Distribution Inferences with DP-Taking Intensional Verbs[1]

Melanie BERVOETS — *UCLA*

Abstract. This project identifies two classes of DP-taking verbs that are associated with distribution inferences, or free-choice effects, when their objects are disjunctive. Here I present and explore one possible analysis of these predicates, which decomposes them into two parts—a manner of speech type verb, and a modal operator that accounts for the distribution effects. This proposal is designed to capitalize on the intensionality of the predicates, and to account for an additional empirical property, that negated instances of these predicates come in two flavors: one that negates that something has been communicated, and another that reports a negative claim.

Keywords: formal semantics, disjunction, free choice, attitude verbs, intensionality, modals.

1. Introduction

The two classes of predicates discussed in this paper are associated with several significant properties. First, they lead to distribution inferences, or free-choice effects, when their complements are disjunctive. Next, they are intensional. Finally, negation of the predicates in question appears to have an ambiguous character, sometimes constituting a denial that something has been communicated, and other times reporting a negative claim.

After demonstrating the relevant properties, this paper will take up one possible analysis of the predicates, and explore how well this strategy would account for the empirical patterns discussed. The proposal considered here decomposes each predicate into two parts, a manner of speech verb and a modal operator. The discussion is not intended as a knock-down argument for syntactic decomposition, but it will be shown that it certainly fares better than a simpler, directly quantificational attitude-style strategy.

1.1. Overview

Sections 2 through 4 serve as an introduction to the two classes of predicates, with each section detailing one of three significant properties. With a view to accounting for each of these properties, Section 5 presents a possible strategy for analyzing the two classes. Finally, Section 6 considers a more conservative analysis, which is simpler, but not sufficient to deal with all three of the empirical properties.

[1]This project, which is very much work in progress, has benefitted immensely from comments and suggestions from a number of people, including Vincent Homer, Philippe Schlenker, Yael Sharvit, and Benjamin Spector. Of course, remaining problems with the present analysis and its presentation here are not to be blamed on anyone but the author.

2. Property 1: Distribution Effects

2.1. Background

"Free choice effects", or distributive possibility entailments, are well-known in modal contexts (see, e.g. Kamp (1973), and Alonso-Ovalle (2006)). We see this below for a permission statement:

(1) Theodore may have pizza or pasta. *Implies:*
(i) Theodore may have pizza. AND (ii) Theodore may have pasta.
(Though he does not have explicit permission to gluttonously eat both meals.)

This inference is stronger than the traditional semantics of the sentence, which entails only that Theodore may have pizza or Theodore may have pasta.

The same semantically unexpected free choice inference holds for necessity statements:

(2) Theodore must have pizza or pasta. *Implies:*
(i) Theodore may have pizza. AND (ii) Theodore may have pasta.
(Though again, he doesn't have permission to eat both coincidently.)

Note however the absence of parallel necessity entailments for the *must* case in (3), as well as the complete absence of free choice effects found with extensional predicates, as in (4):

(3) Theodore must have pizza or pasta. *Does not imply:*
(iii) Theodore must have pizza. NOR (iv) Theodore must have pasta.

(4) Theodore had pizza or pasta. *Does not imply:*
(i) Theodore had pizza. NOR (ii) Theodore had pasta.

A number of theories exist that can derive all of these facts, e.g. Alonso-Ovalle (2006), Fox (2007),, and Chemla (2009), as well as the corresponding inference patterns found with other existential and universal operators:

(5) Some students had pizza or pasta. *Implies:*
(i) Some students had pizza. AND (ii) Some students had pasta.

(6) Every student ate pizza or pasta. *Implies:*
(i) Some students had pizza. AND (ii) Some students had pasta.

The first aim of this project is to account for why the transitive verbs presented below lead to distribution effects, and why some of these pattern like existential operators, and others like universal operators.

2.2. New Data

There are two classes of DP-taking verbs that are of interest. The first of these, which I dub "Class I", includes verbs that have free choice effects similar to those found with permission statements.

(7) *(Context 1) Joe's evening flight from Paris to Toronto has been cancelled by the airline at the last minute. The next flight is not until the morning, and an airline employee informs Joe that for the inconvenience, they offer $200 or a night in a nearby hotel. For whatever reason, Joe doesn't receive either the money or the hotel stay, and he eventually finds himself in court, attempting to collect what he feels he deserves. The following are hypothetical courtroom exchanges:*

Judge: Did the airline offer you money?
Joe: ✓ Indeed, they offered $200 or a night in a hotel.

Judge: Did the airline offer you a hotel stay?
Joe: ✓ Indeed, they offered $200 or a night in a hotel.

Judge: Did the airline offer you money and a hotel stay (as a package)?
Joe: # Indeed, they offered $200 or a night in a hotel.

Or more simply:

(8) The airline offered money or a hotel stay.
(a) $\Rightarrow$ The airline offered money.
(b) $\Rightarrow$ The airline offered a hotel stay.
(c) $\not\Rightarrow$ The airline offered money and a hotel stay (as a package).

That is, sentences with Class I predicates are like cases of permission or existential quantification: when the complement of the predicate is disjunctive, we can infer both of the two sentences created by replacing the object with either individual disjunct. (Though, again as in cases of permission, the stronger statement with the conjunction of the disjuncts cannot be inferred.)

Other Class I predicates are *okay*, *permit*, *support*, and *accept*.

The second class of predicates we are interested in will be called "Class II": those that have distribution effects that parallel those found with necessity statements.

(9) *(Context 2) Similar to above, except that the nearby hotel could only take in twenty guests, and the airline could only distribute $1000 total. There were 25 passengers. So the airline employee had told Joe that they promise to give him cash or a hotel stay, but that they would decide which passenger gets what in a random draw.*

Judge: Did the airline promise (you) money?
Joe: # Yes, they promised $200 or a night in a hotel.

Judge: Did the airline promise (you) a hotel stay?
Joe: # Yes, they promised $200 or a night in a hotel.

Judge: Did the airline promise (you) money and a hotel stay?
Joe: # Yes, they promised $200 or a night in a hotel.

Judge: Was money possible, and would it have satisfied the promise?
Joe: ✓ Yes, they promised $200 or a night in a hotel, so either would do.

Judge: Was a hotel stay possible, and would it have satisfied the promise?
Joe: ✓ Yes, they promised $200 or a night in a hotel, so either would do.

Or more simply:

(10) The airline promised money or a hotel stay.
(a) $\not\Rightarrow$ The airline promised money.
(b) $\not\Rightarrow$ The airline promised a hotel stay.
(c) $\not\Rightarrow$ The airline promised money and a hotel stay.
(d) $\Rightarrow$ Money was possible and would have satisfied the promise.
(e) $\Rightarrow$ A hotel stay was possible and would have satisfied the promise.

That is, sentences with Class II predicates are like cases of necessity or universal quantification: when the complement of the predicate is disjunctive, we cannot infer any of the sentences created by replacing the object with an individual disjunct or the conjunction of the disjuncts, but we can infer that every disjunct is a possibility (i.e. here, either the money or the hotel stay would have satisfied the airline's promise).

Other predicates in Class II are *demand*, *insist-on*, and *guarantee*.

We can contrast the Class I and II predicates with other transitive verbs, like the extensional *give*:

(11) *(Context 3) Again, the same situation as above, except that in court, an airline representative testifies that Joe was given the money or the hotel stay.*

Judge: Was Joe given the money?
Airline Rep: # Yes, he was given the money or the hotel stay.

Judge: Was Joe given the hotel stay?

Airline Rep: # Yes, he was given the money or the hotel stay.

Judge: Was Joe given the money and the hotel stay?
Airline Rep: # Yes, he was given the money or the hotel stay.

Judge: # Was money possible, and would it have satisfied their giving?
Airline Rep: # Yes, he was given the money or the hotel stay.

Judge: # Was a hotel stay possible, and would it have satisfied their giving?
Airline Rep: # Yes, he was given the money or the hotel stay.

Or more simply:

(12) Joe was given the money or the hotel stay.
(a) $\not\Rightarrow$ Joe was given the money.
(b) $\not\Rightarrow$ Joe was given the hotel stay.
(c) $\not\Rightarrow$ Joe was given the money and the hotel stay.
(d) $\not\Rightarrow$ # The money was possible and would have satisfied the giving.
(e) $\not\Rightarrow$ # The hotel stay was possible and would have satisfied the giving.[2]

In brief, the significance of the data introduced here is that sentences with Class I predicates have the same free choice effects as statements of possibility, and statements with Class II predicates have the same distribution inferences as statements of necessity. We would like a theory that can account for these patterns.

3. Property 2: Intensionality

Naively, given that other distribution effects are attributed to the presence of a modal or quantificational operator, we might assume that the Class I and Class II verbs are themselves somehow quantificational. This idea is given immediate credence by the observation that these predicates are intensional, as intensional verbs are often characterized as quantifying over possible worlds.

The intensionality of the Class I and Class II predicates can be established by their possession of the properties commonly taken to diagnose intensionality. This is shown for three of these properties below[3] :

(13) *Failure of necessary existential quantification*

Marc offered/promised a unicorn (as a graduation present). $\not\Rightarrow \exists x$ unicorn(x)

[2]Note that there is a sense in which the money and the hotel stay are possible—epistemically, they are possible objects of giving. This is fine: there is an epistemic/ignorance reading of the sentences of (8) and (10) as well; the critical point is that there is no non-epistemic/ignorance way to interpret the disjuncts in this extensional case.

[3]For a more complete rundown of intensional properties and how they are exhibited by the Class I and II predicates, please see Bervoets (2013).

(14) *Non-truth-preserving substitution of objects with extensionally equivalent DPs*

Marc offered/promised Clark Kent (in exchange for the hostages).
$\not\Rightarrow$ Marc offered/promised Superman (in exchange for the hostages).[4]

(15) *Existence of non-specific readings*

Marc offered/promised a film director (for the commencement speech)...
but told you to choose which one.

With intensionality attested to, a modal or quantificational analysis of the Class I and II predicates looks plausible.

4. Property 3: Negation of Class I and II Predicates

The last significant empirical property considered here is what happens with negation.

(16) Jamie didn't permit you to quit smoking...[5]
(a) Marc did/because he was preoccupied with other concerns.
(b) because it is good for your work.

With the continuation in (b), (16) seems to attribute to Jamie a negative claim, that you are not allowed to quit smoking. It also carries a presupposition that Jamie believes that you smoke. With either of the continuations in (a), on the other hand, the most likely interpretation is compatible

[4]Technically, this shows that the predicates are hyper-intensional.

[5]Here I gloss over an important issue: while it's true that the Class I and II verbs can take both DP and overt clausal complements, for any straightforward modal treatment of these predicates to go through, even the DP objects must be propositional at some level. As such, for the purposes of this paper, I assume that the DP complements of Class I and II verbs really stand for, and are exchangeable with, propositional material. This is controversial (see, e.g. Montague (1973), Larson et al. (1997), or Moltmann (2008), but there is not space here to present the evidence for and against this assumption. Bervoets (2013) contains much more on this, but for now, note that with respect to the properties discussed, changing a DP for a clausal complement has no effect on the patterns found. This is shown here for distribution inferences:

(1) Sophie offered to bring dessert or to bring wine. *Implies:*
(i) Sophie offered to bring dessert. AND (ii) Sophie offered to bring wine.

(Though she didn't explicitly offered to be extra generous and bring both.)

(2) Sophie demanded that you bring dessert or you bring wine. *Does not imply:*
(i) Sophie demanded that you bring dessert. NOR (ii) Sophie demanded that you bring wine.

Negation also has the same two flavors when the predicates have clausal objects, and intensionality is not lost with a change in complement. As a result, skeptics of the DP-as-clause assumption might just take this paper to be a discussion of DP-taking intensional verbs when they take clausal complements.

with Jamie not saying or thinking anything about your smoking. This reading is better described as a negation of a speech act. In this case, the sentence doesn't presuppose that Jamie believes that you smoke.

So the peculiar behavior of these predicates is that their negation appears to come in two flavors: one that negates a speech act, in which presuppositions do not project, and another that makes a negative claim, where presuppositions do project. This pattern is found with the Class II predicates as well:

(17) Jamie didn't insist on you quitting smoking...
(a) Ben did/because he was preoccupied with other concerns.
(b) he is somewhat less demanding than that.[6]

With the continuations in (17a), the most likely interpretation is compatible with Jamie not saying or thinking anything about your smoking. In particular, in this case the presupposition that Jamie believes you smoke is not projected. With the continuation in (b), the most likely interpretation is that Jamie suggested, but didn't insist, that you quit smoking. Here the presupposition that Jamie believes you smoke is projected.

5. Building Modal Quantification into Class I and II Predicates

This section investigates one analysis of the Class I and II predicates, which assumes that they can be decomposed into two parts. After laying out the basic hypothesis, we show how it takes into account their intensionality, their behavior with disjunctive objects, and the readings associated with negation.

The analysis presented here is inspired by Quine (1960), who, to account for the presence of non-specific readings, decomposed the intensional transitive *seek* into the propositional attitude *try* and the binary relation *find*. For the Class I and II predicates, the proposed decomposition is into a manner of speech verb and a modal operator. This will, as mentioned above in footnote 5, require that a DP object really stands for, or is a part of, an implicit clause. With this in mind, plausible decompositions of *permit* (Class I), and *insist-on* (Class II), could be as follows:

(18) **permit *p*** = claim (possibly p)
insist-on *p* = claim (necessarily p)[7]

For each predicate, at least two aspects of modal material would be specified. First is the force—either possibility or necessity. Second is an ordering source, or range of ordering sources (to be

[6] These (b) readings are especially salient with first person subjects, as in *I didn't insist on you leaving*.

[7] Perhaps even better than the manner of speech *claim*, would be *make*. This would more transparently capture the performative nature of the Class I and II verbs. Bervoets (2013) considers the merits of this variation.

further specified by context). For example, with *insist-on*, the ordering source might be the set of the subject's desires or demands, but for *guarantee*, it might be something like the set of things the subject is certain will occur.

For ease of exposition, the decomposition here is syntactic, but it's important to note that perhaps it need not be so: it could be that the lexical entries of these predicates conceptually break down into a speech act aspect and a quantificational aspect, but this is not encoded in the syntax. So what follows is not intended to argue that decomposition is necessarily syntactic, but merely to show how the story would work if it were. Again, I refer to Bervoets (2013) for considerations of other hypotheses (including decomposition that is not reflected in the syntax).

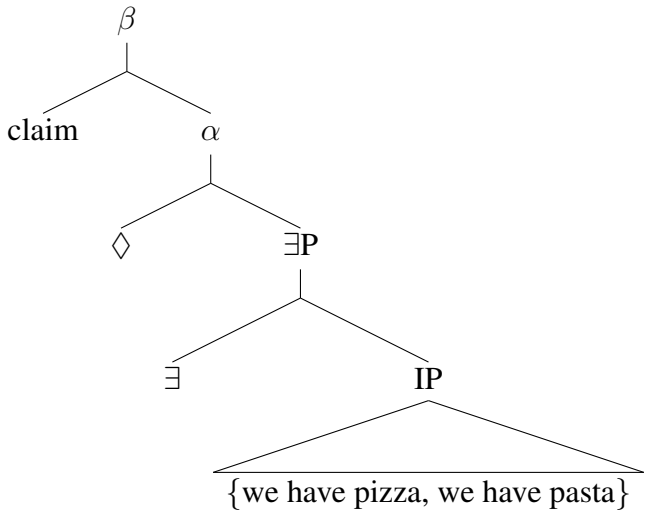
5.1. Decomposition and Intensionality

This strategy can easily account for the properties of intensionality. A claim that it is possible that I own a dragon, does not entail that there exists a dragon, or that the claimant has a particular dragon in mind. Furthermore, if someone claims it to be possible that I will talk to Ziggy Stardust, this does not entail that he or she claims it to be possible that I will talk to David Bowie.

5.2. Decomposition and Distribution Inferences

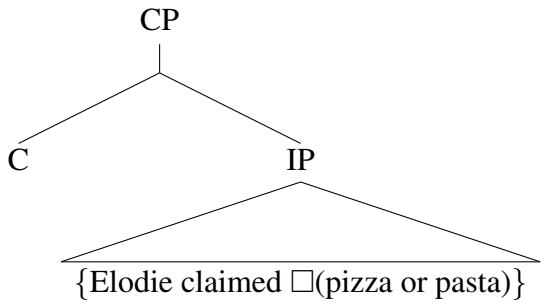
The distribution inferences are explained by the modal parts of the decomposed predicates, and in particular, the difference between the Class I and II verbs is attributed to a variation in force: existential for Class I, and universal for Class II. Exactly how this all works out will depend on the chosen story for free choice effects. Again due to space considerations, we do not go into how each theory works, but note that all of Alonso-Ovalle, Fox, and Chemla are compatible with decomposition. As a promissory note (to be expanded in full in Bervoets (2013)), we observe that with Alonso-Ovalle's alternative semantics approach, the distribution inferences would be calculated just above the modal node, and then fed (with the assistance of an inference-embedding operator like that of Chierchia (2005)) to the manner of speech verb, as below.

(19) *Elodie ... permitted pizza or pasta.*



For Fox and Chemla, who do not rely on alternative semantics, the inferences can be calculated at the clausal level, but the modal operators will account for why the inferences are found with these verbs, though not most transitive predicates.

(20) *Elodie ... insisted on pizza or pasta.*



5.3. Decomposition and Negation

To show how the two flavors of negation are derived, recall the Class I example from (16) above:

(21) Jamie didn't permit you to quit smoking...
(a) Marc did/because he was preoccupied with other concerns.
(b) because it is good for your work.

We can analyze the reading present in (a) as follows:

(22) ¬claim (Jamie, ∃*w*' compatible with what is acceptable in *w*, *you quit smoking*(*w'*)=1)

To get the reading in (21b), we turn to semantic accounts of "NEG-raising", or the phenomenon of unexpectedly strong interpretations in sentences with a negative term. Take (23) below:

(23) (a) No one wants Sarah to leave. *Can mean:*
(b) Everyone wants Sarah not to leave.

The expected reading of (23a) is weak: just that no one actively desires that Sarah leave. However, a stronger "NEG-raised" reading equivalent to (b) is possible, and even preferred: that everyone actively desires that Sarah stay.

Bartsch (1973) attributes the (b) reading to the calculation of a "homogeneity" inference:

(24) **Homogeneity Inference**
A NEG-raising predicate is true of either its complement or its negation.

So for (23), the NEG-raised reading comes about as follows:

(25) (a) Assertion: $\neg\exists x$ want (x, Sarah leaves)
(b) Homogeneity Inference: $\forall x$ want (x, Sarah leaves) OR $\forall x$ want (x, $\neg$(Sarah leaves))
(c) Assertion + Homogeneity Inference: $\forall x$ want (x, $\neg$(Sarah leaves))

Now we can go back to (21), and show how the (b) reading is derived.

(26) (a) Assertion: $\neg$claim (Jamie, $\exists w$' compatible with what is acceptable in w, *you quit smoking*(w')=1)
(b) Homogeneity Inference: claim (Jamie, p) or claim (Jamie, $\neg p$)
(c) Assertion + Homogeneity Inference: claim (Jamie, $\neg\exists w$' compatible with what is acceptable in w, *you quit smoking*(w')=1)[8]

From Class II, we had the example in (17):

(27) Jamie didn't insist on you quitting smoking...
(a) Ben did/because he was preoccupied with other concerns.
(b) he is somewhat less demanding than that.

[8]Note that this means the *claim* that forms a part of *permit* is NEG-raising, but the stand-alone *claim* is not. One explanation for this comes from the pragmatic characterization of the homogeneity inference that is mentioned above example (30) below.

We can capture the (a) interpretation as follows:

(28) ¬claim (Jamie, ∀*w*' compatible with what is acceptable in *w*, *you quit smoking*(*w'*)=1)

To get the reading in (b), we again turn to NEG-raising.

(29) (a) Assertion: ¬claim (Jamie, ∀*w*' compatible with what is acceptable in *w*, *you quit smoking*(*w'*)=1)
(b) Homogeneity Inference: claim(Jamie, *p*) or claim(Jamie, ¬*p*)
(c) Assertion + Homogeneity Inference: claim (Jamie, ¬∀*w*' compatible with what is acceptable in *w*, *you quit smoking*(*w'*)=1)

But what is the nature of this homogeneity inference? We could say it is a presupposition, and that each of the Class I and II predicates is really two-way ambiguous, with one lexical entry being associated with the presupposition, and the other not. This strategy introduces a lot of lexical ambiguity, but does have the virtue of accounting for why some transitive verbs, even some attitude verbs, never have NEG-raised readings: homogeneity is a presupposition that is lexically specified.

Alternatively, we could think of the homogeneity inference as a soft presupposition, lexically associated with certain predicates, but only sometimes being triggered (as in Gajewski (2007)). In this case we have no ambiguity, but would have to look for principled reasons why the presupposition is triggered in certain environments but not others.

The homogeneity inference could also be a pragmatic implicature (as in Homer (2012)). In this case too, there would just be one *permit*, but with no presupposition. Instead, just like other pragmatic implicatures, the homogeneity inference would be calculated, and cancelled, as the context allows. This would avoid widespread ambiguity and the murkiness of sometimes triggers, but would require other means to account for why only some attitudes allow for NEG-raised readings. While this might be tricky when the complete range of NEG-raisers and non-NEG-raisers are taken into consideration, I would like to suggest that there might be a class of verbs that uniformly admit of NEG-raised readings—those that syntactically decomposed into two parts, with the second part something quantificational or gradable. Take the followings predicates: *take-kindly-to*, *think-well-of*, and *speak-highly-of*. NEG-raised readings are available (and strongly preferred) for each:

(30) (a) Yolanda didn't take kindly to getting her new colleague. *Most likely means:*
(b) Yolanda actively disliked her new colleague. (i.e. she did have a take)

(31) (a) Yolanda's didn't think well of the minister. *Most likely means:*
(b) Yolanda's had explicit misgivings about the minister. (i.e. she did think)

(32) (a) Yolanda didn't speak highly of the editors. *Most likely means:*
(b) Yolanda had negative things to say about the editors (i.e. she did speak of them)

I don't wish to argue here that all NEG-raisers fall into this class (though if so, it would explain the existence of semantically similar pairs that differ in the availability of NEG-raised readings, like *is-certain* and *know*), but just to suggest that being a NEG-raiser may not be an arbitrary lexical specification after all, and that maybe a principled pragmatic explanation can still be sought.

For now though, this debate is far from settled, and is much more nuanced than can be presented here. The question is taken up in greater detail in Bervoets (2013).[9]

6. How an Attitude Style Account Would Fail

Before we conclude, remember that decomposition is certainly not the only way to analyze the Class I and II predicates. In particular, a less radical strategy would be to analyze them like the better known attitude verbs, which are taken to encode modal quantification in a more straightforward manner. For instance, an attitude verb like *believe* is often given the following semantics:

(33) $[\![\text{believe}]\!]^{w,g}$= $\lambda p.\lambda x.\forall w'$ compatible with what x believes in w: $p(w')$=1

This kind of analysis does look it might be profitably adapted for the Class I and II verbs, as it has modal quantification (and the intensional characteristics that go along with it) built in. As above, we could try to account for the different distribution patterns, by assigning a universal quantifier to the Class II verbs, and an existential one to those in Class I:

(34) $[\![\text{insist-on}]\!]^{w,g}$= $\lambda p.\lambda x.\forall w'$ compatible with what x says is good in w: $p(w')$=1

(35) $[\![\text{permit}]\!]^{w,g}$= $\lambda p.\lambda x.\exists w'$ compatible with what x says is good in w: $p(w')$=1

[9]The presupposition and implicature accounts of the homogeneity inference have different ways to account for why there are no "extra-NEG-raised" readings, where the negation is interpreted even lower in the complement. That is, they differ in how they predict that (b) below is not a reading of (a):

(1) (a) Yolanda didn't offer to come in early. *Cannot mean:*
(b) Yolanda offered to not come in early.

If the homogeneity inference is a presupposition like above, then the presupposition itself is lexically specified (the only predicted inference being that Yolanda said it was possible that she come in early or she said it was not possible that she come in early), and says nothing that might lead to (b). If the homogeneity inference is an implicature, we would need to explain why it is calculated for the *claim* part of *claim-possible* (i.e. for the *claim* part of *offer*), and not for *offer* as a whole. This would be taken care of if there is indeed only a principled class of predicates (like the two-parted class proposed above) for which the implicature is calculated.

However, these attitude-style analyses are at a loss to explain the negation data, and in particular the two readings found with the Class I verbs. Recall the example (16) from above:

(36) Jamie didn't permit you to quit smoking...
(a) Marc did/because he was preoccupied with other concerns.
(b) as it is good for your work.

Using the entry for *permit* given in (35), negation gives us something fairly strong (a negated existential). This could work for (36b):

(37) $\neg\exists w'$ compatible with what Jamie says is good in w, such that you quit smoking in w'.

But then how do we get the reading in (36a)? NEG-raising won't help:

(38) (a) Assertion: $\neg\exists w'$ compatible with what Jamie says is good in w, such that you quit smoking in w'
= $\forall w'$ compatible with what Jamie says is good in w, you don't quit smoking in w'
(b) Homogeneity Inference: permit (Jamie, p) or permit (Jamie, $\neg p$)
(c) Assertion + Homogeneity Inference: = $\forall w'$ compatible with what Jamie says is good in w, you don't quit smoking in w'[10]

Here (a) entails (b) (provided there are permissible worlds), and so (c) comes out the same as the non-NEG-raised reading. That is, the mechanism thought to be responsible for NEG-raising in other cases does not lead to a new reading here.[11]

7. Conclusions and Questions

Decomposing the Class I and II predicates into modal and manner of speech elements takes care of the empirical properties we set out to address: it incorporates intensionality, attributes the vari-

[10] A different characterization of homogeneity requires that the subject be consistent and opinionated, i.e. that for the subject, either something claims in all possible worlds, or in none of them. In this case, we could calculate the following NEG-raised reading:

(1) (a) Assertion: $\neg\exists w'$ compatible with what Jamie says is good in w, such that you quit smoking in w'
= $\forall w'$ compatible with what Jamie says is good in w, you don't quit smoking in w'
(b) Homogeneity Inference: $\forall w'$ compatible with what Jamie says is good in w, you quit smoking in w' OR $\forall w'$ compatible with what Jamie says is good in w, you don't quit smoking in w'
(c) Assertion + Homogeneity Inference: $\forall w'$ compatible with what Jamie says is good in w, you don't quit smoking in w'

Again, this is the same as (a), and is too strong to characterize the "weaker" reading of (36a).

[11] Note that a different mechanism, which simply gave negation low scope, would lead to the reading *permit (Jamie,* ¬p*)*. This, of course, is not an available reading of (36a).

ous distribution inference behaviors to covert possibility/necessity operators, and accounts for the patterns of negation found.

However, this was just one possible analysis for the Class I and II predicates, and several important open questions point to alternate analytical strategies. Not least among these questions were the following:

(1) What is the nature of the DP complements of the predicates? Here they are taken to represent propositional material, but this is controversial, and critical, because propositionality is key to any modal characterization of the Class I and II verbs.

(2) What kind of decomposition is required if indeed decomposition is the way to go? Here we have taken it to be syntactic, but perhaps the same results can be had with only semantic decomposition.

(3) If NEG-raising and homogeneity are really the best way to deal with the negation data, what is the best way to characterize the homogeneity inference? As something lexically specified, or pragmatically derived?

These considerations form part of Bervoets (2013), a much more comprehensive study of the Class I and II predicates.

References

Alonso-Ovalle, L. (2006). *Disjunction in Alternative Semantics*. Ph. D. thesis, University of Massachusetts Amherst.

Anand, P. and V. Hacquard (2008). Epistemics with attitude. In T. Friedman and S. Ito (Eds.), *SALT XVIII*, Ithaca, NY. Cornell University.

Bartsch, R. (1973). Negative 'transportation' gibt es nicht. *Linguistische Berichte 27*(7).

Bervoets, M. (2013). *(In preparation). Untitled*. Ph. D. thesis, UCLA.

Chemla, E. (2009). Similarity: towards a unified account of scalar implicatures, free choice permission and presupposition projection. *Under revision for Semantics and Pragmatics*.

Chierchia, G. (2005). Broaden your views: implicatures of domain widening and the 'logicality' of language. Ms. University of Milan-Bicocca/Harvard University.

Fox, D. (2007). Free choice and the theory of scalar implicatures. *Presupposition and implicature in compositional semantics*, 71–120.

Gajewski, J. (2007). Neg-raising and polarity. *Linguistics and Philosophy 30*, 289–328.

Homer, V. (2012). Neg-raising and positive polarity: the view from modals. *Semantics and Pragmatics (accepted with minor revisions)*.

Kamp, H. (1973). Free choice permission. In *Proceedings of the Aristotelian Society*, Volume 74, pp. 57–74. The Aristotelian Society: Blackwell Publishing.

Larson, R., M. den Dikken, and P. Ludlow (1997). Intensional transitive verbs and abstract clausal complementation. *Linguistic Inquiry*.

Moltmann, F. (2008). Intensional verbs and their intensional objects. *Natural Language Semantics 16*(3), 239–270.

Montague, R. (1973). On the proper treatment of quantification in ordinary english. *Approaches to Natural Language 49*, 221–242.

Quine, W. V. O. (1960). *Word and Object*. Cambridge, Mass: MIT Press.