The pragmatics of propositional anaphora in English

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Abstract. English employs a variety of devices to refer back to propositions, including demonstratives, the null complement anaphor, the pronominal *it* and the proform *so*. The last of these shows a relatively limited distribution. The relative distribution of *it* and *so* has been the subject of much inquiry. In this paper, I examine their differences in responses to polar questions, in response to assertions and in the context of anaphora to embedded propositions. I make the novel observation that *believe* with an overt source argument tracks with *it* and not *so* in these contexts. This observation inspires a novel approach to restricted distribution of *so* and its characteristic effect on interpretation. The notion of a sourced doxastic background is introduced as the basis of the semantics for doxastic attitude predicates. This new notion allows evidential distinctions between predicates to be encoded.

Keywords. propositional anaphora; pronouns; attitude predicates; doxastic backgrounds; sources; subjectivity

1. Introduction. English employs a number of devices to refer back to propositions in discourse. These include at least the pronominal *it* (1a), the demonstratives *this* and *that* (1b), the null complement anaphor ∅ (1c), and the form *so* (1d), which has received several different analyses. In each case in (1) below, the anaphor appears to supply the embedding verb with the proposition *there will be a storm tomorrow* as its argument. See Snider (2017) for a detailed general discussion of propositional anaphora in English.

(1) A: There will be a storm tomorrow.

    a.   B: I doubt it.

    b.   B: I've heard that.

    c.   B: I know ∅.

    d.   B: I hope so.

In this brief paper, I will focus on the classical issue of the relative distribution of the pronominal *it* and the propositional anaphor *so* (Lindholm 1969; Cushing 1972). I will discuss three issues that have been proposed to distinguish between the uses of *it* and *so*. The novel approach will be to compare the behavior of *it* and *so* with attitudes involving explicit source arguments.

1.1. RESPONSES TO POLAR QUESTIONS. First, typically *so* may be used in response to a polar question in English, while *it* may not (Lindholm 1969; Cushing 1972).[1]

(2) A: Will there be a storm tomorrow?

    a.   B: I believe so.

    b.   B: #I believe it.

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[1] There is one exception. Note that *I doubt it* is an appropriate response to (2). I will put the case of *doubt* aside. See Meijer (2022) for enlightening discussion.

I will accept this generalization, but note that Snider (2017) argues that propositional anaphora from a polar question is possible.

(3) Will there be a storm tomorrow? Because Bill doesn't believe it.

<div align="right">cf. Snider (2017), (203), p.100</div>

I will follow Bogal-Albritten et al. (2024) in assuming that such examples involve substantial pragmatic accommodation and set them aside.

1.2. RESPONSES TO ASSERTIONS. The use of *it* and *so* give rise to different inference when used in response to assertions. This distinction has been characterized in a variety of ways. Lindholm (1969) argues that (4a) means 'I (also) hold that opinion', whereas (4b) means 'I accept your claim.' Cushing (1972) argues that *so* only combines with predicates that do not indicate a definite stance on the proposition, whereas *it* combines with predicates that do take a stance. In his view, some predicates like *believe* are ambiguous with respect to stance. Needham (2012) suggests that (4a) merely indicates a lower degree of certainty concerning the proposition.

(4) A: There will be a storm tomorrow.

    a. B: I believe so.

    b. B: I believe it.

Remaining neutral, I will suggest that use of *so* in such a context indicates CONCURRENCE: the speaker of the response has arrived at the same opinion independently. The use of *it* on the other hand indicates acceptance of the prior claim. These responses differ in the speaker's (B's) claims to being a source in the context (cf. Gunlogson (2008)).

    This distinction in inference is supported by acceptability judgments in context. Roberts (2021) reports the following difference in acceptability in news-telling contexts:

(5) Paul is unfamiliar with Caucasian languages. Steve is an expert.
    S: Fun fact: Laz uses the Georgian alphabet.
    P: I believe it.
    P: #I believe so.   cf. Roberts (2021), (223), p.148

Given the context, Paul is not in a position to have an independent opinion on the status of Steve's fun fact.

1.3. ANAPHORA TO EMBEDDED ANTECEDENTS. Propositional anaphors show similar contrasts in interpretation when referring back to embedded propositions. The use of *so* appears to indicate assertion of an independent opinion, whereas *it* indicates a quasi-response stance use of the attitude (Cf. Cattell 1978, Kastner 2015)

(6) Paul thinks that complementation is partly semantic and Carol believes it (too).
    "Carol is said to be taking a position on Paul's opinion."   (Cushing 1972)

(7) Paul thinks that complementation is partly semantic and Carol believes so too.
"Carol is simply being said to have a certain opinion or disposition. She might not even know what Paul thinks."   (Cushing 1972)

The case of embedded antecedents is significant since recent analyses of the contrast between *it* and *so* rely on the status of the proposition they refer to as being the subject of the immediate Question Under Discussion (Needham 2012) or the propsosition on top of the Table (Meijer 2022). Examples like Cushing's show that the proposition need not have such status. It is likely that the topic under discussion for (6) and (7) is whether the view of the two subjects coincide, not whether or not their beliefs are acceptable to the speaker (or hearer).

2. Comparison with Overt Sources. To better understand the observed differences between *it* and *so*, I bring in another case for comparison. The verb *believe*, which is one of very few predicates that can co-occur with both *it* and *so*, can also combine with an overt object that indicates the source of the belief. Such an object may appear in combination with a full complement clause. Roberts (2021) argues that the object can be a conversational agent, a repository of information, or a depictive artifact.

(8) a. I believe Tim that there will be a storm.

     b. I believe the weather report that there will be a storm tomorrow

     c. I believe radar that there will be a storm tomorrow.

Interestingly, when this source object is present, no overt anaphoric element is allowed. It appears instead that it must combine with a null complement anaphor.

(9) A: There will be a storm tomorrow.
    B: I believe you ∅/*that/*so/*it.
    [B:?I believe you that there will be a storm.]

2.1. PARALLELS WITH THE THREE CASES ABOVE. It is instructive to compare how this variation of *believe* compares with the uses of *it* and *so*. For example, in response to questions, anaphoric *believe* with a source argument behaves in parallel with the pronominal *it*.

(10) A: Will there be a storm tomorrow?
      B: I believe #you/#the weather report/#the radar.

Each response sounds blatantly infelicitous. To my ear the first version (*you*) sounds the worst. B appears to impute the assertion that there will be a storm to A, who has clearly just asked whether that is the case. In the second two versions (weather report/radar), I find it easy to accommodate that B may have access to information from such sources. Nevertheless, the response remains infelicitous. To my ear, this is because the response sounds underinformative. I am unsure of what B has learned from these sources and thus what response they intend for the question.

    We have already seen above that *believe* with a source can be used in response to an assertion. Again, in parallel with the use of *it*, this response appears to explicitly indicate acceptance of A's claim that there will be a storm. It does not indicate independent concurrence as with *so*.

(11)   A: There will be a storm tomorrow.
        B: I believe you.

This alignment with *it* carries over to cases of anaphora to embedded propositions.

(12)   Tim thinks there will be a storm tomorrow and Eric believes him.

2.2. AN ADDITIONAL PARALLEL. There are further parallels between *it* and the use of NCA with an overt source object for *believe*. For example, consider the case of imperatives.

(13)   A: There will be a storm tomorrow?
        B: Believe it!
        B: #Believe so!
        B: Believe me!

(14)   There will be a storm tomorrow. Believe me!

I will simply make note of this contrast in imperatives and leave the analysis for further work.

2.3. ANALYSES OF OVERT SOURCES. Analyses have recently been put forward for *believe* with an overt source object by Roberts (2020, 2021) and Djärv (2019, 2023). Roberts (2021) argues that *believe* has a lexically specified argument slot for a source. When an overt source does not appear, he argues that that argument slot is existentially closed - and thus so weak in meaning as to be nearly undetectable. In contrast, Djärv (2019) argues that an overt source argument is introduced by an optional applicative-like functional head Asst°. They agree that an overt source induces a presupposition about the source of the belief, though they differ in details.

(15)   Presuppositon of x *believes* y *that* p:
        · y has content p (if y is a content DP) or y made the claim that p (if y is a non-content DP)
        · x is aware of y/y's claim
        · y/y's claiming that p would lead x to believe that p   Roberts (2021), p. 136

(16)   Presupposition of x *believes* y *that* p:
        There was an assertion event s.t. y_{source} proposed to make p common ground.
                                                                              Djärv (2023), p.207

Below I will consider another way of incorporating the observations of Djärv (2023) and Roberts (2021) into the semantics of doxastic predicates.

3. Predicates compatible with the use of *so*. Most examples given above have involved the predicate *believe* due to its unusual ability to take both *it* and *so* as complements. It is important to acknowledge that *so* occurs with a broader class of predicates. These can be sorted into a few different subclasses. The largest group is the set of predicates that resemble *believe/think* in their doxastic semantics, (17a). Two verbs that express (dis)preferences towards the proposition occur with *so*, (17b). It has been argued that these also have a doxastic component, since these express a belief in the possibility of the proposition, cf. Anand & Hacquard (2013). This contrasts with the behavior of preferential verbs that do not entail possibility, (18a) . *Say* and *tell* also co-occur

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with *so* even though they are communicative verbs which are typically incompatible, (18b). Finally, raising verbs of appearance are also compatible with *so*. Kiparsky & Kiparsky (1970) argued that *so* is generally incompatible with factive verbs, cf. (18c).

(17) a. I believe/think/expect/imagine/suppose/guess so.   Doxastic

      b. I hope/am afraid so.

      c. I said/told-you so.

      d. It seems/appears so.

(18) a. *I desire/wish so.

      b. *I claimed/argued/explained/demonstrated so.

      c. *I discovered/realized/regret/am happy so.

It is sometimes argued that the (semi-)factive *know* is compatible with *so*. However, *know so* almost always appears in kind of metalinguistic contrast with *think so*, (19). For that reason, I will set it aside.

(19) A: Do you think so?
      B: I KNOW so.

3.1. THE DOXASTIC CLASS AND SOURCES. It is worth noting that *believe* is the only member of its class of verbs compatible with *so* that can actually take an overt source argument.

(20) I believe/*think/*expect/*imagine/*suppose/*guess Tim that it will rain tomorrow.

Though only *believe* takes an overt source, it has been argued that there is a related property shared by the predicates in (17a). Hooper & Thompson (1973) argue that these verbs have literal construals and parenthetical construals. Simons (2007) questions this supposed ambiguity and argues that in least some respects the distinction can be derived from pragmatics. Simons argues that on the purported parenthetical use of these verbs, they simply serve an evidential function in context. The lexical semantics of some verbs will be compatible with such a function, and the semantics of others will not. We will return to this notion of an evidential compatible semantics below.

3.2. PREVIOUS APPROACH. Meijer (2022) has made the most comprehensive attempt to derive the class of predicates that *so* is compatible with. Her idea is to derive the class from a discourse-oriented presupposition that she attributes to *so* which she analyzes as a pro-adverb. She proposes that *so* presupposes that the proposition it picks up from discourse must (i) be on the table in the sense of Farkas & Bruce (2010) and (ii) must remain on the table after the assertion of the statement containing *so*. Condition (i) rules out factives as incompatible with *so*. A factive verb requires its argument proposition to be presupposed, that is, to be already accepted into the common ground. Meijer (2022) argues that previous acceptance is incompatible with being on the table. Meijer (2022) argues that conditions (i) and (ii) together imply that either the utterance containing the antecedent or the utterance containing *so* must fail to entail the referent of *so*. Her

reasoning is that if both entailed the referent of *so*, then that would be sufficient for acceptance of the proposition into the common ground and it would no longer remain under discussion on the table.

I have two concerns about Meijer's account. First, I do not see formally how it is possible in her framework to state a presupposition that references the state of the discourse after the assertion of the statement containing *so*. Perhaps this could be modeled in a fully dynamic model with variables for states of the common ground and postsuppositions. This remains to be worked out. Second, Meijer's account is driven by the discourse status of the referent of *so* as lying on the top of the table. The embedded antecedent cases discussed above call this into question. Meijer rightly notes that such antecedents fail to entail the referent of *so* - in line with her condition of remaining on the table. But she does not appear to acknowledge that such embedding can prevent the proposition from being put on the table - and even when that happens, pronominal anaphora with *so* is still possible.

I will not present as comprehensive an analysis as Meijer (2022), but I think these concerns are sufficient reason to consider other lines of analysis.

4. A New Approach. Inspired by the parallels of the use of *it* with the overt source examples above, I would like to try to develop a framework in which to state the semantics of doxastic predicates with and without sources. The idea is that within this framework we can capture what is shared by the predicates in this class that occur with *so*. These have variously been described as verbs of opinion, subjective verbs or parenthetical verbs.

In the traditional approach, closely related to semantic analyses of modal logic, an attitude verbs relates a proposition to a set of possible worlds. These worlds might be, for example, the set of possible worlds compatible with the beliefs of the subject, the subject's doxastic alternatives.

(21)   Traditional Hintikka analysis of *believe* (Hintikka 1962)
        ⟦ believe ⟧(p)(x) = 1 if and only if $\text{DOX}_x \subseteq \text{p}$

One could consider further what the origin of this set of doxastic alternatives is. For example, in her development of the semantics of modals, Kratzer (1981, 1991) argues that the semantics of modals is based on conversational backgrounds. A conversational background is a (function from worlds to a) set of propositions. A set of worlds can then be derived from this set of propositions. For example, one can simply intersect the set of propositions. Kratzer calls the a conversational background that supplies the set of alternative worlds for a modal the modal base.

The idea of a modal base underlying a set of alternative worlds is developed further by von Fintel & Gillies (2010, 2011). They propose that the epistemic alternative worlds quantified over by an epistemic modal is derived from a set of propositions they call the kernel. The set of alternatives is determined by intersecting the kernel set of propositions. The point is that different sets of proposition could give rise to the same set of alternative worlds. This allows for some flexibility in the membership of the kernel. von Fintel & Gillies (2010) use this flexibility to state a presupposition of indirectness for epistemic modals. The propositions in the kernel have a privileged evidential status. They are the propositions there is direct evidence for.

In other work, von Fintel & Gillies (2011) argue for the relevance of another parameter to the interpretation of epistemic modals. They argue that the interpretation of an epistemic modal can depend on the relevant group G of investigators or evidence holders. This is put to use in a

theory of CIA scenarios. They work out the details of how this parameter's value is negotiated in realistic contexts for epistemic modals. Interestingly, they suggest that the value of G plays a role in the extent to which the modality is considered objective or subjective (solipsistic, in their terms). They suggest that a fully subjective intepretation is derived when G contains only the speaker. I will combine kernels and evidence holders into a new account of belief predicates.

4.1. SUBJECTIVITY AND SOURCES. Anand & Hacquard (2009) argue that a quantifier may outscope an epistemic modal only when the modal is interpreted objectively. Runner & Moulton (2017) argue that an epistemic modal embedded under *believe* with an overt source is interpreted objectively. The evidence they present is that a quantifier in the embedded clause may outscope the embedded epistemic modal, (22).

(22)   They believed Holmes that every guest might be the murderer.

<div align="right">Runner & Moulton (2017), (15)</div>

       #believed H's claim that it is possible that all guests are the murderer.   might > every
       believed H's claim that for each guest x, it is possible that x is the murderer. every > might

<div align="right">(Djärv 2023)</div>

Djärv (2023) suggests that this follows from her analysis. As described above, Djärv (2023) argues that an overt source triggers a presupposition of a prior assertion. She further argues that this presupposed prior assertion creates a more objective context against which the embedded modal is interpreted. The assertion after all is a public event and not just a subjective, internal mental process.

4.2. SOURCED DOXASTIC BACKGROUNDS. I would like to suggest that doxastic predicates are assessed against a background of propositions much like von Fintel & Gillies (2010)'s kernel analysis of epistemic modals. In that account, the propositions in the kernel are distinguished by their evidential status. I suggest something similar. Instead of earmarking propositions in the kernel as direct, I suggest that the propositions in the doxastic background are paired with a source. Formally, the source could be modeled as a set of individuals, like von Fintel & Gillies (2011)'s G. Where no confusion is likely to arise, I will treat sources simply as individuals. We can easily recover a set of doxastic alternatives from this background, (23b).

(23)   a.   A sourced doxastic background for x (SDB_x) is a set of pairs of a proposition p and a set S of individuals $<p,S>$ where the members of S are/hold the evidence for x's belief in p

       b.   A (neutral) doxastic base for x (DOX_x) is the set of worlds: $\{w \mid \exists x[<p,y> \in SDB_x \}$

Using a sourced doxastic background will allow us to model ambiguities in doxastic predicates and identify subclasses of doxastic predicates with conditions on the SDB. For example, we could define a subjective notion of belief for an individual x inspired by von Fintel & Gillies (2011) selecting out from SDB_x only those propositions that include x in the source set.

(24)   a.   A subjective background for x ($SUBJ_x$) is the set $\{ p \mid \exists S[x \in S <p,S> \in SDB_x] \}$

       b.   A purely subjective background for x ($PSBJ_x$) is the set $\{ p \mid <p,\{x\} > \in SDB_x \}$

       c.   An unfounded belief background for x (BS_x) is the set $\{ p \mid <p,\varnothing> \in SDB_x \}$

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Other options are made available by the formalism. For example, we could specify a purely subjective notion of belief for x by selecting from SDB_x only those propositions that have x as their source. In the limit, our formal choice to treat sources as sets of individuals allows for the possibility of propositions whose source is identified in SDB as the emptyset $\varnothing$.

These more articulated backgrounds can be used in different ways to specify the lexical semantics of attitude verbs. Below are candidates for the lexical entry of *believe* used with an overt source argument. The first directly relates proposition and sources through SDB. The second intersects the set of propositions related to the source and says that the proposition is a superset of that intersection.

(25) a. ⟦ believe ⟧(p)(y)(x) = 1 if and only if $<p,\{y\}> \in \mathrm{SDB}_x$

  b. ⟦ believe ⟧(p)(y)(x) = 1 if and only if $\bigcap\{ q \mid <q,\{y\}> \in \mathrm{SDB}_x \} \subseteq p$

The first is more in the spirit of the proposals Roberts (2021) and Djärv (2023) where the proposition is identified with the content of the source or with the goal of an assertion. The second could be useful for direct entailments of a source's commitments. One could imagine now a variety of lexical transformations that could apply to such entries:

(26) a. Existential Closure: $\mathrm{EC}(F) = \lambda p.\lambda x.\exists y[\, F(p)(y)(x) \,]$

  b. Reflexivization: $\mathrm{RFL}(F) = \lambda p.\lambda x.[\, F(p)(x)(x) \,]$

  c. Set-reflexivation: $\mathrm{SRL}(F) = \lambda p.\lambda x.\exists S[\, x \in S \wedge F(p)(S)(x) \,]$

These operations, when applied to (25), yield neutral belief, purely subjective belief and subjective belief as defined above, (24).

The power of this analysis is that the these same notions can be applied to the lexical semantics of doxastic predicates that do not permit overt source arguments. Consider the possible lexical entries below, which analyze imagination as purely subjective and guessing as unfounded.

(27) a. ⟦ imagine ⟧(p)(x) = 1 if and only if $\bigcap\{ q \mid <q,\{x\}> \in \mathrm{SDB}_x \} \subseteq p$

  b. ⟦ guess ⟧(p)(x) = 1 if and only if $\bigcap\{ q \mid <q,\varnothing> \in \mathrm{SDB}_x \} \subseteq p$

4.3. PROPOSAL. I tentatively propose that the combination of a doxastic attitude verb V with *so* blocks an objective interpretation of the verb V. Slightly more formally, I propose that the combination of V and *so* presupposes that V has a subjective or unfounded interpretation.

(28) ⟦ V_{dox} *so* ⟧ is defined only if the background of V_{dox} is subjective or unfounded.

I will not make a specific proposal for how this presupposition arises. One direction to explore could be Krifka et al. (2023)'s analysis of the left periphery of embedded clauses into different functions, including a Judge Phrase. A matrix source argument could be linked to the Judge Phrase of the embedded clause. Speculatively, *so* could be a pro-Judge Phrase, either blocking or controlling the source. I set this speculation aside.

The pronominal *it* on the other hand may range over propoasitions and carries no lexical presupposition. However, it is plausible to assume that it can compete with *so* in contexts that admit

both. By the logic of *Maximize Presupposition!* in Heim (1991), this composition would yield an anti-presupposition from the use of *it* in certain contexts. Competing with *so*, the use of *it* would select an objective interpretation of an embedding doxastic predicate.

I furthermore propose that the inferences about doxastic predicates triggered by propositional anaphor choice can interact with discourse pragmatics. I tentatively suggest that a subjective interpretation of *believe* is more compatible with a transparent, evidential interpretation of a response to a polar question. A subjective interpretation may support the main point status of the propositional argument. Finally, in response to an assertion, the use of *so* triggers a subjective interpretation. This is incompatible with performing the act of accepting the interlocutor's prior assertion. Instead, it indicates the speaker/subject's own opinion on the same proposition. This applies equally in an embedded context (7) as it does in response to an unembedded assertion.

5. Conclusion. In this paper we have investigated the contrasting conditions on the use of propositional anaphors *it* and *so*. We have reviewed salient differences in their distribution: *so* occurs naturally embedded in a response to a polar question, *it* does not. In response to an assertion, *it* combined with *believe* indicates an acceptance of the prior assertion, *so* combined with *believe* indicates concurrence of an independent opinion. As a novel angle, we compared the distribution of *believe* with an overt source argument to the cases of propositional anaphors. We observed that *believe* with overt source argument tracks with the use of *it* in the contexts discussed. Furthermore, we reviewed discussions of the limited range of predicates that co-occur with *so*. We used the case of *believe* with an overt source as an inspiration for a formal description of the class of predicates compatible with *so*. We introduced the notion of a sourced doxastic background as underlying the semantics of a range of different belief predicates with different evidential implications. We proposed that *so* interacts with and selects for different evidential restrictions on the doxastic background. We concluded by tentatively speculating that the evidential requirements of *so* further interact with discourse pragmatics. We speculated that *so* combines with predicates that have an evidential component compatible with a transparent, 'parenthetical' reading. The account also explains why *so* in response to an assertion indicates concurrence and not acceptance.

References

Anand, Pranav & Valentine Hacquard. 2009. Epistemics with attitude. In *Semantics and Linguistic Theory*, 37–54.

Anand, Pranav & Valentine Hacquard. 2013. Epistemics and attitudes. *Semantics and Pragmatics* 6(8). 1–59. https://doi.org/10.3765/sp.6.8.

Bogal-Albritten, Elizabeth, Keir Moulton & Junko Shimoyama. 2024. On propositional anaphora: 'referential' propositions and propositional proforms. In Hideki Kishimoto, Osamu Sawada & Ikumi Imani (eds.), *Polarity-Sensitive Expressions*, vol. 7 Mouton-NINJAL Library of Linguistics, 343–376. De Gruyter Mouton.

Cushing, Steven. 1972. The semantics of sentence pronominalization. *Foundations of Language* 186–208.

Djärv, Kajsa. 2019. *Factive and assertive attitude reports*: University of Pennsylvania dissertation.

Djärv, Kajsa. 2023. Knowing and believing things: What DP-complementation can tell us about the meaning and composition of (factive) attitudes. *Journal of Semantics* 40(2-3). 179–233.

Farkas, Donka F & Kim B Bruce. 2010. On reacting to assertions and polar questions. *Journal of semantics* 27(1). 81–118.

von Fintel, Kai & Anthony S Gillies. 2010. Must... stay... strong! *Natural language semantics* 18. 351–383.

von Fintel, Kai & Anthony S. Gillies. 2011. 'might' made right. In Andy Egan & Brian Weatherson (eds.), *Epistemic modality*, 108–130. Oxford University Press.

Gunlogson, Christine. 2008. A question of commitment. *Belgian Journal of Linguistics* 22(1). 101–136.

Heim, Irene. 1991. Artikel und definitheit. In A. von Stechow & D. Wunderlich (eds.), *Semantik: Ein internationales handbuch der zeitgenössischen forschung*, Berlin: de Gruyter.

Hintikka, Jaakko. 1962. *Knowledge and belief*. Ithaca, N.Y.,: Cornell University Press.

Hooper, Joan B & Sandra A Thompson. 1973. On the applicability of root transformations. *Linguistic inquiry* 4(4). 465–497.

Kiparsky, Paul & Carol Kiparsky. 1970. *Fact* 143–173. Berlin, Boston: De Gruyter Mouton. https://doi.org/doi:10.1515/9783111350219.143.

Kratzer, Angelika. 1981. The notional category of modality. In Hans-Jürgen Eikmeyer & Rieserm Hannes (eds.), *Words, worlds, and context*, 38–74. Berlin: Walter de Gruyter.

Kratzer, Angelika. 1991. Modality. In Dieter Wunderlich & Arnim von Stechow (eds.), *Semantik: Ein internationales handbuch zeitgenoessischer forschung*, 639–650. Berlin: Walter de Gruyter.

Krifka, Manfred, Jutta M Hartmann & Angelika Wollstein. 2023. Layers of assertive clauses: Propositions, judgements, commitments, acts. *Propositionale Argumente im Sprachvergleich: Theorie und Empirie* 115–181.

Lindholm, James M. 1969. Negative-raising and sentence pronominalization. In *Proceedings from the Annual Meeting of the Chicago Linguistic Society*, vol. 5 1, 148–158. Chicago Linguistic Society.

Meijer, Anna Marlijn. 2022. *Propositional Anaphora: The case of embedded polar responses in Dutch and English*: Universität zu Köln dissertation.

Needham, Stephanie Maureen. 2012. *Propositional anaphora in English: The relationship between* so *and discourse*: Carleton University MA thesis.

Roberts, Thomas de Haven. 2020. Argument saturation and the syntactic status of embedded clauses. *BCGL 13: The Syntax and Semantics of Clausal Complementation* .

Roberts, Thomas de Haven. 2021. *How to make believe: Inquisitivity, veridicality, and evidentiality in belief reports*: UC Santa Cruz dissertation.

Runner, Jeffrey T. & Keir Moulton. 2017. The Accusative Plus Infinitive Construction in English. In *The Companion to Syntax*, 1–19. Wiley Blackwell.

Simons, Mandy. 2007. Observations on embedding verbs, evidentiality, and presupposition. *Lingua* 117(6). 1034–1056.

Snider, Todd Nathaniel. 2017. *Anaphoric reference to propositions*: Cornell University dissertation.