Wanting the impossible and the inevitable: Monotonicity and the doxastic presuppositions of want-sentences

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Heim (1992) proposes that sentences of the form a wants p presuppose that p is consistent with but not entailed by a’s doxastic alternatives (or a superset of a’s doxastic alternatives that ignores beliefs that stem from a’s intentions to act). Despite well known counterexamples like I want this weekend to last forever, versions of Heim’s proposal have been incorporated into many subsequent approaches to want-sentences, and Heim’s proposal is in principle compatible both with non-monotonic analyses (a version of which Heim herself adopts) and with monotonic analyses (such as von Fintel 1999). I argue for two main conclusions. First, want-sentences are sometimes evaluated relative to a proper superset of the attitude holder’s doxastic alternatives (as also argued by Rubinstein 2017), but (unlike on Rubinstein’s approach) these supersets are calculated in the same way as they are for counterfactual desire reports (wish-sentences) or factive desire reports (be glad-sentences), and this happens only as needed to ensure diversity of the alternatives with respect to the prejacent. Second, von Fintel (1999) is correct (pace Heim 1992) that want-sentences are monotonic, once one controls for shifts in the modal base. The account poses an apparent puzzle for Maximize Presupposition, since be glad and wish fail to block want even though want is presuppositionally weaker. I suggest in response that this is because want is a restructuring verb; as a result, be glad- and wish-sentences are structurally more complex than want-sentences and therefore — following Katzir’s (2007) structurally-defined approach to alternatives — not in competition with them.

1 Introduction

Heim (1992) proposes that sentences of the form a wants p presuppose that p is consistent with but not entailed by a’s doxastic alternatives. In light of the appar-
ent counterexample in (1) which is felicitous even if John believes he’ll go to the movies tonight, Heim suggests a revision to her proposal whereby the presupposition is sometimes sensitive not to the attitude holder’s doxastic alternatives per se but rather to a superset thereof that ignores beliefs that stem from a’s intentions to act. This defuses the counterexample on the reasonable assumption that John’s belief that he’ll go to the movies tonight is grounded in his intention to do so.

(1) (John hired a babysitter because) he wants to go to the movies tonight. [Heim 1992:199]

In light of the apparent counterexample in (2) which is felicitous even though the speaker does not believe that this weekend will last forever, Heim suggests that possibly here as well not all of the attitude holder’s beliefs are taken into account, but Heim does not develop the suggestion further and instead leaves it as a “loose end”.\(^1\) If Heim’s suggestion is on the right track, then we are still in search of a principled answer to the question of what beliefs can be ignored in calculating the doxastic presuppositions of want-sentences.

(2) I want this weekend to last forever. (But I know, of course, that it will be over in a few hours.) [Heim 1992:199]

Loose ends aside, Heim’s proposal regarding the presuppositions of want-sentences is in principle compatible both with non-monotonic approaches to want-sentences (a version of which Heim herself adopts) as well as with monotonic approaches such as that proposed by von Fintel (1999), who explicitly adopts the doxastic presuppositional components of Heim’s analysis.

More recent work on the semantics of want-sentences includes Giannakidou 1999; Levinson 2003; Villalta 2008; Crnič 2011; Lassiter 2011; Rubinstein 2012, 2017; Anand and Hacquard 2013; Maier 2015; Condoravdi and Lauer 2016; Phillips-Brown to appear. While varying in their details, most of them incorporate some version of Heim’s presuppositional component. One noteworthy exception is Rubinstein (2012), who considers (2) and suggests that “possibilities that are relevant for a desire statement may be possibilities that are circumstantially accessible, yet doxastically inaccessible. Although it is impossible for any Sunday to last more than 24 hours, it is possible — circumstantially — that my work engagements on Monday will be canceled and my ‘weekend’ will last one day longer” (p. 116). What seems to be needed for (2), however, are worlds where the weekend in question lasts forever rather than worlds where the weekend is merely extended by one

\(^1\)Another possibility Heim (1992) entertains for (2) is that it “might be seen as reporting the attitude of a mildly split personality. The reasonable part of me knows and is resigned to the fact that time passes, but the primitive creature of passion has lost sight of it” (p. 200).
day. And it is not clear to me that circumstantial accessibility is the right notion for achieving this.2

This paper argues for two main conclusions. First, Heim is correct that a wants p is sometimes calculated against a superset of a’s doxastic alternatives. But intentions do not always play a role in determining the superset; instead, the relevant superset is sometimes the same kind involved in calculating the truth conditions of counterfactual desire reports (wish-sentences) or factive desire reports (be glad-sentences), and this is done only as needed to ensure diversity of the alternatives with respect to the prejacent. (The view that want-sentences are sometimes calculated against a superset of the attitude holder’s doxastic alternatives is also espoused by Rubinstein 2017, building on Villalta 2008, although for reasons different from those considered here and formalized in a different way. More on this below.) A secondary conclusion is that — pace Heim (1992) — von Fintel (1999) is correct that a wants p is monotonic (i.e., upward-entailing on p), once one controls for shifts in the modal base (as also recently argued for by Crnić 2011). The proposed account ends up posing an apparent puzzle for Maximize Presupposition, since be glad and wish fail to block want even though want is presuppositionally weaker. I suggest in response that this is because want is a restructuring verb; as a result, be glad- and wish-sentences are structurally more complex than want-sentences and therefore — following Katzir’s (2007) structurally-defined approach to alternatives — not in competition with them.

The organization of the rest of the paper is as follows. Section 2 builds up to an informal sketch of the proposal. Section 3 presents a preliminary formalization of the proposal using technology for building counterfactual modal bases. Section 4 extends the analysis to factive uses of want-sentences. Section 5 suggests a way

2An anonymous reviewer suggests that forever in (2) is interpreted metaphorically, so that the desire being expressed is not literally for an eternal weekend but rather for a weekend that is merely extended (how far extended is unclear, though the reviewer suggests that it would at least be upperbounded by the attitude holder’s lifetime). If this is right, it does not affect the overall point being made here, so long as the extended weekend remains doxastically and circumstantially inaccessible. Examples of impossible desires that do not encounter this complication include (i-a–b) from Grano 2017:591, which seem fairly felicitous even when their content is read literally; compare the minimal variants in (ii-a–b) that use intend and hope instead of want. As Grano observes for the intend variants (and the same holds for the hope variants), these are either infelicitous or at least portray John as irrational.

(i)  a. John wants to fly to the moon, even though he knows this is impossible.
    b. John wants to turn into a unicorn, even though he knows this is impossible.

(ii) a. #John intends/hopes to fly to the moon, even though he knows this is impossible.
    b. #John intends/hope to turn into a unicorn, even though he knows this is impossible.
of simplifying the semantics by building on Stalnaker’s (1975) idea that in some cases, modal base worlds are presupposed to be more similar to each other than to any worlds outside the modal base; this works in concert with the other proposed technology to ensure that the modal base for want is expanded out from the attitude holder’s doxastic alternatives only as needed to ensure its diversity with respect to the prejacent. I also discuss here and try to defuse an apparent puzzle this view poses for what Rubinstein (2017) calls the Doxastic Problem. Finally, section 6 reconciles the proposed account with the apparent puzzle that it poses for Maximize Presupposition.

2 An informal sketch of the proposal

Consider the paired desire reports in (3), taken from Grano (2017:592) ((3-a) modeled after Heim 1992:195 and (3-b) after Anand and Hacquard 2013:19). They demonstrate want displaying apparently non-monotonic behavior. Grano says that he “infix[es] . . . but given that he has to . . . between the relevant pieces because this helps reinforce the felicity of such sentences, a fact which is no doubt an important clue into how these sentences work.” But Grano does not develop the suggestion any further; i.e., he does not say anything about how the sentences work nor about the role of the but given . . . phrase.

(3) a. John doesn’t want to teach next semester, but given that he has to, he wants to teach Tuesdays and Thursdays.
   b. John doesn’t want to die, but given that he has to, he wants to die quickly.
   c. John doesn’t want to use his voice, but given that he has to, he wants to sing.
Here then is a suggestion: in each example, the first (neg-raised\(^3\)) desire report is evaluated against a superset of the attitude holder’s doxastic alternatives, a superset that is too weak to entail that John teaches next semester (or dies, or uses his voice). Then, the *but given...* phrase acts as an instruction to narrow down the modal base to exclude worlds where John does not teach next semester (or die, or use his voice). The second desire report is then evaluated against this narrower base. And this is fully consistent with a monotonic semantics for *want* (i.e., once we control for the change in the modal base), just as von Fintel (1999) would have it.

Things get interesting when we ask: What are the rules for calculating the superset of doxastic alternatives that *want*-sentences can be evaluated against? Evidently it is not the case that anything goes, as witnessed by the data in (4), which show what happens when we take another kind of apparent monotonicity failure that has been discussed in the literature and try to put it into the same format as (3-a–c): (4-a) is inspired by an example from Asher (1987) that is further discussed by Heim (1992); von Fintel (1999). (4-b) is inspired by von Fintel (1999), based on an example that von Fintel attributes to Heim (class notes).

(4)  
   a. #John doesn’t want a trip on the Concorde, but given that he can have one for free, he wants a free trip on the Concorde.
   b. #John doesn’t want to buy this couch, but given that he can buy it at a 25% discount, he wants to buy this couch at a 25% discount.

If (4-a–b) were felicitous, then we would have said that the first (neg-raised) desire report is evaluated against a superset of the attitude holder’s doxastic alternatives too weak to entail that John can ride the Concorde for free (or buy the couch at a 25% discount), and then the same reasoning as above applies. But evidently this is not allowed. And regardless of why not, the facts in (4) are not only consistent with but actually imply that *want* is monotonic. For whatever reason, the shift in modal base fails, betraying the underlyingly monotonic nature of *want*.

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\(^3\)I focus here and throughout on the neg-raised interpretation of sentences of the form *a doesn’t want p* (without assuming any particular theory of neg-raising). One reason for thinking that the neg-raised interpretation is the one relevant to the argumentation here is that sentences like (3-a) can be paraphrased using *wish* for the first desire report (a fact that will play an important role in the analysis below); crucially, *wish* is not a neg-raising predicate and the variant with low negation (i) sounds much better than the version with high negation (ii) as a paraphrase of (3-a).

(i) (3-a) \(\approx\) John wishes he weren’t teaching next semester, but given that he has to, he wants to teach Tuesdays and Thursdays.

(ii) (3-a) \(\not\approx\) John doesn’t wish he were teaching next semester, but given that he has to, he wants to teach Tuesdays and Thursdays.
So what is the crucial difference between the cases in (3) and the cases in (4)? Were (3-a) our only piece of positive data, it would be very tempting to reason as follows: Heim (1992) proposes that want-sentences can be calculated using the superset of the attitude holder’s doxastic alternatives that ignores beliefs grounded in the attitude holder’s own intentions to act, as in (5) (I adopt von Fintel’s 1999 convention of appending an asterisk to Dox to denote the relevant superset).

(5) \[ \text{Dox}^*_{x,w} = \{ w': w' \text{ is compatible with everything that } x \text{ in } w \text{ believes to be the case no matter how he chooses to act} \} \]  
[based on Heim 1992:199]

In (3-a), the first (neg-raised) desire report is calculated against exactly this superset: John’s belief that he’ll teach next semester is underpinned by his intention to (fulfill his obligation to) do so. The \textit{but given...} phrase then triggers an implicature that John intends to fulfill his obligations to teach. This in turn triggers a narrowing of the modal base in the second desire report to worlds where John does indeed teach next semester; i.e., we are no longer ignoring this particular intention-grounded belief. As independent evidence that obligation reports sometimes implicate intention reports, consider the hypothetical exchange in (6). B can affirmatively answer A’s question about an intention by asserting a corresponding obligation.

(6) A: Do you intend to teach next semester?  
B: Well, I have to.

Unfortunately, though, this approach fails to generalize to (3-b)–(3-c). (3-b), for example, is felicitous even on the highly reasonable assumption that John does not \textit{intend} to die. Further reinforcing the implausibility of an intention-based account is (7): (7) is perfectly felicitous even if John is an innocent bystander and has no intentions to precipitate Mary’s death. Consider, for example, a situation where Mary is dying of a terminal illness and John hopes that her death, when it eventually comes, will be quick and painless.

(7) John doesn’t want Mary to die, but given that she has to, he wants her to die quickly.

Back to the drawing board. What is in common to John’s intention to fulfill his obligation to teach and John’s resignation that he (or Mary) is going to die? Taking the \textit{... but given that he/she has to...} phrase at face value, we might hypothesize that what they have in common is simply that John is treating them as inevitable. Could we then account for all the facts by replacing Heim’s (5) with (8)?

(8) \[ \text{Dox}^{**}_{x,w} = \{ w': w' \text{ is compatible with everything that } x \text{ in } w \text{ believes to be} \]
the case, discounting outcomes x believes to be inevitable}

The problem with this approach is that it overgenerates: there are too many varieties of inevitable outcomes. Consider for example the inevitable outcomes believed by John in (9-a–b), which are crucially not sufficient for rescuing the infelicity of the examples in (4).

(9) a. John believes that it is an inevitable outcome that when he goes to reserve a trip on the Concorde, he will be offered a free ticket.
   b. John believes that it is an inevitable outcome that when he goes to buy the sofa, he will charm the salesperson and the salesperson will offer him a 25% discount.

Consequently, I suggest that the crucial difference between the cases in (3) and the cases in (4) is that in (3), the modal base for the first desire report is built by taking John’s doxastic alternatives and scaling out to some superset that is consistent with the prejacent (i.e., where some worlds are ones in which John does not teach next semester, or does not die, or does not use his voice). In (4), by contrast, this strategy would be no help: scaling out to a superset of John’s doxastic alternatives that includes worlds where he does not take a trip on the Concorde (or does not buy this couch) does not necessarily let in worlds where riding the Concorde necessarily costs money or where this couch can only be bought at full price (unless John in fact believes that riding the Concorde costs money or that this couch can only be bought at full price, but then this would contradict the but given... phrase).

This suggests a principle: the modal base for want can only scale out from doxastic alternatives by letting in some worlds where the prejacent holds. And this is just as it is for counterfactual desire reports; i.e., we see this behavior elsewhere. Further supporting this line of reasoning is that if we make the first desire report in each pair explicitly counterfactual by using a wish-sentence, we get exactly the same contrast between the two sets of examples:

(10) a. John wishes he weren’t going to teach next semester, but given that he has to, he wants to teach Tuesdays and Thursdays.
   b. John wishes he weren’t going to die, but given that he has to, he wants to die quickly.
   c. John wishes he weren’t going to use his voice, but given that he has to, he wants to sing.

(11) a. #John wishes he weren’t going to take a trip on the Concorde, but given that he can have one for free, he wants a free trip on the Concorde.
   b. #John wishes he weren’t going to buy this couch, but given that he can buy it at a 25% discount, he wants to buy this couch at a 25% discount.
So the proposal is that under some conditions, want behaves like a counterfactual desire predicate, i.e., just like wish. Independent evidence comes from well known data like (12-a) (Heim’s example repeated from above) and (12-b), which are faithfully paraphrased by (13-a–b) respectively.

(12) a. I want this weekend to last forever. (But I know, of course, that it will be over in a few hours.)
   b. I want to build a perpetual motion machine. [Portner and Rubinstein 2012:472]

(13) a. I wish this weekend would last forever.
   b. I wish I could build a perpetual motion machine.

3 A preliminary formalization

I start with the Kratzer 1981-style modal semantics for want-sentences proposed by von Fintel (1999:117), shown in (14). According to (14), the predicate want comes with an index $i$ and is evaluated relative to two functions $f$ and $g$ from indices to functions from individuals and worlds to sets of worlds. After want combines with its prejacent $p$ and its subject $\alpha$, the result is defined relative to evaluation world $w$ only if the modal base $f_i(\alpha, w)$ (i) is equal to the attitude holder’s doxastic alternatives in $w$, (ii) is consistent with the prejacent, and (iii) does not entail the prejacent. It is relevant to point out that conditions (ii) and (iii) are plausibly not unique to want-sentences but instead a more general constraint on how modal bases relate to their prejacents; it is sometimes known as the diversity condition (see Condoravdi 2002). In this case it has as a consequence that a sentence of the form $a$ wants $p$ is defined only if $p$ is consistent with but not entailed by $a$’s beliefs, following Heim (1992). If defined, the want-sentence denotes true iff the $f_i(\alpha, w)$-worlds that are the most highly ranked with respect to the ordering source $g_i(\alpha, w)$ are all worlds where the prejacent is true.

\[
\text{want}_{i}^{f,g}(p)(\alpha)(w) \text{ is defined only if }
\begin{align*}
\text{(i)} & \quad f_i(\alpha, w) = \Dox(\alpha, w) \\
\text{(ii)} & \quad f_i(\alpha, w) \cap p \neq \emptyset
\end{align*}
\]

One function this serves (and Heim’s motivating consideration) is to block entailments from $\alpha$ believes $p$ to $\alpha$ wants $p$. If John believes it will rain tomorrow, this surely does not entail that he wants it to rain tomorrow. But if John’s doxastic alternatives entail that it will rain tomorrow, then it follows trivially that any subset of his doxastic alternatives (including the subset that best satisfies his desires) also entails that it will rain tomorrow (a variant on Prior’s 1958 Good Samaritan Paradox). The diversity condition prevents the entailment from going through by treating the entailed proposition as a presupposition failure.
For counterfactual desire reports (\textit{wish}-sentences), von Fintel (1999:126) first proposes (15). On this setup, the only difference between \textit{want}-sentences and \textit{wish}-sentences lies in their definedness conditions. In (15), the condition in (i) ensures counterfactuality, and (ii) ensures that the modal base is a superset of the attitude holder’s doxastic alternatives. (iii) and (iv) are the same as (ii) and (iii) above; they simply reflect the diversity condition.

\begin{enumerate}
\item \text{Dox}(\alpha, w) \cap p = \emptyset
\item \text{Dox}(\alpha, w) \subseteq f_i(\alpha, w)
\item f_i(\alpha, w) \cap p \neq \emptyset
\item f_i(\alpha, w) \cap p \neq \emptyset
\end{enumerate}

If defined, \( \text{[wish]}_{f,g}(p)(\alpha)(w) = 1 \) iff 
\( \forall w' \in \max_{g_i(\alpha, w)}(f_i(\alpha, w)) : w' \in p \) [von Fintel 1999:117]

As von Fintel points out, however, the conditions in (ii)--(iv) only provide a “lower bound” on what worlds go into the modal base of a \textit{wish}-sentence. He suggests in prose a way of establishing the upper bound. The idea is that the modal base is the union of three sets: (1) the attitude holder’s doxastic alternatives, (2) those worlds where the prejacent holds that are most similar to the evaluation world, and (3) any remaining worlds that are more similar to the evaluation world than the most similar worlds where the prejacent holds. A concern for this approach is that it uses similarity \textit{to the evaluation world} in building the counterfactual modal base. The problem with this is that it doesn’t leave room for the possibility that one could have a counterfactual desire that depends on one’s being mistaken about which worlds are most similar to the actual world. To remedy this, I will follow Heim (1992) in using similarity \textit{to the attitude holder’s doxastic alternatives} to build counterfactual modal bases. In (16), this is formalized by treating the modal base as the union of the attitude holder’s doxastic alternatives with those \( p \)-worlds maximally similar to any of member of that set.\footnote{I am grateful to Milo Phillips-Brown (pers. comm.) for suggesting to use Heim’s belief-relative similarity rather than von Fintel’s actual-world-relative similarity, and also for suggesting this particular way of translating Heim’s approach into a static and monotonic semantics.} It subsumes conditions (ii)--(iv) from (15): the modal base has to be a superset of the doxastic alternatives since it involves taking the union of the doxastic alternatives with another set of worlds, and the diversity condition is guaranteed by virtue of bringing in some worlds where the
prejacent holds.

\[ \text{[wish]}^{f,g}(p)(\alpha)(w) \text{ is defined only if} \]

(i) \( \text{Dox}(\alpha, w) \cap p = \emptyset \)
(ii) \( f_i(\alpha, w) = \text{Dox}(\alpha, w) \cup \{ w'': \exists w' \in \text{Dox}(\alpha, w): w'' \in \text{max}_{\text{Sim},w}(p) \} \)

If defined, \( \text{[wish]}^{f,g}(p)(\alpha)(w) = 1 \) iff
\( \forall w' \in \text{max}_{g_i(\alpha,w)}(f_i(\alpha, w)): w' \in p \)

Against this backdrop, formalizing the suggestion from the previous section amounts to the proposal that \textit{want} has two ways of establishing its modal base: it can either equate it with the attitude holder’s doxastic alternatives, or it can build its modal base in the same way that the modal base for \textit{wish}-sentences is achieved. This is illustrated in (17).

\[(17) \quad \text{[want]}^{f,g}(p)(\alpha)(w) \text{ is defined only if} \]

(i) \( f_i(\alpha, w) = \text{Dox}(\alpha, w) \)
(ii) \( f_i(\alpha, w) \cap p \neq \emptyset \)
(iii) \( f_i(\alpha, w) - p \neq \emptyset \)

OR
\( (i') \quad \text{Dox}(\alpha, w) \cap p = \emptyset \)
\( (ii') \quad f_i(\alpha, w) = \text{Dox}(\alpha, w) \cup \{ w'': \exists w' \in \text{DOX}(\alpha, w): w'' \in \text{max}_{\text{Sim},w}(p) \} \)

If defined, \( \text{[want]}^{f,g}(p)(\alpha)(w) = 1 \) iff
\( \forall w' \in \text{max}_{g_i(\alpha,w)}(f_i(\alpha, w)): w' \in p \)

Proposing a disjunction in how \textit{want} establishes its modal base is theoretically unattractive. But before improving on this, I want to bring to bear one additional empirical consideration that will lead to a further adjustment to (17).

4 Extension to factive \textit{want}-sentences

Under some conditions, \textit{want}-sentences can be used in contexts where the attitude holder’s beliefs entail the prejacent. As already discussed in the introduction, Heim (1992) notes this with her example repeated here in (18), and suggests that what is crucial to (18) is that John’s belief that he will go to the movies tonight is grounded in his intention to do so.

\[(18) \quad (\text{John hired a babysitter because}) \text{he wants to go to the movies tonight.} \quad [\text{Heim 1992:199}] \]

But it is possible to find cases where intention plays no role. Consider for example the hypothetical exchanges in (19)–(21). In each case, B can felicitously use a
want-sentence whose prejacent has just been added to the Common Ground by A, regardless of whether the prejacent is future-oriented (19), present-oriented (20), or past-oriented (21) (albeit perhaps somewhat marginally in the latter case).

(19) A: The weather is going to be beautiful tomorrow.
    B: Good! I want the weather to be beautiful tomorrow!

(20) A: I’m hungry.
    B: Good! I want you to be hungry because it’s almost time to eat!

(21) A: John left already.
    B: Good! (?)I want John to have left already!

These examples clearly do not coerce a reading wherein B believes herself to have intentional control over the weather, or A’s appetite, or John’s past behavior. Instead there are two ways we might try to bring them into the fold of our theory of want-sentences. One strategy would be to hypothesize that in using a want-sentence, the speaker is (at least temporarily) suspending her belief that what A said is true. The other strategy would be to hypothesize that in addition to admitting counterfactual readings, want also admits factive readings. While I do not have decisive evidence in favor of the second strategy, this is the one I will pursue. And it is supported by the following observation. B’s responses in (19)–(21) can all be felicitously replaced by the explicitly factive variants in (22-a–c) respectively with hardly any detectable contrast in meaning. But if we substitute in the hope-sentences in (23), there is a fairly sharp contrast in meaning whereby B is indeed suspending her belief in the content of A’s assertion (consistent with observations in the literature about hope: see e.g. Portner and Rubinstein 2012; Anand and Hacquard 2013). And there is even something mildly infelicitous about the responses in (23), which I believe stems from the fact that Good! ordinarily conveys acceptance of a proposition that has just been asserted, which clashes with the suspension of acceptance signaled by the use of hope. The inter-substitutability of B’s responses with (22-a–c) and lack thereof with (23-a–c) lead me to hypothesize that want-sentences have genuine factive uses.6

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6This is not to say that factive want-sentences are identical to be glad-sentences in all respects. One interesting difference is that Heim’s (1992) example of a factive want-sentence in (18) cannot be felicitously reformulated using be glad:

(i) #John hired a babysitter because he’s glad to be going the movies tonight.

I suspect that this difference is orthogonal to our concerns here, though. What is odd about (i) is that it seems to convey that John’s state of gladness about going to the movies tonight is the reason for his having hired a babysitter. This suggests an asymmetry between want-sentences and be glad-sentences in how their content is parcelled out into at-issue and not at-issue meaning: in
(22)  a. Good! I’m glad the weather will be beautiful tomorrow.
    b. Good! I’m glad you’re hungry because it’s almost time to eat.
    c. Good! I’m glad John left already.

(23)  a. Good! I hope the weather will be beautiful tomorrow.
    b. Good! I hope you’re hungry because it’s almost time to eat.
    c. Good! I hope John left already.

We can implement this hypothesis via a simple variant of counterfactual
\textit{want}: whereas counterfactual \textit{want} constructs its modal base by starting with the
attitude holder’s doxastic alternatives and scaling out to include some worlds where
the prejacent holds, factive \textit{want} scales out to include some worlds where the
prejacent does \textit{not} hold. So the result we end up with is one in which \textit{want} has three
ways of constructing its modal base as indicated in (24).\footnote{This approach to factivity follows Heim (1992) in treating the relevant presupposition of \textit{a is glad that p} (or \textit{a wants p} on its factive use) not as \textit{p} but rather more weakly as \textit{a believes p}. Evidence comes from the felicity of examples like \textit{John is under the mistaken impression that it is raining, and he is rejoicing because in fact he \{is glad that it is raining / wants it to be raining\}.}}

\begin{enumerate}
\item \text{[want]}^{f,g}(p)(\alpha)(w) = \text{1 iff}
\item \textit{DOXASTIC modal base:}
\begin{enumerate}
\item \textit{f}_i(\alpha, w) = \text{Dox}(\alpha, w)
\item \textit{f}_i(\alpha, w) \cap p \neq \emptyset
\item \textit{f}_i(\alpha, w) \setminus p \neq \emptyset
\end{enumerate}
\item \textit{COUNTERFACTUAL modal base:}
\begin{enumerate}
\item \text{Dox}(\alpha, w) \cap p = \emptyset
\item \textit{f}_i(\alpha, w) = \text{Dox}(\alpha, w) \cup \{w'': \exists w' \in \text{Dox}(\alpha, w): w'' \in \text{max}_{\text{Sim}_{w},p}(\alpha)\}
\end{enumerate}
\item \textit{FACTIVE modal base:}
\begin{enumerate}
\item \text{Dox}(\alpha, w) \subseteq p
\item \textit{f}_i(\alpha, w) = \text{Dox}(\alpha, w) \cup \{w'': \exists w' \in \text{Dox}(\alpha, w): w'' \in \text{max}_{\text{Sim}_{w},\neg p}(\alpha)\}
\end{enumerate}
\end{enumerate}

If defined, \text{[want]}^{f,g}(p)(\alpha)(w) = \text{1 iff}
\[\forall w' \in \text{max}_{\text{Sim}_{w}}(f_i(\alpha, w)): w' \in p\]
5 Improving on the three-way disjunctive analysis

The rather baroque and disjunction-laden definedness conditions that we have now ended up with for want-sentences suggest that a generalization is being missed. Here I consider two ways of improving on this analysis. The first one is like the approach already sketched in that it relies on similarity to the belief set in characterizing want’s modal base, and it carries out the idea that the modal base expands out from the belief set only as needed to ensure its diversity with respect to the prejacent (section 5.1). The second option to be considered is an underspecified approach that lets the modal base expand out from the belief set even when diversity is not at stake (section 5.2). I ultimately conclude that the similarity-based approach is preferable, in spite of apparent difficulties it faces in light of what Rubinstein (2017) calls the Doxastic Problem.

5.1 A similarity-based approach

The approach described in what follows is one suggested to me by Milo Phillips-Brown (pers. comm.). It makes crucial use of an idea due to Stalnaker (1975), who lays out an approach to the semantics of conditional sentences in which a sentence of the form If $p$, then $q$ is true iff $q$ is true in the $p$-world that is most similar to the evaluation world. This is cashed out in part via a selection function that inputs a proposition (the antecedent of the conditional) and a world (the evaluation world) and returns a world (the antecedent world that is most similar to the evaluation world). In fleshing out the nature of this selection function, Stalnaker wants to carry out the idea that “normally a speaker is concerned only with possible worlds within the context set . . . So it is at least a normal expectation that the selection function should turn first to these worlds before considering counterfactual worlds” (p. 144). (In anticipation of where we are headed, it can be noted at this juncture that this is highly reminiscent of the intuition that want-sentences are evaluated with respect to the attitude holder’s belief set and extend beyond that only as needed to satisfy diversity of the modal base with respect to the prejacent.) To carry out this idea, Stalnaker proposes that “all worlds within the context set are closer [= more similar] to each other than any worlds outside it” (p. 144). This has as a consequence that “if the conditional is being evaluated at a world in the context set, then the world selected must, if possible, be within the context set as well” (p. 144).

Translating the context set into the belief set (in anticipation of our application of Stalnaker’s idea to want-sentences), Phillips-Brown formalizes Stalnaker’s constraint on the selection function as in (25): for any two worlds in the belief set, there can be no third world outside the belief set that is more similar to one world in the belief set than the other world in the belief set.
(25) \[ \forall w', w'' \in \text{Dox}(\alpha, w): \neg \exists w''' \not\in \text{Dox}(\alpha, w): w''' <_{\text{Sim}_{w'}} w'' \]

Against this backdrop, Phillips-Brown notes that if we build (25) into the definedness conditions for want-sentences, as in (i) in (26) below, then the doxastic, counterfactual, and factive cases can all be handled via the condition in (ii), which tells us to build the modal base by collecting up that subset of prejacent worlds maximally similar to any world in the belief set and unioning it with that subset of non-prejacent worlds maximally similar to any world in the belief set.

(26) \[
\begin{align*}
\text{[want]}^f_g(p)(\alpha)(w) \text{ is defined only if} \\
(i) & \forall w', w'' \in \text{Dox}(\alpha, w): \neg \exists w''' \not\in \text{Dox}(\alpha, w): w''' <_{\text{Sim}_{w'}} w'' \\
(ii) & f_i(\alpha, w) = \{w'': \exists w' \in \text{Dox}(\alpha, w): w'' \in \max_{\text{Sim}_{w'}} (p) \lor w'' \in \max_{\text{Sim}_{w'}} (\neg p)\}
\end{align*}
\]

If defined, \[\text{[want]}^f_g(p)(\alpha)(w) = 1 \text{ iff } \forall w' \in \max_{g_i(\alpha, w)} (f_i(\alpha, w)): w' \in p\]

To see that (26) ends up being semantically equivalent to the three-way disjunctive analysis from the previous section, let’s consider the three scenarios that analysis was intended to capture.

First, consider the scenario where the prejacent (henceforth p) is consistent with but not entailed by the attitude holder’s belief set. Then, that belief set contains both p-worlds and \(\neg p\)-worlds. By (ii), the modal base will consist of that subset of p-worlds maximally similar to any world in the belief set unioned with that subset of \(\neg p\)-worlds maximally similar to any world in the belief set. By (i), the maximally similar p-worlds will all be in the belief set and the maximally similar \(\neg p\)-worlds will also all be in the belief set. And assuming that every world is more similar to itself than to any other world, we will end up collecting all the p-worlds consistent with the belief set and all the \(\neg p\)-worlds consistent with the belief set. But that is just the belief set itself.

Consider next the counterfactual scenario, where the intersection of p with the belief set is empty. The modal base will then be the belief set (i.e., that subset of \(\neg p\)-worlds maximally similar to any world in the belief set) unioned with that subset of p-worlds maximally similar to any world in the belief set. Since the belief set does not contain any p-worlds, the constraint in (i) will not prevent the inclusion of worlds outside the belief set. So we achieve a counterfactual modal base anchored by similarity to the belief set.

Finally, the factive scenario is just the mirror image of the counterfactual scenario: the modal base will be the belief set (i.e., that subset of p-worlds maximally similar to any world in the belief set) unioned with that subset of \(\neg p\)-worlds maximally similar to any world in the belief set. Similarly to the previous case, since the belief set does not contain any \(\neg p\)-worlds, the constraint in (i) will not prevent the inclusion of worlds outside the belief set.
5.2 An underspecified approach, with comments on the Doxastic Problem

I now turn to a different way of improving on the three-way disjunctive analysis. If we simply factor out the commonalities to the doxastic, counterfactual, and factive modal bases in (24), we end up with (27) as a coverall blueprint for a semantics for want: the modal base is always a superset of the belief set (sometimes proper, sometimes not), and the modal base is always diverse with respect to the prejacent. Whereas the approach considered in the previous subsection specifies, relative to a belief state and a prejacent, exactly which worlds will go into the modal base, (27) merely specifies a lower bound (it must include all of the attitude holder’s doxastic alternatives) but leaves the upper bound open, except insofar as the result must be diverse with respect to the prejacent.

(27) \[
\text{want}_i^{f,g}(p)(\alpha)(w) \text{ is defined only if } \\
\text{(i)} \quad \text{Dox}(\alpha, w) \subseteq f_i(\alpha, w) \\
\text{(ii)} \quad f_i(\alpha, w) \cap p \neq \emptyset \\
\text{(iii)} \quad f_i(\alpha, w) - p \neq \emptyset \\
\text{If defined, } \text{want}_i^{f,g}(p)(\alpha)(w) = 1 \text{ iff } \\
\forall w' \in \max_{g_i(\alpha, w)}(f_i(\alpha, w)) : w' \in p
\]

In at least one respect, the extra flexibility afforded by (27) seems like a good thing. In particular, it does not run into what Rubinstein (2017) calls the Doxastic Problem, first pointed out by Villalta (2008) in connection with the examples in (28).

(28) a. I want to teach Tuesdays and Thursdays next semester.

b. I want to work hard now.

Villalta observes that it is intuitively possible for (28-a) to be true but (28-b) false even in a situation where I believe that I will teach Tuesdays and Thursdays next semester if and only if I work hard now. If the modal base is equated with my doxastic alternatives, this is a puzzle: within my doxastic alternatives, the set of worlds where I teach Tuesdays and Thursdays next semester is identical to the set of worlds where I work hard now, falsely predicting truth-conditional equivalence between (28-a) and (28-b). But if (28-a) and (28-b) can be calculated against a superset of my doxastic alternatives that includes worlds where I teach Tuesdays and Thursdays next semester without working hard now or vice versa, then their non-equivalence is captured.

That being said, this flexibility comes at a cost. Consider again the data in (4), repeated here in (29). (27) incorrectly predicts felicity: in both of these examples, we should be able to calculate the first desire report against a superset
of John’s doxastic alternatives that ignores his belief that he can have a free trip on the Concorde (or that he can buy the couch at a 25% discount), then shrink down from that superset as prompted by the but given… phrase, and interpret the second desire report accordingly.

(29)  
   a. #John doesn’t want a trip on the Concorde, but given that he can have one for free, he wants a free trip on the Concorde.  
   b. #John doesn’t want to buy this couch, but given that he can buy it at a 25% discount, he wants to buy this couch at a 25% discount.

So as far as the data in (29) go, the similarity-based approach seems to be preferable to the underspecified approach. But then what do we do about the Doxastic Problem? While I will not offer a decisive solution to it here, it bears noting that it may be possible to solve it under the similarity-based approach. One line of attack, building on Levinson (2003); Crnič (2011); Condoravdi and Lauer (2016), would be to allow for flexibility in how the ordering source for want-sentences is established, the intuition being that agents have multiple sources of preferences and sometimes these preferences come into conflict with each other. This opens up the possibility that (28-a) and (28-b) are evaluated with respect to different ordering sources, which would account for their non-equivalence. Phillips-Brown (to appear) raises a challenge for this approach: unless properly reined in, it leads to an overgeneration problem. In short, if there is a scenario that makes (28-a) true and (28-b) false, then relative to that same scenario, there should also be readings of (28-a) and (28-b) whereby (28-a) is false but (28-b) is true, simply by exchanging the ordering sources against which they are evaluated. Possibly this issue can be solved by imposing principled constraints in ordering source flexibility, but it remains to be seen whether this is workable.

At the same time, though, Phillips-Brown (to appear) also raises challenges for approaches like Villalta (2008); Rubinstein (2017) in which the modal base can include non-belief worlds even in cases where the belief set is diverse with respect to the prejacent. The general shape of the problem is that such approaches make it too difficult for want-sentences to ever be true. In fact, it is the same problem that was part of the motivation for Heim’s (1992) belief-based semantics for want-sentences to begin with: suppose there are doxastically inaccessible worlds in which I do not teach at all next semester, and these are more desirable to me than

---

8Villalta (2008) proposes that the modal base is the union of contextually salient propositions that are alternatives to the prejacent. Rubinstein (2017) proposes that the modal base is merely constrained to having a non-empty intersection with the attitude holder’s belief set. Both share with the underspecified approach considered here the idea that the modal base can potentially contain worlds that are quite far-fetched from the attitude holder’s point of view, and so Phillips-Brown’s critique of these approaches extend straightforwardly to the one entertained here.
worlds where I teach Tuesdays and Thursdays. Then, what’s to stop these worlds from being included in the modal base and thereby erroneously falsifying (28-a)? Phillips-Brown (to appear) considers a couple of ways of reining in the approach, but ultimately concludes that they face serious challenges.

Given these difficulties, I conclude that the Doxastic Problem should not be taken as decisive evidence against the similarity-based approach.9

6 Factivity, Counterfactuality, and Maximize Presupposition

Building on the proposal from the previous section, it now becomes appealing to hypothesize that want, wish, and (be) glad all share the same restrictions on their modal base and the same at-issue semantics and differ only in that wish carries a counterfactual presupposition, as in (30), and glad carries a factive presupposition, as in (31), whereas want carries neither, as in (32).

\[
\text{[wish]}_{f,g}(p)(\alpha)(w) \text{ is defined only if}
\]
\[
\begin{align*}
&\forall w', w'' \in \text{Dox}(\alpha, w): \neg \exists w''' \notin \text{Dox}(\alpha, w): w''' <_{\text{Sim}_{\alpha}} w'' \\
&f_i(\alpha, w) = \{w': \exists w' \in \text{Dox}(\alpha, w): w'' \in \max_{\text{Sim}_{\alpha}}(p) \lor w'' \in \max_{\text{Sim}_{\alpha}}(\neg p)\}
\end{align*}
\]

If defined, \([\text{wish}]_{f,g}(p)(\alpha)(w) = 1 \iff \forall w' \in \max_{g_i(\alpha, w)}(f_i(\alpha, w)): w' \in p\)

\[
\text{[glad]}_{f,g}(p)(\alpha)(w) \text{ is defined only if}
\]
\[
\begin{align*}
&\forall w', w'' \in \text{Dox}(\alpha, w): \neg \exists w''' \notin \text{Dox}(\alpha, w): w''' <_{\text{Sim}_{\alpha}} w'' \\
&f_i(\alpha, w) = \{w': \exists w' \in \text{Dox}(\alpha, w): w'' \in \max_{\text{Sim}_{\alpha}}(p) \lor w'' \in \max_{\text{Sim}_{\alpha}}(\neg p)\}
\end{align*}
\]

If defined, \([\text{glad}]_{f,g}(p)(\alpha)(w) = 1 \iff \forall w' \in \max_{g_i(\alpha, w)}(f_i(\alpha, w)): w' \in p\)

\[
\text{[want]}_{f,g}(p)(\alpha)(w) \text{ is defined only if}
\]
\[
\begin{align*}
&\forall w', w'' \in \text{Dox}(\alpha, w): \neg \exists w''' \notin \text{Dox}(\alpha, w): w''' <_{\text{Sim}_{\alpha}} w'' \\
&f_i(\alpha, w) = \{w': \exists w' \in \text{Dox}(\alpha, w): w'' \in \max_{\text{Sim}_{\alpha}}(p) \lor w'' \in \max_{\text{Sim}_{\alpha}}(\neg p)\}
\end{align*}
\]

If defined, \([\text{want}]_{f,g}(p)(\alpha)(w) = 1 \iff \forall w' \in \max_{g_i(\alpha, w)}(f_i(\alpha, w)): w' \in p\)

Now, though, we face an apparent problem: glad and wish differ semantically from want only in being presuppositionally stronger, and yet in other cases where two lexical items differ only in that one is presuppositionally stronger, the presuppositionally weaker member typically comes across as infelicitous in contexts where the stronger presupposition is satisfied (Heim’s 1991 Maximize Presup-

\[\text{Phillips-Brown’s (to appear) own solution involves introducing coarse worlds (Yalcin 2011): worlds that do not decide the truth of every proposition. I believe that this approach would be compatible with the similarity-based semantics for want-sentences sketched in the previous subsection, but this is something that I leave to future work.}\]
position).\footnote{Although for concreteness the puzzle is illustrated here using the similarity-based approach to establishing the modal base for want, it is worth noting that this problem would also hold if we adopted the underspecified approach. In other words, the considerations in this section do not help decide between the similarity-based approach and the underspecified approach for establishing the modal base of want.} Standard examples include those in (33): given the common knowledge that there is only one sun, humans have exactly two eyes, and thinking beings are alive, the expressions *a, all, and believes* come across as infelicitous respectively in (33-a–c), in light of the presuppositionally stronger but otherwise semantically similar *the, both, and knows* that make presuppositions out of the relevant common knowledge.

(33)  
\begin{enumerate}
    \item {#A/The} sun in shining.
    \item {#All/Both} of my eyes are closed.
    \item John {#believes/knows} that he is alive.
\end{enumerate}

But then why are (34-a–b) not severely infelicitous in comparison with (35-a–b), in the same way that we observed for (33)?

(34)  
\begin{enumerate}
    \item John wants this weekend to last forever.
    \item John wants to die eventually.
\end{enumerate}

(35)  
\begin{enumerate}
    \item John wishes this weekend would last forever.
    \item John is glad he will die eventually.
\end{enumerate}

This is not to say that there is no contrast in acceptability between (34-a) and (35-a) or between (34-b) and (35-b). But it is much less sharp than in the standard cases just considered, and (34-a) can also be thrown into comparison with (36) which seems genuinely infelicitous.

(36)  
#John hopes this weekend will last forever.

I therefore suggest that while there may be, under some conditions, a stylistic preference for *wish* or *glad* over *want* in cases where a counterfactual or factive presupposition is satisfied, this is not the business of grammar. Why not? While there are many approaches to Maximize Presupposition phenomena (see especially Percus 2006; Sauerland 2008; Chemla 2008; Schlenker 2012; Lauer 2016; Leahy 2016), there is broad consensus that such phenomena are based on a logic of alternatives, so for example, *the* counts as an alternative to *a* and *both* counts as alternative to *all* (or more precisely, sentences that *the/both* inhabit count as alternatives to otherwise identical sentences that *a/all* inhabit). My suggestion is that *wish*-sentences and *be glad*-sentences do not count as alternatives to *want*-sentences. And in fact, this follows from two independently plausible claims: (1) alternatives are deter-
mined by structural complexity, as argued by Katzir (2007), and (2) wish-sentences and be glad-sentences are structurally more complex than want-sentences.

Turning to the first of these two claims: Katzir (2007) defines a parse tree \(\phi\)'s structural alternatives as those parse trees that are no more structurally complex than \(\phi\), where a tree \(\psi\) is no more complex than \(\phi\) if \(\phi\) can be transformed into \(\psi\) "by a finite series of deletions, contractions, and replacements of constituents in \(\phi\) with constituents of the same category taken from [the lexicon of the language]" (p. 679). Katzir (2007) argues that this is the relevant notion of alternatives for computing scalar implicatures, and more recently, Rouillard and Schwarz (2017) argue that it is also the relevant notion for Maximize Presupposition. They point out, for example, that it accurately predicts that (37-a) is felicitous even if it is common knowledge that there are exactly two guests; the presuppositionally stronger variant in (37-b) is more complex in Katzir’s sense, involving an additional lexical item, and therefore not in competition with (37-a).

(37)  
\begin{itemize}
  \item a. The guests left.
  \item b. The two guests left.
\end{itemize}

Turning now to the second claim, the idea that be glad-sentences and wish-sentences are structurally more complex than want-sentences is borne out on a cross-linguistic level, by the robust generalization that want is a restructuring predicate whereas wish and be glad are not. As surveyed by Wurmbrand (2001), want restructures in German, Dutch, Italian, Spanish, and Japanese (this conclusion being drawn based on language-particular diagnostics for restructuring, such as clitic climbing in Italian and Spanish); whereas wish, and factive predicates in general, fail to do so in these same languages. This is illustrated in Table 1, excerpted from Wurmbrand 2001:342, where ‘+’ indicates that the predicates does restructure and ‘–’ indicates that it does not.

<table>
<thead>
<tr>
<th>Predicates</th>
<th>German</th>
<th>Dutch</th>
<th>Italian</th>
<th>Spanish</th>
<th>Japanese</th>
</tr>
</thead>
<tbody>
<tr>
<td>want</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>wish</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>factive</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

Table 1: Restructuring behavior (Excerpted from Wurmbrand 2001:342)

Many approaches to restructuring can be found in the literature, but most agree that restructuring configurations involve less structure than full-fledged biclausal structures, either because the restructuring verb forms a complex predicate with the embedded verb (e.g., Rizzi 1978), or because the embedded clause is truncated to some position below CP (e.g., Wurmbrand 2001), or because the restructuring verb is actually a functional head in the extended projection of the verb it
embeds, forming a single clausal structure (e.g., Cinque 2004; Grano 2012, 2015). Whether or not English exhibits restructuring in the same way that languages like German or Spanish do is controversial, but see Grano (2012, 2015) for a development of the proposal that restructuring is cross-linguistically universal and that its language-internal distribution is determined on the basis of the meanings of the embedding verbs, so that for example a predicate meaning ‘want’ always restructures whereas a predicate meaning ‘wish’ or ‘be glad’ never does. One indirect piece of English-internal evidence Grano points to is the availability of finite complementation: predicates known cross-linguistically to restructure reject finite complements in English whereas predicates known cross-linguistically not to restructure accept finite complements in English. As seen in (38)–(40), this is borne out for the cases at hand.

(38) *Kim wants [that she is/were a linguist].
(39) Kim wishes [that she were a linguist].
(40) Kim is glad [that she is a linguist].

If this is right, then returning to the pairs considered above, repeated here in (41)–(42), the sentences in (41) are monoclausal or otherwise structurally simpler in comparison with the sentences in (42), which are uncontroversially biclausal given that the embedded clause is finite and finite clauses do not restructure. Consequently, the sentences in (42) do not count as alternatives to the sentences in (41), and we accurately predict that there will be no Maximize Presupposition effect.

(41) a. John wants this weekend to last forever.
 b. John wants to die eventually.
(42) a. John wishes this weekend would last forever.

11 Under some conditions, wish and glad can also combine with nonfinite complements, as in (i) and (ii).

(i) Kim wishes to be a linguist.
(ii) Kim is glad to be a linguist.

When wish combines with a nonfinite complement, it is no longer counterfactual (instead just a stylistically marked variant of want), and is therefore not relevant to the discussion here. When glad combines with a nonfinite complement, it is ambiguous between a prospective reading (as in the salient interpretation of I’m happy to help) and a factive reading that is relevant to this discussion. On the factive reading of (ii), it is synonymous with Kim is glad that she is a linguist. By hypothesis, even when glad appears with a nonfinite complement, it does not restructure and therefore is not in competition with a corresponding want-sentence.
b. John is glad he will die eventually.

It should also be noted that even if we were to assume, conservatively, that English does not have restructuring or that restructuring does not affect structural complexity, it is still conceivable on independent grounds that want-sentences are structurally less complex than their dedicated factive and counterfactual counterparts. The factive counterparts are built using glad which is adjectival and hence requires a copula, which makes the relevant sentences more complex than ones built out of verbs. And the counterfactual counterparts necessarily involve finite rather than nonfinite complementation (see note 11). A number of cross-linguistic phenomena challenge the view that (non)finiteness reduces to a simple binary featural opposition on a dedicated clausal functional head, and as reviewed by McFadden and Sundresan (2014:15), one way of modeling grades of finiteness is via the idea that “a clause with more structure is more finite than one with less.” This may be sufficient for explaining why wish-sentences do not block want-sentences, irrespective of restructuring considerations.

References


[Total word count for this manuscript: 9,258 words]