way to get to the island.³⁸

4.3 More Than

The analysis we have developed here is this:

(132) (To get good cheese,) you NEG have to QUE go to the North End.

P: In all of the worlds where you get good cheese, you do something.

A: In some of the worlds where you get good cheese, it is not the case that you do something other than going to the North End.

For a number of reasons, one might think that instead of using ‘other than’ in the semantics of NEG + EXCEPTIVE, we could or should use ‘more than.’ For one thing, the SMC seems to rate the ways of achieving the goal and zero in on the easiest, least-effort-involving way. For another, Spanish uses exactly the words ‘more than’: *màs que*.

(133) No tienes *màs que* ir al North End.
 NEG have.to.2SG more than go to.the North End

Similarly, an English paraphrase with *more than* does not seem appreciably different in meaning from the SMC.

(134) (To get good cheese,) you don’t have to do more than go to the North End.

While French *que* certainly does not correspond to ‘more’ in an obvious way, it is tempting to think that it is in fact the same ‘than’ morpheme that appears in *plus que* ‘more than’.³⁹

³⁷ With a simple change, this example can be turned into one that makes the same point as the Nobel Prize example.

(i) To get to that island, you only have to take a three-day ferry ride.

³⁸ Pranav Anand and Valentine Hacquard, independently, have urged us to consider scenarios like this one. Imagine that we live in a town where good bread, made in artisanal bakeries, is outrageously overpriced, at say \$10 per loaf. Now, in the grand scheme of things \$10 is not a large amount of money. But *for bread*, it is a lot. Now consider:

(i) To get good bread in this town, you only have to pay \$10.

It seems that (i) is odd, even though paying \$10 is not that hard in general. So, somehow the stated goal appears to be available in the rating of the suggested means, contrary to what we have been suggesting in this section. What we would like to point out is that just as (i) is odd, so is (ii).

(ii) [Returning from the bakery:] I only paid \$10.

We suspect that the ‘goal’ can be pragmatically available even though it is not compositionally available (unless we resort to an ellipsis analysis and argue that the sentence is really *I only paid \$10 for the bread*).

³⁹ Similar considerations might apply to Greek *para*.

So, should we reframe the SMC as involving “more than” in its semantics? What we would be considering is a semantics like this:

(135) (To get good cheese,) you NEG have to EXCEPTIVE go to the North End.

P: In all of the worlds where you get good cheese, you do something.

A: In some of the worlds where you get good cheese, it is not the case that you do something *more than* going to the North End.

To evaluate the proposal, we need to be clear about what it would mean for something to be “more than” going to the North End. The obvious idea is that what we are comparing are amounts of effort. Something is more than going to the North End iff it involves more effort. With that assumption in place, what does (135) amount to?

Note that for now, we are assuming that the presupposition of “more than” would be the same existential presupposition that we posited for “other than.” But then the assertion is too weak to ensure that going to the North End is a way of getting good cheese. Imagine (counterfactually, thankfully) that there is no good cheese in the North End and imagine (truthfully, according to *Boston* magazine) that the best cheese shop in the Boston area is the Whole Foods Market in Cambridge. Since going to the North End involves more effort than going to the Whole Foods Market a few blocks from our house, it will be true that in some of the worlds where you get good cheese (namely, the ones where you go to Whole Foods), you don’t do anything more than going to the North End—in fact, you do something *less than* going to the North End. In this situation, then, (135) would be predicted to be true. That’s not good. The SMC certainly claims that going to the North End is a way of getting good cheese and shouldn’t come out true when it isn’t.

The diagnosis, in other words, is that the semantics in (135) says that going to the North End is a measure of effort that is at least as high as the easiest way of getting good cheese. It does not at all demand that going to the North End itself is a way of getting good cheese.

What could we do to fix this serious shortcoming of (135) as an analysis of the SMC? We could go back to positing a stronger presupposition: namely, that “you do something more than go to the North End” presupposes that you go to the North End. Then, we could combine this with the intermediate-accommodation proposal we considered in footnote 21 to produce the following analysis:

(136) (To get good cheese,) you NEG have to EXCEPTIVE go to the North End.

P: In all of the contextually selected worlds where you get good cheese, you go to the North End.

A: In some of the worlds where you go to the North End and get good cheese, it is not the case that you do something *more than* going to the North End.

This proposal has at least two problems: (a) it relies on the dubious mechanism of intermediate accommodation, and (b) it is not obvious that “more than” carries such a strong presupposition. We already gave reasons for not relying on intermediate accommodation in footnote 21. Let us therefore elaborate on the second problem.

Imagine two friends arguing about their workload during the preparations for a big event.

(137) A: Look! I did a lot of work. I got all the catering figured out.

B: OK, but I did more than figuring out the catering. I got us two very recalcitrant keynote speakers.

There does not seem to be any problem here: B is not claiming (or presupposing) that he got two speakers *in addition to* doing the catering; he's just saying that his contribution involved more effort than the catering. So, "more than" doesn't seem to come with the strong presupposition that was assumed in (136).⁴⁰

We could therefore conclude that using "more than" as an alternative to "other than" in the semantics for the SMC is not feasible. But there is one further consideration: why does Spanish use *màs que* in the SMC and why does the English paraphrase with *more than* at least *sound* like an adequate rendering of the SMC?

We suspect that in the end, it may turn out that "more than" here means exactly the same as "other than": namely, that for p to be more than q , it has to be the case that p is not part of q . In a part-whole hierarchy of actions, one could say that "other than" and "more than" amount to the same notion.

As support for this suggestion, consider (138).

(138) No vio màs que à Juan.
 NEG saw.1SG more than PARTICLE Juan
 'I saw only Juan.'

This sentence has no meaning that I saw nobody heavier than Juan, or any other, more run-of-the-mill comparative meaning. *Màs que* here simply has the normal exceptive meaning, and we suspect it does in the SMC as well.

5 Conclusion

An unremarkable-sounding sentence (*To get good cheese, you only have to go to the North End*) has turned out to involve an intricate interaction among negation, exceptives, and modals. We have argued that only an analysis that splits *only* into two ingredients and assigns those differential scope with respect to the goal-oriented modal will be able to give the construction a compositional semantics. The fact that this finally quite complex construction appears in so many languages continues to be puzzling. We hope that future research will further our understanding of this phenomenon.

⁴⁰ It might be possible to wriggle out of this quandary. Perhaps "more than" has two meanings, the one in (137) where it has at most the weak presupposition that something was done and another one where it has a stronger presupposition. But we will not pursue this further.

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