Evaluative adjective sentences: A question-based analysis of projection

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Abstract

Two contents of evaluative adjective sentences, like *Kim was smart to watch the movie*, are the prejacent (that Kim watched the movie) and the generalization (that the degree to which Kim watching the movie is smart is higher than the contextual standard of *smart*). The prejacent is standardly analyzed as a presupposition (e.g., Norrick 1978, Barker 2002, Oshima 2009, Kertz 2010). This paper argues against analyses according to which the prejacent is a lexically specified presupposition because they, among other things, do not capture an interaction between the prejacent and the generalization that has not yet been observed for projective content: when the prejacent projects, the generalization does not, and when the prejacent does not project, the generalization does. We develop an analysis according to which the prejacent is not a lexically specified presupposition but projects if it is not at-issue with respect to the question addressed by the utterance of the evaluative adjective sentence. In addition to capturing the interaction between the prejacent and the generalization, our question-based projection analysis significantly extends previous such analyses (e.g., Beaver and Clark 2008, Simons et al. 2017, Beaver et al. 2017, Abrusán 2011) by incorporating a novel constraint on the question addressed by an utterance: the more the truth of an utterance content is taken to follow from the common ground, the less likely the question is about that content. We provide experimental evidence for the proposed analysis and argue that our analysis improves on that of Karttunen et al. 2014, according to which evaluative adjectives are systematically ambiguous.

1 Introduction

In an evaluative adjective sentence (EAS) like (1), the evaluative adjective *stupid* subcategorizes for a non-pleonastic subject noun phrase (*Feynman*) and a *to*-infinitive (*to dance on the table*); the subject of the predicate *be stupid* is the understood subject of the *to*-infinitive (e.g., Wilkinson 1970, Norrick 1978, Barker 2002, Kertz 2010). One of the contents standardly discussed in the literature is (what we refer to as) the prejacent: in (1), the prejacent is that Feynman danced on the table.

(1) Feynman was stupid to dance on the table. (Barker 2002:18)

The prejacent has traditionally been analyzed as a presupposition (e.g., Norrick 1978, Barker 2002, Oshima 2009, Kertz 2010). In formal analyses in this tradition, evaluative adjectives like *stupid* lexically specify that the prejacent must be entailed by or satisfied in the common ground of the interlocutors in order for an EAS to be interpretable (e.g., Heim 1983, van der Sandt 1992). Such analyses are motivated by and straightforwardly account for the variants of (1) in (2) in which the prejacent may project over entailment-canceling operators, i.e., negation in (2a), a polar question in (2b), the possibility adverb *perhaps* in (2c) and the antecedent of the conditional in (2d). That is, speakers who utter (2a-d) may be taken to be committed to the prejacent, that Feynman danced on the table, even though the evaluative adjective is embedded under an entailment-canceling operator.

(2) a. Feynman wasn't stupid to dance on the table.
b. Was Feynman stupid to dance on the table?
c. Perhaps Feynman was stupid to dance on the table.
d. If Feynman was stupid to dance on the table, then tell him. (Barker 2002:18f.)

Recently, Karttunen et al. (2014) provided naturally occurring examples that show that utterances of sentences in which the evaluative adjective is embedded under negation can receive an interpretation according to which the prejacent does not project, i.e., can be interpreted in the scope of negation. For instance, the speaker of (3a) is not committed to living close to their parents and instead communicates that they do not live close to their parents. Likewise, the speaker of (3b) communicates that they did not go stumbling through the junkyard and get hurt.

(3) Karttunen et al. 2014:235
a. I wasn't fortunate to live extremely close to my Mom and Dad for most of my adult life. The closest was when I was in Denver and they were in Garden City, KS.
b. Now I knew someone was in the junkyard and the cold wind was carrying the cries. I wasn't stupid to go stumbling through the junkyard in the dark and get hurt.

Before discussing why such examples are problematic for analyses of the prejacent as a lexically specified presupposition, we would first like to acknowledge that there is variation in the population of native speakers of American English: whereas speakers are generally able to interpret EASs in which the prejacent does not project, i.e., are able to retrieve the intended interpretations of examples like (3), a sizeable portion strongly prefers to realize such interpretations with variants that includes *enough*, as in *I wasn't stupid enough to go stumbling through the junkyard in the dark* for (3b); see also Karttunen 2013 and Karttunen et al. 2014 for this observation. Nevertheless, EASs in which the prejacent does not project are part of American English, as evidenced by the existence of naturally occurring examples like (3). Additional evidence comes from the fact that there are native speakers who judge such EASs to be perfectly acceptable[1] and who produce examples like (3). We therefore assume that native speakers of American English are generally able to retrieve both interpretations of EASs even if they might not produce EASs in which the prejacent does not project. Our goal in this paper is to analyze the interpretation of EASs; we briefly return to the observed variation after developing our analysis.

To account for examples like (3), in which the prejacent does not project, presupposition analyses appeal to local accommodation, a process whereby a presupposition is added to a local context, such as that created by negation: presuppositions can be locally accommodated if adding the presupposition to the common ground of the interlocutors (a process known as global accommodation) would result in a contradiction, uninformativity or problems with binding (Heim 1982, van der Sandt 1992). In example (3a), for instance, the prejacent, that the speaker lived close to their parents, is locally accommodated under negation because globally accommodating the prejacent in the common ground would result in a contradiction: according to the context, the closest that the speaker lived to their parents was when the speaker lived in Denver, Colorado, i.e., about 300 miles (480 km) away from their parents in Garden City, Kansas. The prejacent is correctly predicted to be locally accommodated in (3a) and thereby is not a commitment of the speaker.

Negated evaluative adjective sentences (NEASs) like (3) point to two problems for analyses according to which the prejacent is a presupposition. The first problem concerns the prejacent. In example (3b), globally accommodating the prejacent does not result in a contradiction, uninformativity or problems with

[1]The audiences to which this research was presented over the years always included native speakers that judged examples like (3) to be acceptable. More systematic evidence for the existence of such speakers comes from the acceptability rating study presented in Appendix A: of the 94 self-reported native speakers of American English that participated in the study, about 20-30% judged negated evaluative adjective sentences without *enough* to be acceptable under a non-projecting interpretation of the prejacent.

binding: if the prejacent, that the speaker went stumbling in the junkyard, was added to the common ground, (3b) would mean that the speaker knew that someone was in the junkyard, that they stumbled through the junkyard and got hurt, and that the speaker does not consider these actions stupid (perhaps because these actions led to the person in the junkyard receiving help). Because such an interpretation does not result in a contradiction, uninformativity or problems with binding, analyses of the prejacent as a presupposition incorrectly predict that the prejacent of (3b) is globally accommodated, i.e., is a commitment of the speaker.[2]

The second problem concerns content other than the prejacent: here, the two prior analyses that explicitly consider content other than the prejacent, Oshima 2009 and Barker 2002, do not make sufficiently strong predictions. Consider first Oshima 2009. On this analysis, the prejacent is a presupposition and what is asserted is the following complex content: from the prejacent it can be inferred that the denotation of the subject is in the extension of the evaluative adjective (p.371). That is, (2a) is predicted to presuppose that Feynman danced on the table and to assert that it cannot be inferred from Feynman dancing on the table that Feynman is stupid. Similarly then, (3b) is predicted to convey that the speaker did not stumble through the junkyard (if the prejacent is locally accommodated) and to assert that it cannot be inferred from the speaker stumbling through the junkyard that the speaker is stupid. This assertion is too weak: (3b) means that the speaker stumbling through the junkyard would be stupid.

Next consider Barker 2002. This analysis considers the prejacent, which is taken to be presupposed, and a content that we refer to as the generalization: the generalization of (2a) is that the degree to which Feynman dancing on the table is stupid is higher than the contextual standard of *stupid*; that of (3b) is that the degree to which the speaker stumbling through the junkyard in the dark is stupid is higher than the contextual standard of *stupid*. On Barker's (2002) dynamic semantic analysis, the update effect of a NEAS like (2a) is to check that, for each world, the presupposed prejacent is true and to filter out those worlds in which the generalization is false; thus, only those worlds remain in which Feynman dancing on the table is not considered stupid. Similarly then, the update effect of (3b), in which the prejacent is locally accommodated, is to filter out those worlds in which the contextual standard of *stupid* is too high for the speaker's participation in the event of stumbling through the junkyard to count as stupid. The worlds that remain are ones in which the speaker does not stumble through the junkyard and in which the speaker stumbling through the junkyard is not stupid. This, again, is not what (3b) is understood to mean.

The examples in (3) reveal a remarkable interaction that has not yet been observed for projective content and that was not noted in Karttunen et al. 2014: when the prejacent projects, the generalization does not, as in (2b), and when the prejacent does not project, the generalization does, as in (3b). To illustrate that this behavior is strikingly different from the interpretation of utterances of other sentences that give rise to projective content consider (4). When the content of the clausal complement of *know*, that the meeting was canceled, projects, what is denied is Sam's knowledge of this content. The critical difference between EASs and examples like (4) comes out when the content of the complement does not project, as is brought out, for instance, by continuing (4) with *. . . he, like all of us, is in the dark about whether the meeting will take place*. In this case, Sam's knowledge of the content that the meeting was canceled is still denied and the speaker is not taken to be committed to either its truth or its falsity. Thus, the two contents of (4) do not exhibit the interaction of the projectivity of the prejacent and the generalization.

(4) Sam doesn't know that the meeting was canceled.

This observation has strong implications for analyses of EASs according to which the prejacent is a lexically specified presupposition. First, when the prejacent is locally accommodated under negation, the speaker is

[2]It may be possible to account for the non-projection of the prejacent on the basis of plausibility considerations: von Fintel 2008:162, for instance, proposed that "what gets accommodated depends on the best guess of the hearers about what the speaker might have intended as the adjustment to the common ground that would admit the asserted sentence". The cues to the projectivity of the prejacent identified in the following sections may help flesh out the reasoning process that hearers and readers undergo in interpreting EASs. Plausibility considerations do not, however, address the second problem that presuppositional analyses face.

committed to the falsity of the prejacent; this is in contrast to a locally accommodated factive presupposition, for which the speaker is not committed to its truth or falsity. Second, when the prejacent is locally accommodated under some operator, the generalization is not interpreted under that operator, in contrast to the attitude ascription with *know* which is always interpreted in the scope of the operator. These observations are problematic for advocates of analyses according to which the prejacent is a lexically specified presupposition and projection is assumed to be governed by the standard mechanisms of presupposition projection (e.g., Heim 1983, van der Sandt 1992).

Karttunen et al.'s 2014 analysis of EASs made progress over previous analyses by assuming that evaluative adjectives are ambiguous between the two schematic lexical entries in (5): the prejacent is specified as presupposed in the lexical entry in (5a) but not in (5b).

(5) Karttunen et al. 2014:249: Presuppositions and assertions of EASs of the form 'NP was Adj to VP'

a. *adj*1
Presupposed content: NP VPed
Asserted content: For NP to VP would be Adj

b. *adj*2
Presupposed content: For NP to VP would be Adj & for NP not to VP would not be Adj
Asserted content: What NP did about VPing was Adj

These two lexical entries correctly predict an interpretation of the NEAS in (2a) in which the prejacent projects and an interpretation of the NEAS in (3b) according to which the prejacent does not project. Furthermore, the lexical entry in (5b) predicts that the NEAS in (3b) has an interpretation according to which it is presupposed that for the speaker to stumble through the junkyard would be stupid and for the speaker to not stumble through the junkyard would not be stupid; thus, in contrast to Oshima's 2009 and Barker's 2002 analyses, this analysis correctly predicts that (3b) conveys that the speaker stumbling through the junkyard would be stupid. Finally, Karttunen et al.'s analysis captures the interaction between the projection of the prejacent and the generalization: when the prejacent projects, as in the lexical entry in (5a), the generalization does not, by virtue of being coded in the asserted content; when the prejacent does not project, as in the lexical entry in (5b), the generalization does, by virtue of being part of the presupposed content.

There are, however, concerns with Karttunen et al.'s analysis. First, because it is not formalized, it is not clear that it makes correct predictions about content other than the prejacent. According to the lexical entry in (5a), what is asserted is that it is not the case that for Feynman to dance on the table would be stupid: Karttunen et al. (2014:248) assume that from this asserted content and the presupposed prejacent it is not the case that Feynman dancing on the table was stupid. According to the lexical entry in (5b), what is asserted is that it is not the case that what the speaker did about stumbling through the junkyard was stupid. That the prejacent is negated (the speaker didn't stumble through the junkyard) follows, according to Karttunen et al. 2014:249, from what is presupposed and what is asserted. A second concern is that Karttunen et al.'s analysis comes at a high cost: to derive the two interpretations, evaluative adjectives are systematically ambiguous. Finally, in addition to hardwiring the projection of the prejacent into one lexical entry but not the other, the analysis also hardwires the interaction between the projection of the prejacent and the generalization. Preferably, this interaction would fall out of a projection analysis.

In the next section, we develop an analysis of EASs under which evaluative adjectives only have a single lexical entry. The analysis correctly predicts the two attested interpretations of EASs and the interaction between the projection of the prejacent and the generalization falls out of the analysis. Section 3 provides experimental evidence for two predictions of the analysis. After briefly considering the aforementioned interspeaker variation in section 4, the paper concludes in section 5.

2 A question-based analysis of the projective content of EASs

As discussed above, previous analyses of EASs have attributed the projectivity of the prejacent to its lexical specification as a presupposition. More recently, the observation that some utterance content is not highly projective and that its projection is sensitive to the discourse context has led to the development of analyses according to which projection is not derived from a lexical specification but rather derived from projective content being backgrounded or not-at-issue (e.g., Abrusán 2011, 2016, Simons et al. 2010, 2017, Beaver et al. 2017). In this paper, we follow such proposals and argue that the prejacent of an EAS projects when it is not at-issue with respect to the question addressed by the utterance of the EAS. Empirical motivation for developing such an analysis comes from the observation that the prejacent of EASs is not highly projective. Tonhauser et al.'s 2018 experimental investigation found that the projectivity of the prejacent of EASs with *stupid* was significantly lower than that of non-restrictive relative clauses and appositive content, as well as of the content of the complement of the factive predicates *be annoyed* and *know*. In naturally occurring data, too, the prejacent is not highly projective. In a corpus-based web study, we collected 'certainty' ratings on a 7-point Likert scale from 226 native speakers of American English for the prejacents of 59 naturally occurring NEASs: the higher the certainty rating, the more projective the prejacent. Figure 1 shows the mean certainty ratings of the 59 NEASs by evaluative adjective: across the examples, the prejacent is not highly projective; the mean certainty rating was only 3.2. Details on this study are given in Appendix B.

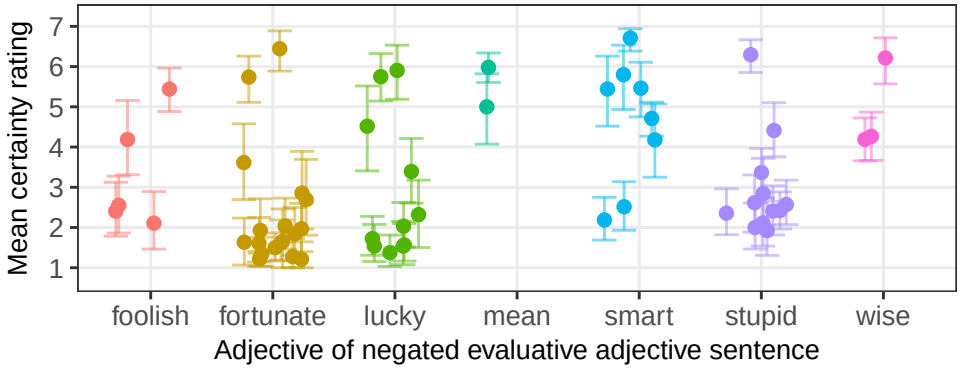

Figure 1: Mean certainty ratings of 59 naturally occurring NEASs by evaluative adjective. Error bars indicate bootstrapped 95% confidence intervals.

In this section, we develop a question-based projection analysis for EASs.[3] We start in section 2.1 by introducing relevant aspects of the question-based projection analysis developed in Simons et al. 2017. In section 2.2, we show that the prejacent and the generalization are lexical entailments of EASs and that, furthermore, exactly one of them is at-issue in any given utterance; this predicts the interaction in the projection of these two contents. In section 2.3, we extend previous question-based projection analyses by incorporating a constraint on the questions addressed by utterances of EASs.

2.1 Utterance content projects if it is not at-issue with respect to the Discourse Question

As illustrated in section 1, it is a long-standing observation that the content of the complement of an example like (4) *Sam doesn't know that the meeting was canceled* can project, but need not. Under lexicalist

[3]This is not to suggest that lexicalist projection analyses are never appropriate: we assume, for instance, that contents associated with what Tonhauser et al. 2013 refer to as a Strong Contextual Felicity constraint are lexically specified presuppositions and that the projection of conventional implicatures is best attributed to conventional specification (e.g., Potts 2005, Murray 2014). For discussion see Tonhauser et al. 2013, 2018, 2019.

projection analyses, the projection of the content of the complement is predicted by specifying it as a presupposition in the lexical entry of the factive predicate (e.g., Heim 1983, van der Sandt 1992, Schlenker 2010. Several non-lexicalist analyses have been proposed over the years: these argue that the projection of the content of the complement is due to pragmatic considerations in order to capture, among other things, that content of the complement is not highly projective and that its projection is sensitive to the discourse context (e.g., Wilson 1975, Simons 2001, Abusch 2002, 2010, Abrusán 2011, 2016, Romoli 2015). In this paper, we adopt Simons et al.'s 2017 question-based projection analysis for the content of the complement of factive predicates to account for the projective content of EASs.

According to Simons et al. 2017, one of the conditions under which the content of the complement of a factive predicate projects, i.e., is understood as a commitment of the speaker, is if the content of the complement is not at-issue with respect to the Discourse Question addressed by the utterance of the sentence with the factive predicate. The Discourse Question "provides the topic of a segment of discourse and imposes relevance constraints on conversational contributions" (p.192) and utterance content is at-issue with respect to the Discourse Question of the utterance if the content addresses the Discourse Question, i.e., entails at least a partial answer to the question (Roberts 2012/1996). To illustrate, consider the content of the clausal complement of *discover* in B's utterances in (6a) and (6b), that Harriet was at Princeton for a job interview. In the these examples, the Discourse Questions that B's utterances address are made explicit by A's interrogative utterances. In (6a), the content of the clausal complement of *discover* is at-issue because it addresses the Discourse Question: that Harriet was at Princeton for a job interview is an answer A's interrogative utterance of where Harriet was yesterday. In (6b), on the other hand, the content of the clausal complement is not at-issue because it is not an answer to A's interrogative utterance; rather, here the Discourse Question is addressed by the main clause content of B's utterance.

(6) a. A: Where was Harriet yesterday?
B: Henry discovered that she was at Princeton for a job interview.
b. A: Why is Henry in such a bad mood?
B: He discovered that Harriet was at Princeton for a job interview.
(examples adapted from Simons 2007:1035)

Now consider the example in (7), in which *discover* is embedded under an entailment-canceling operator. Here, the speaker is not taken to be committed to the content of the main clause; rather, the speaker is asking whether Henry discovered the content of the complement.

(7) Did Henry discover that Harriet was at Princeton for a job interview?

By contrast, the content of the complement of *discover* is not merely an entailment but may project, as noted above.[4] According to Simons et al. 2017, one of the conditions under which the content of the complement projects is when it is not at-issue with respect to the Discourse Question addressed by the utterance. Consider the examples in (8), where A's interrogative utterances again make explicit the Discourse Questions addressed by B's utterances. In (8a), the content of the complement of B's utterance does not address the Discourse Question, i.e., is not at-issue. Here, B is taken to be committed to the content of the complement: to make sense of B's utterance as an answer to A's question, there must be a connection between the possibility of Henry discovering something about Harriet and Henry's mood; an obvious connection is that B takes the content of the complement to be true, i.e., that it is possible that Henry discovered that Harriet was at Princeton for a job interview. Thus, the content of the complement projects. In (8b), by contrast, the content of the complement addresses the Discourse Question, i.e., is at-issue. Here, B need not be taken to

[4]For the assumption that at least some presuppositions, as well as other projective content, are entailments that may project see, e.g., Gazdar 1979, Barker 2002, Schlenker 2010, Abrusán 2011, 2016, Anand and Hacquard 2014.

be committed to the content of the complement to make sense of how B's utterance addresses A's question and the content of the complement does not project.

(8) a. Context: Henry and Harriet are an academic couple that lives on the West Coast.
A: Why is Henry in such a bad mood?
B: Did he discover that Harriet was at Princeton for a job interview?
b. Context: Henry is a nosy colleague of Harriet and well-informed about her whereabouts.
A: Where was Harriet yesterday?
B: Did Henry discover that she was at Princeton for a job interview?

In sum, according to Simons et al. 2017, utterance content projects if it is not at-issue with respect to the Discourse Question addressed by the utterance. The question of why not-at-issue content projects has received several answers. According to Potts (2005), it projects because it is contributed to a separate dimension of meaning and, according to Simons et al. (2010), because it is not targeted by operators like negation and thereby projects over such operators. In this paper, we follow Abrusán 2011, 2016 in assuming that not-at-issue content is backgrounded and projects as a result of its discourse status.[5] For empirical evidence that at-issueness predicts projection, see Tonhauser et al. 2018, who investigated the hypothesis for 19 projective contents associated with American English expressions.

In naturally occurring discourse, the Discourse Question addressed by an utterance is more likely to be implicit rather than explicit. When the Discourse Question is implicit, the utterance itself and the discourse context in which it is made provide cues to the Discourse Question, and thereby to the at-issueness and projection of utterance content. For instance, for utterances of sentences with factive predicates, the information structure of the utterance, in particular prosodically marked focus, have been shown to constrain the question addressed by the utterance and, hence, the at-issueness and projection of the content of the complement (e.g., Beaver 2001, Cummins and Rohde 2015, Tonhauser 2016, Simons et al. 2017, Djärv and Bacovcin 2017, Mahler 2019). Importantly, when the Discourse Question is implicit, there may be uncertainty on part of the interpreter about the Discourse Question that the speaker intended to address with their utterance and, consequently, about whether a particular utterance content is at-issue. In other words, for any given utterance content, the listener may be more or less likely to assume that it is at-issue. Under the assumption that utterance content projects if it is not at-issue, variability in the extent to which utterance content is taken to be at-issue translates to variability in the extent to which the speaker is taken to be committed to that content, i.e., projection variability. This is captured in Tonhauser et al.'s 2018 Gradient Projection Principle:

(9) **Gradient Projection Principle:** If content *C* is expressed by a constituent embedded under an entailment-canceling operator, then *C* projects to the extent that it is not at-issue.
(Tonhauser et al. 2018:499)

According to Tonhauser et al. 2018:498f., there are at least two interpretations of what it means for projectivity to be a gradient property:

[5] We do not adopt Abrusán's analysis otherwise because it does not appear to make correct predictions for EASs. Abrusán (2011) proposed that entailments of utterances that are about the running time of the main event are the default main point, i.e., what we have referred to as the at-issue content. This analysis, however, does not make correct predictions for EASs: given Abrusán's notion of aboutness, both the prejacent and the generalization of EASs are about the running time of the main event. For instance, Abrusán (2011:508) took the entailment of (i), that John solved the exercise, to be "non-accidentally (i.e., necessarily) about the matrix event time". By the same argument, the prejacent of (ii) would be about the matrix event time, which means that neither the prejacent nor the generalization are predicted by Abrusán 2011 to be the default at-issue content of EASs.

(i) John managed (at time t1) to solve the exercise (at t1). (Abrusán 2011:508)

(ii) John was smart (at time t1) to solve the exercise (at t1).

> "On a first interpretation, a listener's (or reader's) judgment that a content is projective to a certain extent means that the listener takes the speaker (or writer) to be committed to the content to that extent. On this interpretation, projectivity being a gradient property is a consequence of speaker commitment being a gradient property. On a second interpretation, a listener's judgment that a content is projective to a certain extent reflects the probability with which they believe the speaker to be committed to the content. On this interpretation, speaker commitment may be a binary, categorical property and projection variability arises from the listener's uncertainty about the whether the speaker is committed."

Like Tonhauser et al. 2018, we remain agnostic about the underlying interpretation of projectivity as a gradient property, though our discussion of projection variability will be in line with the first interpretation.

After considering, in the next section, which contents of EASs can be at-issue, we show in section 2.3 that the discourse status of utterance content constrains the Discourse Question that the utterance of the EAS is taken to address.

2.2 Lexical entailments of evaluative adjective sentences

This section shows that both the prejacent and the generalization are lexical entailments of EASs and that both of these utterance contents can but need not be at-issue. What follows, given the framework set up in the previous section, is that both the prejacent and the generalization can project.

We assume, with Barker 2002, that the prejacent and the generalization are lexical entailments of unembedded EASs (but not that the prejacent is lexically specified as presupposed).[6] As shown in (10), the generalization is timeless and the tense of the EAS determines the temporal reference of the prejacent.

(10) Consider an unembedded EAS of the form 'NP be.TENSE Adj to VP'. Assume that the translation of the NP is the constant np (of type e), of the Adj is adj' (of type $\langle\langle ev, t\rangle, t\rangle$) and of the VP is VP' (of type $\langle e, \langle ev, t\rangle\rangle$), and that the temporal location of the reference time rt is constrained by the tense marking of the EAS. The EAS has the following lexical entailments:

a. Prejacent: $\exists e(VP'(np)(e) \wedge at(rt, \tau(e)))$
"There is an event of np vping and the run time of that event is located at the reference time."

b. Generalization: $adj'(VP'(np))$
"The degree to which events of np vping are adj is higher than the contextual standard for adj."

By (10), a past tense EAS like (1) *Feynman was stupid to dance on the table* entails that Feynman danced on the table (the prejacent) and that the degree to which events of Feynman dancing on the table are stupid is higher than the contextual standard for *stupid* (the generalization). Generalizations are timeless and the events involved may but need not be actual: for instance, it does not follow from the generalization of (1) that an event of Feynman dancing on the table took place; this follows from the prejacent.

The proposal that the prejacent and the generalization are entailments predicts that unembedded EASs are judged to be unacceptable if either of the two lexical entailments is false. The examples in (11) show that that prediction is borne out. Consider (11a), whose prejacent is false and whose generalization is true (under the assumption that the degree to which events of anybody, including Kim, being born into poverty

[6] Some EASs with *will* appear to not entail the prejacent: for example, some speakers do not judge (i) to entail that Johnson will take what he can get. We thank David Beaver (p.c.) for this point, which we sidestep here.

(i) With more teams denying interest in Johnson, he will be smart to take what he can get.
(*http://www.sportsworldreport.com/articles/28999/20140407/chris-johnson-rumors-ny-jets-release-mike-goodson-free-agent-signs-dallas-cowboys-demarco-murray-rams-falcons.htm*)

are unfortunate is higher than the contextual standard of *unfortunate*): this example is correctly predicted to be unacceptable because the prejacent is false. In (11b), on the other hand, the prejacent is true and the generalization is false (under the assumption that the degree to which events of anybody, including Sandy, being born into poverty are lucky is lower than the contextual standard of *lucky*). This sentence is correctly predicted to be judged to be unacceptable because the generalization is false.

(11) a. What is true: Kim was born to rich parents
#Kim was unfortunate to be born into poverty.

b. What is true: Sandy was born into poverty
#Sandy was lucky to be born into poverty.

Having motivated that both the prejacent and the generalization are lexical entailments of EAS, we now turn to the discourse status of these contents. The discourse status of the prejacent and the generalization is not conventionally specified by the EAS: both can be entailed by the common ground at the time at which the EAS is uttered or new information at that time; in other words, neither content is associated with what Tonhauser et al. 2013 call a Strong Contextual Felicity constraint. To illustrate, consider the naturally occurring EASs in (12). The EAS in (12a) is acceptable in a context in which the prejacent follows from the common ground, i.e., the interlocutors already know that Trump gave Wolff unlimited access, and in which the speaker conveys the generalization as new information, i.e., that they take the degree to which events of Trump giving Wolff unlimited access are stupid to be higher than the contextual standard of *stupid*. The EAS in (12b) illustrates that the discourse status of the prejacent and the generalization can also be reversed: (12b) is acceptable in a context in which the generalization follows from the common ground, whereas the prejacent, that MacLean grabbed Kouassi in his private parts is new information. And, finally, there are also EASs in which both the prejacent and the generalization may be new information: (12c) is acceptable in a context in which neither the generalization nor the prejacent follow from the common ground. When a speaker utters the EAS in (12c), the speaker may be thereby committing to the truth of the prejacent, that they bought an Xbox, as well as to the truth of the generalization, that the degree to which events of them buying an Xbox 360 elite are stupid is higher than the contextual standard of *stupid*.

(12) a. Trump was stupid to give Wolff unlimited access.[7]

b. Steven MacLean was stupid to grab Eboue Kouassi in his private parts.[8]

c. I was stupid to buy the Xbox 360 elite.[9]

Not only can both the prejacent and the generalization of an EAS be new information, they can also both be at-issue with respect to the Discourse Question addressed by an utterance of the EAS. Of course, given the characterization of at-issue content as addressing the Discourse Question, only one of them is at-issue in any given utterance of an EAS. We further assume that the prejacent and the generalization are the only contenders for at-issue content of an EAS, which means that exactly one of them is at-issue in any given utterance of an EAS; the other one is not-at-issue.[10] To illustrate, consider the examples in (13), in which utterances of the same EAS address four distinct Discourse Questions. The Discourse Questions in (13a) and (13b) are about the prejacent: both the question of whether Sam got a ticket in (13a) and who got

[7] https://www.eastbaytimes.com/2018/01/07/letter-trump-was-stupid-to-give-wolff-unlimited-access/

[8] https://www.heraldscotland.com/sport/17189197.brendan-rodgers-steven-maclean-was-stupid-to-grab-eboue-kouassi-in-his-private-parts/

[9] www.gamespot.com/forums/xbox-association-1000003/i-was-stupid-to-buy-the-xbox-360-elite-26937557

[10] As discussed in detail in Barker 2002:§4.2, EASs also give rise to subject-related entailments, namely that the denotation of the subject noun phrase is capable of volition and, regarding the situation described by the *to*-infinitive, has the power to bring it about and intends for it to come about. We follow Barker 2002 in assuming that these entailments are lexically specified presuppositions and thereby conventionally specified as not at-issue.

a ticket in (13b) are answered by the prejacent of B's utterances, that Sam got a ticket.[11] Thus, in (13a) and (13b), the prejacent is at-issue and the generalization, that the degree to which events of Sam buying a ticket the day the tickets went on sale are smart is higher than the contextual standard of *smart* is not at-issue. The Discourse Questions in (13c) and (13d), on the other hand, are not about the prejacent: neither the question about B's assessment of events of Sam buying a ticket they went on sale (13c) nor the question of whether Sam was smart to buy a ticket the day they went on sale in (13d) are answered by the prejacent of B's utterances; rather they are answered by the generalization. Thus, in (13c) and (13d), the generalization is at-issue and the prejacent is not at-issue.

(13) a. A: The show was sold out. Did Sam get a ticket?
B: She was smart to buy one the day they went on sale.
b. A: There were so few tickets for the show! Who got a ticket?
B: Sam was smart to buy one the day they went on sale.
c. A: How do you assess Sam's buying of a ticket the day they went on sale?
B: Sam was smart to buy one the day they went on sale.
d. A: Was Sam smart to buy a ticket for the show the day the tickets went on sale? The price would have gone down after a few days!
B: Sam was smart to buy one the day they went on sale. The show sold out the day the tickets went on sale.

We are now ready to return to our question-based projection analysis of EASs, according to which the prejacent projects when it is not at-issue with respect to the Discourse Question addressed by the EAS, and likewise for the generalization. Consider the minimal pair in (14a) and (14b), where B utters the same NEAS, modulo whether the subject is a pronoun or a proper name. The prejacent of this NEAS is at-issue in (14a) because A's interrogative utterance, assumed to be the Discourse Question, is about the prejacent. Thus, according to our proposal, the prejacent of B's utterance in (14a) is not predicted to project but the generalization, as not-at-issue content, projects: accordingly, B's utterance means that Sam didn't buy a ticket the day they went on sale (the prejacent does not project) and that the degree to which events of Sam buying a ticket the day they went on sale are smart is higher than the contextual standard of *smart* (the generalization projects). What follows is that it would have been smart for Sam to buy a ticket on the day they went on sale. In (14b), on the other hand, A's interrogative utterance is about the generalization. Thus, the prejacent of B's utterance is not at-issue and, according to our proposal, is predicted to project, whereas the generalization does not project over negation. Accordingly, B's utterance is interpreted to mean that Sam bought a ticket the day they went on sale (the prejacent projects) and that the degree to which events of Sam buying a ticket the day they went on sale are smart is not higher than the contextual standard of *smart* (the generalization does not project). What follows is that Sam having bought a ticket on the day they went on sale wasn't smart.

(14) a. A: The show was sold out. Did Sam get a ticket?
B: She wasn't smart to buy a ticket the day they went on sale. (So, she didn't go to the show.)
b. A: You keep criticizing Sam for doing some not-so-smart things. I'm not sure I agree. Can you give me an example (of something not-so-smart that Sam did)?

[11] Some native speakers of American English would prefer to produce B's utterances in (13a) and (13b) with *enough*: *She was smart enough to buy one the day they went on sale*. We hypothesize that such speakers disprefer producing EASs in which the prejacent is at-issue. Given our hypothesis that the prejacent projects when it is not at-issue, we would expect such speakers to also disprefer producing NEASs like (3) in which the prejacent does not project. Crucially, as discussed in section 1, even speakers who prefer to produce (13a) and (13b) with *enough* can retrieve the intended interpretations of the variants without *enough*.

B: Sure! Remember the rock show we talked about? Sam wasn't smart to buy a ticket the day they went on sale. The price went down a couple of days later.

In sum, our proposal accounts for two properties of the interpretation of EASs: the projectivity of the prejacent and the generalization, and the interaction in their projection. First, the more the prejacent and the generalization are taken to be not at-issue, the more highly projective they are. Second, given that either the prejacent or the generalization must be at-issue in any given utterance of an EAS, it falls out of the analysis that the more the generalization is taken to be at-issue, the more projective the prejacent is, and the more the prejacent is taken to be at-issue, the more projective the generalization is.

In the examples we have entertained so far, the Discourse Question was realized by an interrogative utterance, thereby making clear whether the prejacent or the generalization are at-issue. However, as noted above, the Discourse Question is often implicit in naturally occurring discourse. Although previous work has identified focus marking as constraining the question that an utterance can be taken to address (and thereby influencing projection), we do not entertain focus marking here because the prosody of EASs hasn't been investigated yet (see section 5 for some remarks). Instead, the next section identifies a novel constraint on the Discourse Question of utterances, including utterances of EASs.

2.3 At-issue content is not redundant content

We propose here that one of the constraints on the Discourse Question addressed by an utterance comes from a felicity requirement that is found in different guises in the literature: an utterance of an indicative sentence is felicitous only if the sentence is informative in the context in which it is uttered. Groenendijk (1999:144), for instance, formulated this as the requirement that indicative sentences be non-redundant. We assume here that an utterance of a sentence is informative if its at-issue content is not already entailed by the common ground of the interlocutors prior to the utterance of the sentence.[12] Since content is at-issue with respect to the Discourse Question addressed by the utterance, this means that the Discourse Question cannot be about content that is entailed by the common ground because such a Discourse Question would render the utterance uninformative. What follows is that the more a particular utterance content is taken to follow from the common ground, the less likely the Discourse Question of the utterance is about that content:

(15) **Non-redundancy principle for at-issue content**
The more the truth of utterance content c is taken to follow from the common ground, the less likely is it that the Discourse Question of the utterance is about c, i.e., the less likely c is at-issue.[13]

The principle in (15) has consequences for the interpretation of EASs: the more the truth of the prejacent is taken to follow from the common ground, the less likely the Discourse Question of the EAS is about the prejacent and, therefore, the more likely the generalization is taken to be at-issue and the less projective the generalization is. And vice versa: the more the truth of the generalization is taken to follow from the common ground, the less likely the Discourse Question of the EAS is about the generalization and, therefore, the more likely the prejacent is taken to be at-issue and the less projective the prejacent is. To illustrate the consequences of (15) for the projection of the prejacent and the generalization, consider the

[12]The not-at-issue contents of utterances, on the other hand, are heterogeneous with respect to their discourse status: some not-at-issue content, like factive presuppositions, may be new information or already entailed by the common ground, anaphoric presuppositions must be entailed by the common ground and, finally, conventional implicatures have been argued in Potts 2005 to be required to not be entailed (see Tonhauser et al. 2013 for discussion). We follow works like Potts 2005 and Murray 2014 in assuming that conventional implicatures are always not at-issue. Thus, while both the at-issue content and conventional implicatures may be new information, they differ at-issueness.

[13]To be clear, this principle is meant as a conditional, not a bi-conditional: it is not the case that the less likely it is that the Discourse Question is about a particular content, the more the truth of that content is taken to follow from the common ground.

following naturally occurring examples, where the prejacent of (16) is highly projective according to the ratings obtained in the web-based corpus study, that of (3b) is not, as discussed in section 1.

(16) God offers Hope to Hispanics! In His pages are solutions to every immigration problem. God loves citizens and immigrants equally. His solutions are for all of us. They are practical. They work. He is not stupid to think so.

(3b) Now I knew someone was in the junkyard and the cold wind was carrying the cries. I wasn't stupid to go stumbling through the junkyard in the dark and get hurt.

The prejacent of the NEAS in (16) is that God thinks that his solutions are practical and work. The strength of the inference from the common ground to the truth of this prejacent is quite high. Thus, the principle in (15) predicts that the Discourse Question of (16) is not likely to be about the prejacent, which is therefore more likely to be taken to be not-at-issue and to be highly projective, as observed. Now consider the NEAS in (3b), whose generalization is that the degree to which events of the speaker stumbling through the junkyard in the dark and getting hurt are stupid is higher than the contextual standard of *stupid*. The strength of the inference from the common ground to the truth of the generalization is quite high. Thus, the principle in (15) predicts that the Discourse Question of (3b) is not likely to be about the generalization; rather, the Discourse Question is expected to be about the prejacent, which, as predicted, is observed to not project.

2.4 Summary of the question-based projection analysis of EAS

This section has presented a question-based projection analysis of EASs. This analysis builds on previous question-based projection analyses in assuming that the more likely utterance content is taken to be not at-issue with respect to the Discourse Question addressed by the utterance, the more projective it is (Simons et al. 2017, Beaver et al. 2017, Tonhauser et al. 2018). To apply this analysis to the projective content of EASs, section 2.2 motivated that both the prejacent and the generalization are entailed content that can but need not be at-issue. In contrast to previous analyses of EASs, the analysis developed in this section predicts that both the prejacent and the generalization can project and, furthermore, that when the prejacent projects, the generalization does not, and vice versa. Unlike Karttunen et al.'s 2014 analysis, our analysis captures these empirical generalizations without assuming that evaluative adjectives are systematically ambiguous. Finally, our question-based analysis of the projective content of EASs extends previous question-based analyses by incorporating the 'Non-redundancy principle for at-issue content', which constrains the Discourse Question addressed by utterances of EASs.

The next section provides experimental evidence in support of our analysis. Specifically, the two experiments manipulated the extent to which the generalization was taken to be at-issue and investigated the following two predictions of the analysis:

(17) The more likely the generalization is taken to be at-issue,
  a. ...the more projective the prejacent is. (Experiment 1)
  b. ...the less likely the prejacent is taken to be at-issue. (Experiment 2)

To investigate the predictions in (17), we measured the projectivity of the prejacent (Experiment 1) and the at-issueness of the prejacent (Experiment 2).

3 Empirical evidence for the question-based projection analysis

According to the question-based projection analysis developed in section 2, the prejacent and the generalization of EASs are predicted to project to the extent that they are taken to be not at-issue. Preliminary evidence

for this prediction comes from Tonhauser et al.'s 2018 finding that at-issueness predicts projection for 19 projective contents. One of the contents they investigated was the prejacent of EASs with *stupid* embedded under the polar question operator. The four EASs investigated are given in (18):

(18) a. Was Raul stupid to cheat on his wife?
b. Were John's kids stupid to be in the garage?
c. Is Mary's daughter stupid to be biting her nails?
d. Is Richie stupid to be a stuntman? (Tonhauser et al. 2018, Appendix A)

Tonhauser et al. (2018) collected projection and at-issueness ratings on a scale: Figure 2 shows participants' projectivity ratings for the prejacents of the four items in (18) against their not-at-issueness ratings. There is a clear relationship between at-issueness and projectivity: the more a participant rated a prejacent as not-at-issue, the more projective they rated it (r = .91; when not collapsing over the four questions r = .57).

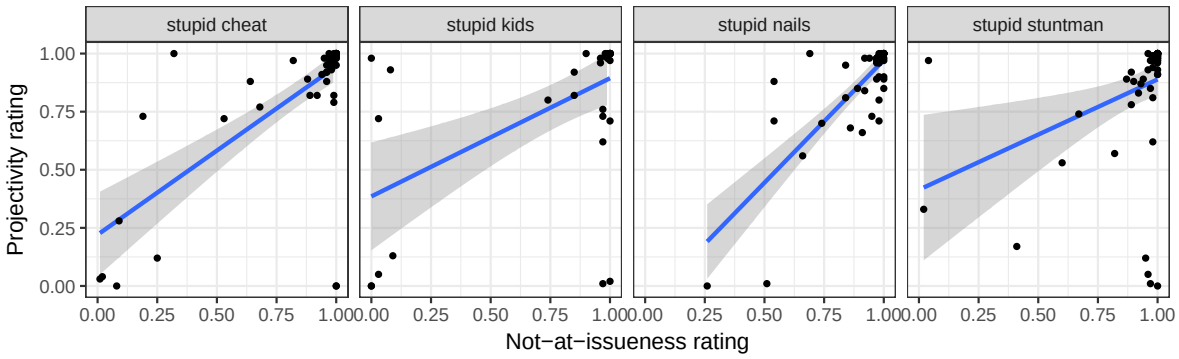

Figure 2: Projectivity ratings against not-at-issueness ratings for the prejacents of four EASs in Tonhauser et al. 2018. Each dot represents one participant's ratings. Linear smoothers with 95% confidence intervals overlaid.

Tonhauser et al.'s 2018 finding provides preliminary evidence that the projectivity of the prejacent of *stupid* is sensitive to its at-issueness. However, in Tonhauser et al.'s 2018 experiment, at-issueness was only measured, not manipulated, and only the prejacents of EASs with *stupid* were investigated. In the experiments reported on in this section, we provide more direct evidence for the question-based projection analysis by manipulating at-issueness and including a wide variety of evaluative adjectives and items.

Further preliminary evidence for our analysis comes from an experiment reported on in Karttunen et al. 2014, which investigated the projection of the prejacents of NEASs with 19 evaluative adjectives (*arrogant, brave, careless, cruel, evil, foolish, fortunate, heroic, humble, lucky, mean, nice, polite, rude, sensible, smart, stupid, sweet, wise*). The materials included one triple for each evaluative adjective, like the triple for *wise* in (19). The experiment manipulated whether there was a predisposition to a content that is related to our generalization. Specifically, each triple included a NEAS referred to by Karttunen et al. (2014) as 'consonant', which means that "there is a predisposition to assume or grant that for NP to VP would be Adj" (p.237). For instance, the NEAS in (19a) is consonant because for Paul to take the best piece is smart; this is comparable to what we have characterized as the generalization following from the common ground. Each triple also included a NEAS that Karttunen et al. (2014) referred to as 'dissonant', which means that "there is a predisposition to assume or grant that for NP to VP would not be Adj" (*ibid*). The NEAS in (19c) is dissonant because for the man to take the worst piece is not smart; this is comparable to the falsity of the generalization following from the common ground. Finally, the third NEAS in each triple was considered 'neutral', i.e., neither consonant or dissonant, like (19b).

(19) Sample stimuli from Karttunen et al. 2014:241

a. Paul wasn't smart to take the best piece. [consonant]

b. Sally wasn't smart to take the middle piece. [neutral]

c. The man wasn't smart to take the worst piece. [dissonant]

Karttunen and his colleagues found that the prejacent of dissonant NEASs was more likely to project than the prejacent of neutral ones, and that the prejacent of neutral ones was more likely to project than that of consonant ones. These findings support the prediction of our analysis, that the discourse status of the generalization influences the projectivity of the prejacent. There are, however, some concerns with their experiment. First, the experiment included only one triple for each evaluative adjective, and so the findings potentially have limited generalizability. Second, the triples were not normed to establish that native speakers of American English share Karttunen and his colleagues' assumptions about consonance and dissonance. Relatedly, the stimuli were presented to the participants without a context even though context can influence whether the generalization follows from the common ground. For instance, if Sally is on a diet and *middle piece* in (19b) is understood as *middle piece of the cake*, then (19b) is not neutral, but dissonant: for Sally to take the middle piece (or any piece) is not smart given that she is on a diet. To address these concerns, our Experiment 1 included a greater variety of items, which were normed with native speakers of American English, and presented to the participants with a context.[14]

3.1 Experiment 1: Projectivity of the prejacent

The experiment we report on in this section investigated the prediction in (17a), that the more likely the generalization is taken to be at-issue, the more projective the prejacent is. The at-issueness of the generalization was manipulated by having the truth of the generalization be more likely to follow from the common ground in one condition than the other. We collected gradient projection ratings for prejacents in the two conditions.

3.1.1 Methods

Participants 152 participants with US IP addresses and at least 97% of HITs approved were recruited on Amazon's Mechanical Turk platform (ages: 18-69, mean age: 33). They were paid 45 cents.

Materials Stimuli consisted of two-sentence discourses. In the target stimuli, the first sentence was a context sentence and the second sentence was a NEAS with one of the following 10 evaluative adjectives: *stupid, smart, wise, fortunate, lucky, brave, polite, mean, foolish* and *rude*. For each adjective, there were 6 pairs of target stimuli, for a total of 60 pairs of target stimuli. We used a 2 x 2 within-participant design: one factor was whether the truth of the generalization was taken to follow from the common ground (levels: less likely vs. more likely); the other factor was whether the content of the NEAS or the context sentence determined the likeliness with which the truth of the generalization was taken to follow from the common ground (levels: content vs. context). The sample stimuli in (20) and (21) illustrate these two factors. For a pair of stimuli in the Content condition, shown in (20), the context sentences were identical and the two NEASs differed in how likely the truth of the generalization is taken to follow from the common ground. In (20a), the generalization is that the degree to which events of Sally losing her wallet are fortunate is higher than the contextual standard of *fortunate* (to be clear: the generalization is established on the EAS, not the NEAS). Here, it is less likely that the truth of the generalization is taken to follow from the common ground. In (20b), the generalization is that the degree to which events of Sue speaking French are fortunate is higher than the contextual standard of *fortunate*. Here, it is very likely that the truth of the generalization is taken

[14]The materials, data and the R code for generating the figures and analyses of the experiments reported on in this paper are available at `[name of GitHub repository]`.

to follow from the common ground. For pairs of stimuli in the Context condition, shown in (21), the NEASs were identical and the differing context sentences determined how likely the truth of the generalization is taken to follow from the common ground. In (21a), the generalization is that the degree to which events of Jane prank-calling the police are smart is higher than the contextual standard of *smart*; here, it is less likely that the truth of the generalization is taken to follow from the common ground. In (21b), the generalization is that the degree to which events of Jane calling the police Jane are smart is higher than the contextual standard of *smart*; here, it is very likely that the truth of the generalization is taken to follow from the common ground. In both the Content and Context conditions, we expected the projectivity of the prejacent to be higher when the truth of the generalization was less likely to follow from the common ground, i.e., when the generalization is more likely to be at-issue.

(20) Sample stimuli in the Content condition

a. Sue was traveling in France. She wasn't fortunate to lose her wallet. [generalization less likely]

b. Sue was traveling in France. She wasn't fortunate to speak some French. [gen. more likely]

(21) Sample stimuli in the Context condition

a. Jane was prank-calling people. She wasn't smart to call the police. [generalization less likely]

b. Jane saw a man with a gun. She wasn't smart to call the police. [generalization more likely]

To assess the projectivity of the prejacent, participants were asked whether the prejacent is true, e.g., 'Did Sue lose her wallet?' in (20a), 'Did Sue speak some French?' in (20b), and 'Did Jane call the police?' in (21a) and (21b).[15]

Of the 6 pairs of target stimuli per evaluative adjective, 3 pairs were in the Content condition and 3 in the Context condition. We selected these 60 pairs of target stimuli from a total of 120 pairs of potential target stimuli for which we collected ratings in a norming study from native speakers of American English about whether the truth of the generalization was taken to follow from the common ground. For each evaluative adjective, we chose the 3 pairs of target stimuli in the Content and Context conditions such that the generalization was most likely to be taken to follow from the common ground in one member of the pair and least likely to follow in the other member of the pair. The norming study is described in detail in Appendix C and the full set of stimuli is provided in Appendix D.

The 120 target stimuli were distributed across 12 lists of 10 target stimuli so that each evaluative adjective occurred once per list. Each list included 5 target stimuli in which the generalization is more likely to be taken to follow from the common ground and 5 in which the generalization is less likely to be taken to follow from the common ground. Each list included 5 stimuli from the Content condition and 5 from the Context condition. To assess whether participants were attending to the task, the same 6 control stimuli were added to each list, for a total of 16 stimuli per list (see Appendix D for the control stimuli).

Procedure Participants were told that they would read short descriptions of scenarios and were asked a question about each scenario. They were randomly assigned to a list and presented with the 16 stimuli, one after the other, in random order. They gave their response to the polar question on a 7-point Likert scale labeled at four points: No/1, Possibly no/3, Possibly yes/5, Yes/7, as shown in Figure 3.

After rating the 16 stimuli, participants completed a brief questionnaire about their age, their native language(s) and, if English is a native language, whether it is American English, as opposed to e.g., Indian

[15]This diagnostic for projectivity differs from the 'certain that' diagnostic used in the web-based corpus study or in Tonhauser et al. 2018. Exp. 1 relied on a different diagnostic because it was run before the 'certain that' diagnostic was developed. Under the assumption that participants only take the prejacent to be true if it follows from the two-sentence discourse, i.e., if the author of the two-sentence discourse is committed to the prejacent, we take the two diagnostics to be comparable in diagnosing projectivity. See Tonhauser et al. 2018 for a discussion of additional diagnostics for projectivity.

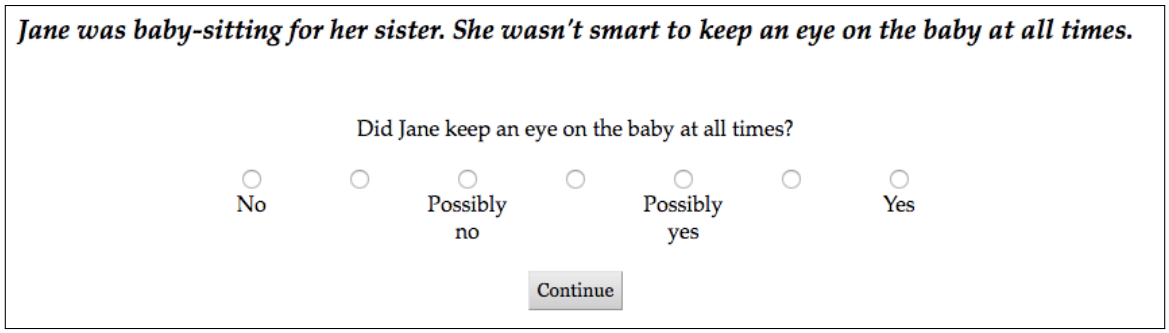

Figure 3: A sample trial in Experiment 1

or Australian English. Participants were told that they would be paid no matter how they responded to these questions, in order to encourage them to answer truthfully.

Data exclusion The data from 5 participants who did not self-identify as native speakers of American English were excluded. 13 participants were excluded based on their responses to the control stimuli, leaving data from 134 participants (ages: 18-69; mean age: 33).

3.1.2 Results and discussion

Each of the 120 target stimuli received between 9 and 14 ratings (mean: 11.2). Figure 4 shows the mean projectivity ratings for prejacents of NEASs in the Content condition (left panel) and the Context condition (right panel) by how likely the truth of the generalization was taken to follow from the common ground. As expected, the prejacents were more projective when the truth of the generalization was less likely to follow from the common ground than when it was more likely to follow from the common ground: in the Content condition, the mean projectivity ratings were 5.2 and 2.6, respectively; in the Context condition, the mean projectivity ratings were 4.7 and 2.9, respectively. As shown by the overlaid adjective means in Figure 4, the effect of the discourse status of the generalization was observed for all of the adjectives, albeit to varying degrees. These findings provide empirical support for the prediction that at-issueness influences projection with EASs: when the truth of the generalization is less likely to follow from the common ground, the generalization is more likely to be at-issue, in which case the prejacent is more likely to be not at-issue and hence more projective.

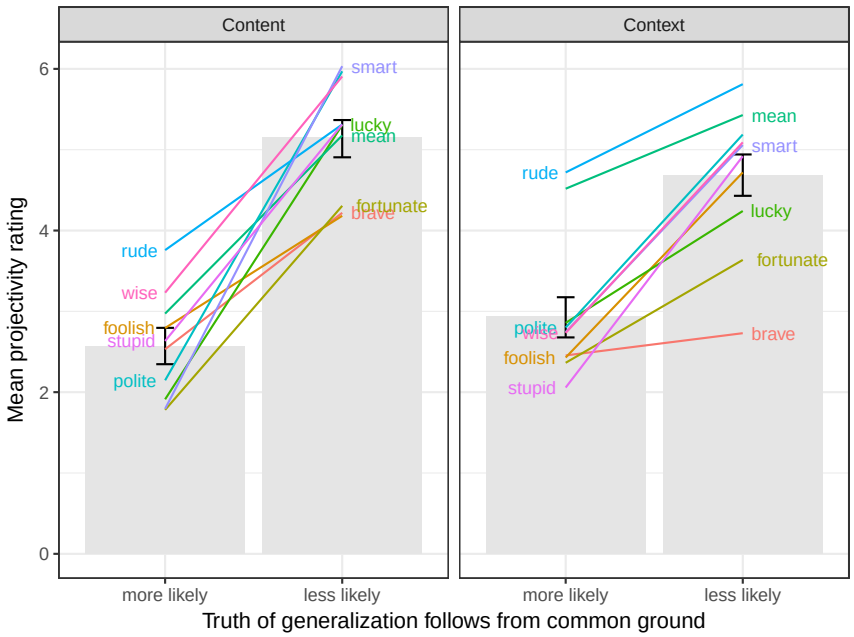

Figure 4: Mean projectivity rating for prejacents of NEASs in the Content condition (left panel) and the Context condition (right panel) by how likely the truth of the generalization is taken to follow from the common ground. Error bars indicate bootstrapped 95% confidence intervals. Adjective means in the two conditions overlaid.

We fitted ordinal mixed-effects regression models to the target data in the Content and Context conditions (668 and 672 data points, respectively), using the `clmm` function of the `ordinal` package (Christensen 2013) in *R* (R Core Team 2016; version 3.2.0). The models predicted projectivity ratings on the 7-point Likert scale from the fixed effect of the discourse status of the generalization (with 'more likely' as the reference level). The models included the maximal random effects structure justified by the data and the theoretical assumptions: random by-participant intercepts (capturing differences in projectivity between participants) and random by-item intercepts (capturing differences in projectivity between context/adjective/*to*-infinitive combinations) as well as random slopes for the discourse status of the generalization by participant (capturing that the effect of the discourse status may vary across participants). We obtained p-values by comparing models via likelihood ratio tests.

There was a significant main effect of the discourse status of the generalization such that the prejacent of items in which the truth of the generalization is less likely to follow from the common ground received higher projectivity ratings in the Content ($\beta = 3.29$, $SE = 0.34$, $z = 9.6$, $LR(1) = 73$, $p < .001$) and Context ($\beta = 2.1$, $SE = 0.37$, $z = 5.73$, $LR(1) = 29.68$, $p < .001$) conditions. These findings suggest that the discourse status of the generalization influences the projectivity of the prejacent, as predicted by the analysis developed in section 2: prejacents of NEASs in which the truth of the generalization is less likely to follow from the common ground, i.e., is more likely to be at-issue, are more projective than prejacents of NEASs in which the truth of the generalization is more likely to follow from the common ground, i.e., more likely to be not at-issue. Our findings also suggest that readers attend both to information from the EAS and to information from the context in determining the extent to which the truth of the generalization follows from the common ground and, therefore, the projectivity of the prejacent.

3.2 Experiment 2: At-issueness of the prejacent

This experiment tested the prediction in (17b), that the more likely the generalization is taken to be at-issue, the less likely the prejacent is taken to be at issue. The at-issueness diagnostic used in Experiment 2 relies on the assumption that at-issue and not-at-issue content differ in the extent to which it is up for debate and can be directly assented/dissented with. For previous uses of diagnostics that rely on this assumption see, e.g., Amaral et al. 2007, Xue and Onea 2011, Murray 2014, AnderBois et al. 2015, Destruel et al. 2015, Tonhauser 2012, Syrett and Koev 2015 and Tonhauser et al. 2018. The diagnostic we used in Experiment 2 is the same as in Tonhauser et al.'s 2018 Exps. 2. The 3-turn dialogue in (22) illustrates how the diagnostic was set up on the basis of the appositive content associated with nominal appositives. The speaker of the first turn, Debby, utters an indicative sentence with the target expression, here a nominal appositive, and thereby commits herself to various utterance contents, including the appositive content that Martha's new car is a BMW. The speaker of the second turn, Harry, utters the question *Are you sure?*, thereby challenging some content of Debby's utterance. In the third turn, Debby utters an indicative sentence in which the content to be diagnosed for at-issueness, here the appositive content of her first utterance, realizes the content of the clausal complement of *sure*, thereby identifying it as the content that Debby took the Harry to be challenging.

(22) At-issueness diagnostic from Tonhauser et al. 2018
Debby: Martha's new car, a BMW, was expensive.
Harry: Are you sure?
Debby: Yes, I am sure that Martha's new car is a BMW.

To assess whether the relevant content is up for debate, i.e., at-issue, participants were asked whether Debby's utterance answered Harry's question, with 'yes' and 'no' as response options. A 'yes' response was taken to indicate that the relevant content was at-issue: the content was targeted by Harry's question and, therefore, Debby answered Harry's question. A 'no' response, in turn, was taken to indicate that the relevant content was not at-issue: the content was not targeted by Harry's question and, therefore, Debby did not answer Harry's question. We assume that the more 'yes' responses a content receives, the more likely it is taken to be at-issue.

3.2.1 Methods

Participants 75 participants with US IP addresses and at least 97% of HITs approved were recruited on Amazon's Mechanical Turk platform (18-66, mean: 35). They were paid 35 cents.

Materials Stimuli consisted of 3-turn discourses between Debby and Harry, as shown in (23) and (24). In the target stimuli, the first turn of each discourse consisted of a past tense EAS that realized one of the 10 evaluative adjectives explored in Experiment 1. The second turn of the target stimuli consisted of Harry asking *Are you sure?*. In the third turn, Debby uttered *Yes, I am sure that*, with the prejacent of the EAS realized as the content of the complement of *sure that*. There were 6 stimuli for each of the 10 evaluative adjectives, for a total of 60 target stimuli: in 3 stimuli, the truth of the generalization was more likely to be taken to follow from the common ground, as in (23); in the other 3, it was less likely to be taken follow from the common ground, as in (24). The full set of 60 target stimuli is provided in Appendix E.

(23) Truth of the generalization is more likely to follow from the common ground
Debby: Jane was stupid to post her social security number on Facebook.
Harry: Are you sure?
Debby: Yes, I am sure that Jane posted her social security number on Facebook.

(24) Truth of the generalization is less likely to follow from the common ground

Debby: Jane was stupid to dance like that.

Harry: Are you sure?

Debby: Yes, I am sure that Jane danced like that.

Participants were asked whether Debby answered Harry's question: a 'yes' response was taken to indicate that Harry's question targeted the prejacent, i.e., the prejacent of Debby's utterance was taken to be at-issue; a 'no' response was taken to indicate that Harry's question did not target the prejacent, i.e., the prejacent of Debby's utterance was not taken to be at-issue. We expected the prejacent of EASs for which the truth of the generalization was more likely to follow from the common ground, i.e., was more likely to be not at-issue, to be more at-issue than the prejacent of EASs for which the truth of the generalization was less likely to follow from the common ground.

The 60 target stimuli were distributed across 6 lists so that each of the 10 adjectives occurred once per list. Each list had 5 target stimuli for which the generalization was more likely to be taken to follow from the common ground and 5 target stimuli for which the generalization was less likely to be taken to follow from the common ground. To assess whether participants were attending to the task, each list also included the same two control stimuli. We also included on each list the same four stimuli that assessed the at-issueness of other projective content (see Appendix E). In sum, each of the 6 lists consisted of 16 stimuli.

Procedure Participants were told that they were at a party and that, upon walking into the kitchen, they overhear a short dialogue between Debby, the party host, and another guest, Harry. They were randomly assigned to a list and presented with the 16 stimuli, one after the other, in random order. They gave their ratings to the question of whether Debby answered Harry's question with two radio buttons labeled 'yes' and 'no', as shown in Figure 5.

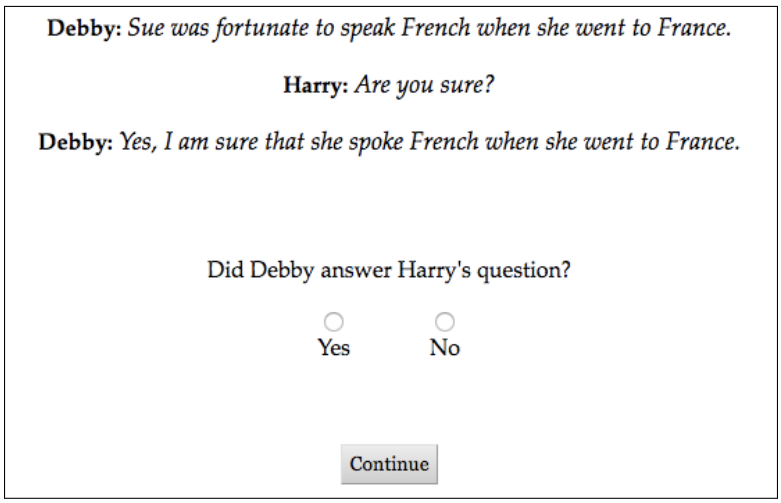

Figure 5: A sample trial in Experiment 2

After rating the 16 stimuli, participants filled out a brief questionnaire about their age, their native language(s) and, if English is a native language, whether it is American English, as opposed to e.g., Indian or Australian English. Participants were told that they would be paid no matter how they responded to these questions, in order to encourage them to answer truthfully.

Data exclusion The data from 2 participants who did not self-identify as native speakers of American English were excluded. 5 participants answered 'no' to at least one of the two control stimuli. Their data were excluded, leaving data from 68 participants (ages: 18-66; mean: 35).

3.2.2 Results and discussion

Each of the 60 target stimuli received between 10 and 14 ratings (mean: 11.3). Figure 6 shows the proportion of 'yes' responses, indicating at-issueness, in the two conditions: as expected, the prejacent of EASs for which the truth of the generalization is more likely to follow from the common ground received more 'yes' responses than the prejacents of EASs for which the truth of the generalization is less likely to follow from the common ground. This finding supports the prediction of our analysis that the prejacent of EASs for which the generalization is not at-issue are more at-issue than the prejacent of EASs for which the generalization is at-issue. As shown by the overlaid adjective means in Figure 6, the effect of the at-issueness of the generalization on the at-issueness of the prejacent was observed to varying degrees for all of the adjectives except *brave*.

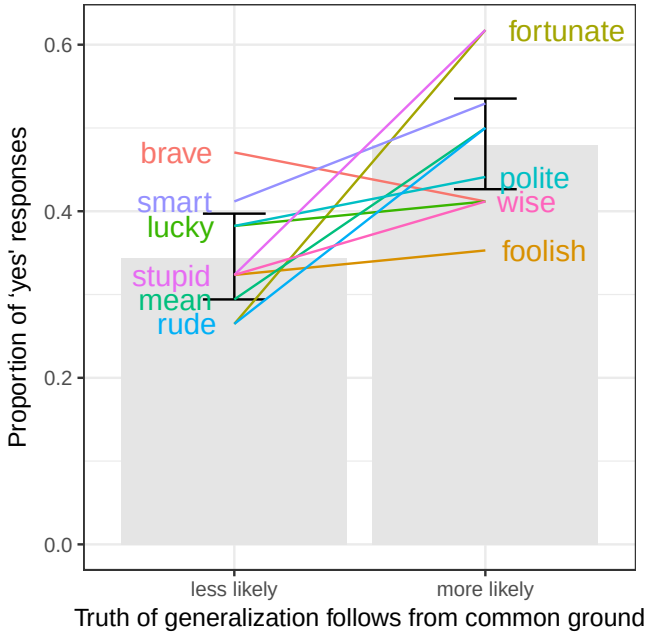

Figure 6: Proportion of 'yes' responses, indicating at-issueness of the prejacent, by condition. Error bars indicate bootstrapped 95% confidence intervals. Adjective means in the two conditions overlaid.

To statistically evaluate the effect of the at-issueness of the generalization on the at-issueness of the prejacent, we fit a Bayesian binomial mixed effects model with weakly informative priors using the R package `brms` (Bürkner 2017).[16] The model predicted the log odds of 'yes' over 'no' ratings from a fixed effect of how likely the truth of the generalization was taken to follow from the common ground (with 'less likely'

[16]We fit a Bayesian binomial mixed effects model rather than a frequentist mixed effects model because this allowed us to fit a model with a full random structure that would not converge with frequentist methods (Nicenboim and Vasishth 2016). In fact, when we fit regular binomial mixed effects models, predicting response from a fixed effect of the discourse status of the generalization, the models only converged if we included either random by-item intercepts or random by-participant intercepts, but not both. Qualitatively, the results were identical to those obtained via the Bayesian method.

as the reference level). We included the maximal random effects structure justified by the design: random intercepts for item (capturing random differences in at-issueness between items) and participant (capturing random differences in at-issueness between participants) as well as random by-participant slopes for the at-issueness of the generalization (capturing that the effect of the at-issueness of the generalization may vary by participant). Four chains converged after 2000 iterations each (warmup = 1000, $\hat{R} = 1$ for all estimated parameters).

In order to evaluate the evidence for an effect of the at-issueness of the generalization, we report 95% credible intervals and the posterior probability $P(\beta > 0)$ that the at-issueness coefficient β is greater than zero. A 95% credible interval (CI) demarcates the range of values that comprise 95% of probability mass of our posterior beliefs such that no value inside the CI has a lower probability than any point outside it (Jaynes and Kempthorne 1976, Morey et al. 2016). There is substantial evidence for an effect if zero is (by a reasonably clear margin) not included in the 95% CI and $P(\beta > 0)$ is close to zero or one. Posterior probabilities tell us the probability that the parameter has a certain value, given the data and model (these probabilities are not frequentist p-values). In order to present statistics as close to widely used frequentist practices, and following Nicenboim and Vasishth 2016, we defined an inferential criterion that seems familiar (95%), but the strength of evidence should not be taken as having clear cut-off points (such as in a null-hypothesis significance testing framework).

The model provided evidence for the predicted effect of the at-issueness of the generalization on the at-issueness of the prejacent, such that the prejacent of EASs for which the truth of the generalizations was more likely to follow from the common ground were more likely to receive a 'yes' (at-issue) rating than the prejacent of EAS for which the truth of the generalization was less likely to follow from the common ground (posterior mean $\beta = 1.29$, 95% CI=[0.69,1.87], $P(\beta > 0) = 1$). This finding suggests that the prejacent of EASs is more likely to be taken to be at-issue when the generalization is less likely to be taken to be at-issue than when the generalization is more likely to be taken to be at-issue, as predicted by the analysis developed in section 2.

3.3 Summary

According to the analysis of EASs developed in section 2, the prejacent is not a lexically specified presupposition but projects to the extent that it is taken to be not at-issue with respect to the Discourse Question addressed by the utterance. The analysis predicts that the more likely the generalization is taken to be at-issue, the more likely the prejacent is taken to be not-at-issue and projective. In this section, we provided empirical evidence for two predictions of this analysis by manipulating how likely the truth of the generalization was taken to follow from the common ground, i.e., how likely the generalization is at-issue. Experiment 1 showed that the prejacent is more projective when the generalization is more likely to be at-issue than when the generalization is less likely to be at-issue. Experiment 2 showed that the prejacent is more at-issue when the generalization is less likely to be at-issue than when the generalization is more likely to be at-issue. In sum, the two experiments provide evidence in support of the question-based analysis of the projection and at-issueness of the two contents as well as their interaction.

4 Interspeaker variation

Before concluding the paper, we briefly return to the interspeaker variation we noted in section 1: not all native speakers of American English would produce NEASs in which the prejacent does not project; many speakers prefer variants with *enough*. What might this variation be due to?

One hypothesis is that speakers differ in their lexical entries for evaluative adjectives. The acceptability rating study presented in Appendix A found that about 20-30% of the 94 self-reported native speakers of

American English judged NEASs in which the prejacent does not project to be acceptable. Let's assume that such speakers have a lexical entry for evaluative adjectives according to which the prejacent is not lexically specified as a presupposition (as in the analysis developed in section 2); this would allow them to produce NEASs in which the prejacent projects as well as ones in which it doesn't project. And let's assume that the remaining speakers (about 70-80%) are ones that would not produce NEASs in which the prejacent does not project. We can hypothesize that they have a lexical entry according to which the prejacent is lexically specified as a presupposition, thereby resulting in them preferring to produce EASs in which the prejacent is not-at-issue and therefore projects. When interpreting NEASs, speakers in this second group should consistently assign projecting interpretations to prejacents of NEASs in which the truth of the generalization is not likely to be taken to follow from the common ground: not only is the projecting interpretation the lexically specified one, but it is also supported by the common ground. A similar hypothesis can be found in Karttunen et al. (2014:243), who suggested that there are about 3 times as many speakers who prefer giving interpretations to NEASs in which the prejacent projects, using the lexical entry in (5a), than speakers who prefer giving interpretations to NEASs in which the prejacent doesn't project, using the lexical entry in (5b). Thus, both hypotheses lead to the expectation that about 70-80% of native speakers of American English consistently assign projecting interpretations to NEASs in which the truth of the generalization is not likely to be taken to follow from the common ground.

A post-hoc analysis of the findings of Experiment 1 suggests that both hypotheses should be rejected. Recall that each of the 134 participants in that experiment rated the projectivity of the prejacent of NEASs on a 7-point Likert scale: they rated the projectivity of the prejacent of 5 NEASs for which the truth of the generalization is more likely to follow from the common ground and of 5 NEASs for which the truth of the generalization is less likely to follow from the common ground. To explore the aforementioned hypotheses, we calculated each participants' mean projectivity ratings for these two types of NEAS: these mean projectivity ratings are an indication of how projective the 134 participants rated the prejacent of the two types of NEAS. Under both hypotheses, we expect 70-80% of these participants to assign highly projective interpretations to the prejacent of NEASs for which the truth of the generalization is less likely to follow from the common ground.

The histogram in Figure 7 shows the 134 participants' mean projectivity ratings for the two types of NEASs. The left panel reveals that, of the 134 participants, only 23 (17%) had mean projectivity ratings of at least 6.5 for the NEASs in which the negation of the generalization follows from the common ground; when considering mean projectivity ratings of at least 5.5, this number still only rises to 55 (41%) participants. Thus, we do not find that a majority of the 134 participants assigned highly projective interpretations to prejacents of NEASs for which the truth of the generalization does not follow from the common ground. This observation calls into question the hypothesis that a majority of native speakers of American English have a lexical entry for evaluative adjectives according to which the prejacent is a lexically-specified presupposition.

We leave further explorations of the question of how to capture the variability observed among native speakers of American English to future research.

5 Conclusions

This paper investigated projective content of evaluative adjective sentences (EASs). While most of the previous literature on EASs only considered the projection of the prejacent, this paper argued that both the prejacent and the generalization can project and, furthermore, that the projective content of EASs shows an interaction in the projection of these two contents that has not yet been observed for projective content: when the prejacent projects, the generalization does not, and vice versa. The question-based projection analysis we developed abandoned the assumption, made in all previous accounts, including that of Karttunen et al. 2014,

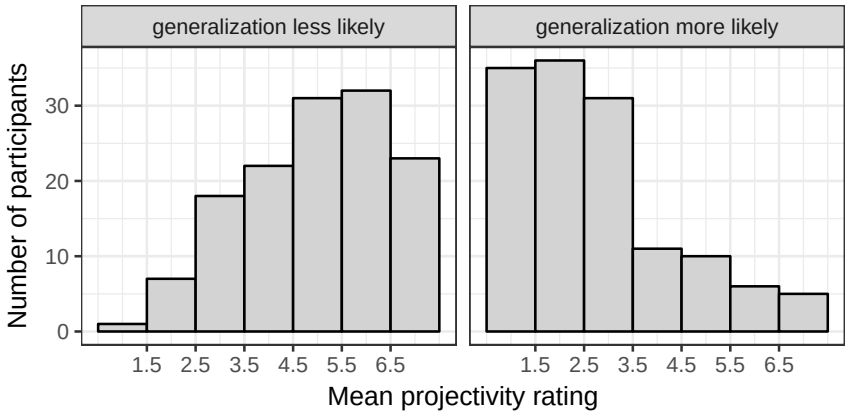

Figure 7: Histogram of participants in Experiment 1 by their mean projectivity ratings and by whether the truth of the generalization is less likely (left panel) or more likely (right panel) to be taken to follow from the common ground

that the prejacent projects because it is lexically specified as a presupposition. Instead, on our question-based account, the prejacent and the generalization project when they are not at-issue with respect to the Discourse Question addressed by the utterance of the EAS. This analysis does not rely on evaluative adjectives being ambiguous (unlike Karttunen et al.'s 2014 analysis) and the interaction in the projection of the prejacent and the generalization fall out of the assumption that exactly one of these two contents is at-issue.

There are at least two questions about EASs that should be addressed in future work. The first concerns the observed interaction in the projection of the prejacent and the generalization. As discussed in section 1, this interaction has not yet been observed for projective content. Why does it arise with EASs, but not, for instance, for utterances of sentence with factive or change-of-state predicates? We can only speculate here that it may have to do with the nature of the two lexical entailments of EASs: the prejacent and the generalization of EASs are independent of one another in that neither is a precondition for the truth of the other. Consider (1) *Feynman was stupid to dance on the table*: it is neither necessary for Feynman to have danced on the table in order for the generalization of this EAS to be true, nor is it necessary for the generalization to be true in order for Feynman to have danced on the table. In this, EAS differ from sentences with factive or change-of-state predicates, like *Sam knows that the meeting was canceled* or *Sam stopped going to church*: in order for Sam to know that the meeting was canceled, the content of the complement must be true, and in order for Sam to not go to church anymore, the pre-state content, that they previously went to church, must be true. Future research needs to establish whether this is the reason for the interaction between the projection of the prejacent and the generalization.

The second important question that future research should address is how the information structure of EASs provides a cue to the projection of the prejacent or the generalization. As mentioned above, previous research has established that information structure, in particular prosodically marked focus, provides a cue to the questions addressed by utterances of sentences with other projective content. We hypothesize that prosodically marked focus will also provide a cue to the question addressed by EASs and, hence, to which content projects.

A Acceptability rating experiment

The acceptability rating experiment was designed to explore the acceptability of NEASs whose prejacent does not project.

A.1 Methods

Participants 134 participants with US IP addresses and at least 97% of HITs approved were recruited on Amazon's Mechanical Turk platform (ages: 20-72; mean: 33). They were paid 45 cents.

Materials Stimuli consisted of three-sentence discourses. In the target stimuli, the last sentence was either a NEAS, as in (25a), or a variant of the NEAS in which the evaluative adjective was followed by *enough*, as in (25b). The first two sentences of the discourses denied the truth of the prejacent of the third sentence to ensure that the prejacent of the third sentence could not project: in (25), for instance, the first two sentences convey that Jenny left the baby unattended, which contradicts the prejacent, that Jenny kept an eye on the baby at all times. We hypothesized that participants would judge the NEAS to be acceptable only if they would realize an interpretation in which the prejacent projects with the NEAS. We further hypothesized that the variant with *enough* would be judged to be acceptable by all participants.

(25) a. Jenny was baby-sitting for her sister. She left the baby unattended.
She wasn't smart to keep an eye on the baby at all times.

b. Jenny was baby-sitting for her sister. She left the baby unattended.
She wasn't smart enough to keep an eye on the baby at all times.

The target stimuli consisted of 6 pairs of three-sentence discourses like (25) for each of the 10 evaluative adjectives explored in the experiments reported on in the main body of the paper, for a total of 60 pairs of target stimuli. The full set of target stimuli is provided in the GitHub repository (url removed for anonymity). The 120 target stimuli were distributed across 12 lists of 10 stimuli each so that each adjective occurred only once per list, and each list included 5 NEASs and 5 variants with *enough*.

To assess whether participants were paying attention to the task, the same 8 control stimuli were added to each list, for a total of 18 stimuli per list. The control stimuli consisted of three-sentence discourses in which the last sentence contradicted the second one, as illustrated in (26). We expected the last sentence of the control stimuli to be judged to be unacceptable as part of the discourse.

(26) a. Claire fell down the stairs. She broke a leg and some ribs. She was glad to not be hurt.

b. Earl had a bad toothache. He called his dentist. He forgot to call his dentist.

c. Ross was doing his laundry. He found coins in his pocket. He didn't manage to find coins anywhere.

d. Charles was on a date with Susanne. He was having a bad time. He was happy to be having a great time.

e. Keith was hiking up a steep mountain. He didn't make it to the top. He was ecstatic to have made it to the top.

f. Liv went on a trip to Europe. She spent a lot of time in Italy. She failed to visit Italy.

g. Fran lived in Paris. She shared an apartment with some friends. She wasn't sad to live alone.

h. Tess had failed many college classes. She didn't graduate. She was proud to have graduated from college.

Procedure Participants were told that they would read descriptions of a scenario and asked to judge whether the last, underlined sentence sounds good as part of the description. They gave their ratings on a 7-point Likert scale labeled at four points: No/1, Possibly no/3, Possibly yes/5, Yes/7). Participants were randomly assigned to a list and presented with the 18 stimuli, one after the other, in a random order. After rating the 18 stimuli, participants filled out a brief questionnaire about their age, their native language(s) and, if English is a native language, whether it is American English, as opposed to e.g., Indian or Australian English. Participants were told that they would be paid no matter how they responded to these questions, in order to encourage them to answer truthfully.

Data exclusion The ratings from 2 participants who did not self-identify as native speakers of American English were excluded. 38 participants gave a rating higher than Possibly no/3 to one or more of the eight unacceptable control stimuli. The ratings from these participants were also excluded, leaving data from 94 participants (ages: 20-67; mean: 33).

A.2 Results

As expected, target stimuli with *enough* were judged to be acceptable: the mean rating for such items was 5.9 and most ratings were 5 or higher (409 of 477 responses, 86%). Ratings for the target stimuli with NEASs were lower, with a mean rating of 4.2. As shown in the left panel of Figure 8, NEASs received lower ratings overall.

To identify whether a participant judged NEASs in which the prejacent does not project to be acceptable, we calculated each participants' mean rating of the 5 stimuli with a NEAS. We then subtracted this mean rating from their mean rating for the 5 stimuli with *enough*. The resulting 'acceptability score' is a measure of how acceptable NEASs with non-projecting prejacents are compared to acceptable stimuli with *enough*. An acceptability score of 0 means that the participant judged the NEASs with non-projecting prejacents as acceptable as stimuli with *enough*. The right panel of Figure 8 plots the participants' acceptability scores; the red line indicates an acceptability score of 0. Of the 94 participants, 20 (21%) had an acceptability score of at least 0 and 27 (29%) had an acceptability score of at least -0.5. Thus, although there are also many participants who do not judge NEASs in which the prejacent does not project to be acceptable, a sizable portion of (self-reported) native speakers of American English judge such sentences to be acceptable.

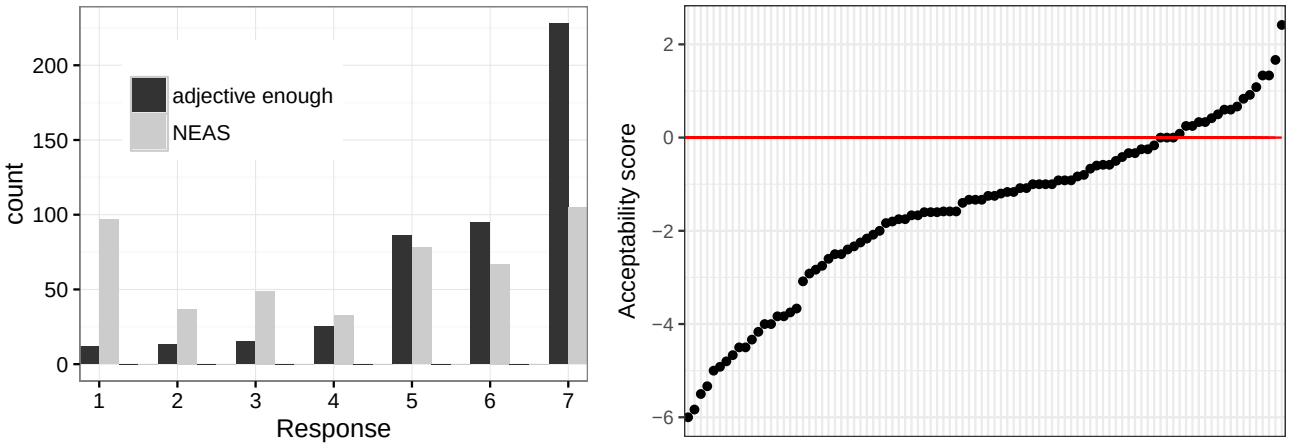

Figure 8: Count of ratings of target stimuli (left panel) and acceptability scores of participants (right panel)

B Corpus-based web study: Projectivity of the prejacent

Karttunen et al. (2014) provided naturally occurring examples that showed that the prejacent of NEASs need not project. The goal of the study we present in this section was to more systematically explore the projection of the prejacent in naturally occurring NEAS. To explore the projectivity of the prejacent, native speakers of American English were presented with naturally occurring NEAS and asked to rate the projectivity of the prejacent.

B.1 Methods

Participants We recruited 260 participants with US IP addresses and at least 97% of prior HITs approved on Amazon's Mechanical Turk platform (ages: 18-83; mean: 35). They were paid 75 cents.

Materials Using the online interface of the EnTenTen corpus,[17] we searched for NEASs that matched one of the strings in (27), where ADJ was one of the following 10 evaluative adjectives that have been analyzed as presupposing the prejacent (e.g., Norrick 1978, Karttunen et al. 2014): *stupid, smart, wise, fortunate, lucky, brave, polite, mean, foolish* and *rude*.

(27) {am not / are not / aren't / is not / isn't / was not / wasn't / were not / weren't / will not be / won't be} ADJ to

We limited ourselves to examples from the American English part of the EnTenTen corpus (region: Am) and to examples with referential subjects. We did not find examples for the adjectives *polite, brave* and *rude*. For adjectives with more than 10 pages of results, we extracted all relevant examples from the first 10 pages and then extracted a random selection of examples from the remaining pages. The final set of target stimuli consisted of 59 NEAS with preceding and following context sentences that the first author judged to be relevant to understanding the NEAS (29 with past tense, 27 with non-past tense and 3 with *will*).

Each target stimulus was attributed to an author who was identified by name, as shown for the sample stimuli in (28). As shown in the 'Question to participants' presented with each stimulus in (28), we used the 'certain that' diagnostic for projectivity to assess whether participants took the author to be committed to the prejacent, i.e., whether the prejacent projects over negation. For other applications of the 'certain that' diagnostic for projection see Tonhauser 2016, Djärv and Bacovcin 2017, Stevens et al. 2017 and Tonhauser et al. 2018. In these 'Questions to participants', the prejacent was realized as the finite complement clause of *certain*. The tense of the finite clause that realized the prejacent was determined by the temporal and aspectual properties of the NEAS: it was past tense for past tense NEAS, as in (28a), and future tense for future tense NEAS, as in (28b); for non-past tense NEAS, the finite clause that realized the prejacent was realized in the non-past tense if the eventuality denoted by the prejacent was stative, as in (28c), and a disjunction of a past tense and a future tense verb if the prejacent was eventive, as in (28d).

(28) Sample target stimuli and questions to participants

a. Shawn: Mr. Anderson – Just discovered your site on The 1939-40 New York World's Fair. It brought back a lot of memories for me. Thanks for the time you spent in constructing this site. I was not fortunate to visit the 1939-40 World's Fair but I had an uncle who did.
Question to participants: Is Shawn certain that he visited the 1939-40 World's Fair?

b. Megan: For sure P1 will not be stupid to create a WiMAX netbook to allow YTL or AMAX customers to use.
Question to participants: Is Megan certain that P1 will create a WiMAX netbook to allow YTL or AMAX customers to use?

[17] The EnTenTen 2012 corpus has 11,191,860,036 words (www.sketchengine.co.uk, Kilgarriff et al. 2014).

c. Frank: God offers Hope to Hispanics! In His pages are solutions to every immigration problem. God loves citizens and immigrants equally. His solutions are for all of us. They are practical. They work. He is not stupid to think so.
Question to participants: Is Frank certain that God thinks that his solutions work?

d. Anna: The flight attendants are not wise to invoke the specter of a strike.
Question to participants: Is Anna certain that the flight attendants invoked or will invoke the specter of a strike?

We created 8 lists of 8 target stimuli each and distributed the 59 target stimuli across the 8 lists; 5 target stimuli occurred in two lists. Each list also included the following two control stimuli which were used to assess whether participants were attending to the task, for a total of 10 stimuli per list. For the control stimulus in (29a), we expected participants to not take the speaker to be committed to the relevant content (that Earl called the dentist) and, for the control stimulus in (29b), we expected participants to take the speaker to be committed to the relevant content (that Tess crossed the finish line).

(29) Control stimuli

a. Jack: Earl had a toothache. He forgot to call his dentist.
Question to participants: Is Jack certain that Earl called his dentist?

b. David: Tess participated in a marathon. She was happy to cross the finish line.
Question to participants: Is David certain that Tess crossed the finish line?

Procedure Participants were told that they would read short snippets coming from various internet blogs and forums. They were randomly assigned to a list and presented with the 10 stimuli, one after the other, in random order. As shown in 9, they gave their ratings to the 'certain that' question on a 7-point Likert scale labeled at four points: no/1, possibly no/3, possibly yes/5, yes/7.

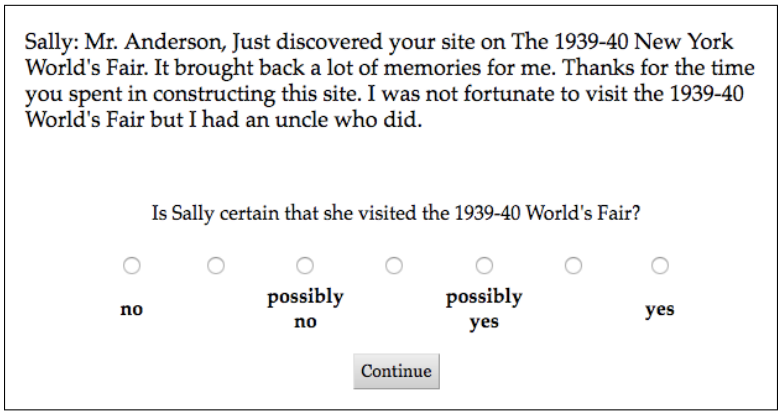

Figure 9: A sample trial in Experiment 1

After responding to the 10 stimuli, participants filled out a brief questionnaire about their age, their native language(s) and, if English is a native language, whether it is American English, as opposed to e.g., Indian or Australian English. Participants were told that they would be paid no matter how they responded to these questions, in order to encourage them to answer truthfully.

Data exclusion The responses from 6 participants who did not self-identify as native speakers of American English were excluded. 28 participants gave a rating higher than 3 to the control stimulus in (29a), for which

we hypothesized that participants would not take the speaker to be committed to the relevant content, or a rating lower than 5 to the control stimulus in (29b), for which we hypothesized that participants would take the speaker to be committed to the relevant content. These responses suggest that these participants were not attending to the task or interpreted the task differently. We therefore also excluded the data from these 28 participants, leaving data from 226 participants (ages: 18-83; mean: 35).

B.2 Results

There were 26-32 certainty ratings for each of the 59 NEAS (mean: 28.5), except for the five NEASs that appeared on two lists, for which there were 52-58 certainty ratings each (mean: 54). We calculated the mean certainty rating of the prejacent of each NEAS: the lowest mean certainty rating was 1.2, the highest was 6.7 and the mean certainty rating overall was 3.2. Given that participants gave their ratings on a 7-point scale, with the lowest rating (1) indicating that the speaker was taken to not be certain about the relevant content and the highest rating (7) indicating that the speaker was taken to be certain about the relevant content, this mean certainty rating of 3.2 already suggests that the prejacent of naturally occurring NEAS is not highly projective. Figure 1 in section 2 showed the mean certainty rating of each NEAS by evaluative adjective. The distribution of mean certainty ratings again suggests that the prejacent of naturally occurring NEASs is projective, but not highly so, and that NEASs in which the prejacent does not project are well-attested in naturally occurring data.

C Norming study for Exp. 1

The goal of the norming study was to identify generalizations of EASs such that their truth is more or less likely to follow from the common ground.

C.1 Methods

Participants 270 participants, with US IP addresses and at least 97% of HITs approved, were recruited on Amazon's Mechanical Turk platform (ages 18-68, 1 undeclared; mean: 32). They were paid 45 cents.

Materials For each of the ten evaluative adjectives of Exp. 1, we created 12 pairs of two-sentence stimuli such that the first sentence was a context sentence and the second sentence a NEAS, as in (20) and (21). We hypothesized, for each pair of NEASs, that the truth of the generalization of one member of the pair is more likely to follow from the common ground and less likely for the other member. Target stimuli in the norming study consisted of two-sentence discourses where the first sentence was the context sentence of the stimuli in Exp. 1 and the second sentence was the prejacent of the NEAS, as shown in (30) and (31) for the stimuli in (20) and (21), respectively. Given that there were 120 pairs of potential stimuli for Exp. 1, there were 120 pairs of two-sentence discourses in the norming study, i.e., a total of 240 two sentence discourses. The full set of target stimuli is provided in the GitHub repository mentioned in footnote 14. To assess whether the truth of the generalization follows from the common ground, participants were asked to assess the truth of the corresponding generalization. The generalizations were presented in the past tense to cohere with the tense of the discourses that participants read.

(30) Sample stimuli in the Content condition

a. Sue was traveling in France. She lost her wallet.
(Question to participants: 'Was Jane fortunate to lose her wallet?')

b. Sue was traveling in France. She spoke some French.
(Question to participants: 'Was Jane fortunate to speak French?')

(31) Sample stimuli in the Context condition

a. Jane was prank-calling people. She called the police.
(Question to participants: 'Was Jane smart to call the police?')

b. Jane saw a man with a gun. She called the police.
(Question to participants: 'Was Jane smart to call the police?')

The 240 target stimuli were distributed into 24 lists of 10 target stimuli so that each list included one target stimulus for each evaluative adjective. Each list included 5 target stimuli in which the truth of the generalization was hypothesized to be likely to follow from the common ground and 5 in which in which the truth of the generalization was hypothesized to be unlikely to follow from the common ground. Each list included 5 stimuli each from the target stimuli created for the Context and Content conditions.

To assess whether participants were attending to the task, the same 4 control stimuli were added to each list, for a total of 14 stimuli per list. The control stimuli consisted of two-sentence discourses, as shown in (32): the two controls in (32a-b) were expected to receive a positive answer and the two controls in (32c-d) were expected to receive a negative answer.

(32) a. Earl worked in London last year. He was a teacher at a private school.
(Is it true that Earl worked at a private school in London?)

b. Liv was having a birthday party. She bought a cake for her party.
(Is it true that Liv bought a cake for her birthday party?)

c. Claire was knitting a sweater. She was using red yarn.
(Is it true that Claire was knitting a blue sweater?)

d. Ross graduated from college yesterday. He was an excellent student.
(Is it true that Ross dropped out of college?)

Procedure Participants were told that they would read descriptions of a scenario and asked to respond to a question about the scenario. They gave their responses on a 7-point Likert scale labeled at four points: No/1, Possibly no/3, Possibly yes/5, Yes/7). Participants were randomly assigned to a list and presented with the 14 stimuli, one after the other, in a random order. After rating the 14 stimuli, participants filled out a brief questionnaire about their age, their native language(s) and, if English is a native language, whether it is American English, as opposed to e.g., Indian or Australian English. Participants were told that they would be paid no matter how they responded to these questions, in order to encourage them to answer truthfully.

Data exclusion The ratings from 9 participants who did not self-identify as native speakers of American English were excluded. 31 participants gave ratings lower than Possibly yes/5 to the control stimuli in (32a-b), for which we expected the speaker to be taken to be committed to the relevant content, or higher than Possibly no/3 to the control stimuli in (32c-d), for which we expected the speaker to not be taken to be committed to the relevant content. The ratings from these participants were also excluded, leaving data from 230 participants (ages: 18-68; mean: 32).

C.2 Analysis

Each of the 240 target discourses received between 7 and 13 ratings (mean: 9.6). As shown in Table 1, stimuli for which the truth of the generalization was hypothesized to be likely to follow generally received high ratings and stimuli for which this was not the case generally received low ratings.

Of the 120 pairs of target stimuli (60 pairs in the Context and Content conditions each), we selected the 6 best pairs for each evaluative adjective: 3 in the Context condition and 3 in the Content condition:

	Truth of generalization follows from common ground	
	more likely	less likely
Content condition	6.2 (1.2)	1.6 (1.1)
Context condition	6.0 (1.3)	2.2 (1.6)

Table 1: Mean ratings and standard deviations for the 240 stimuli in the four conditions

the 'best' pairs of stimuli were those where the mean ratings of the two members of the pair were as high and low as possible, respectively. The mean ratings and standard deviations for the 120 stimuli selected for Exp. 1 are shown in Table 2.

	Truth of the generalization follows from common ground:	
	more likely	less likely
Content condition	6.5 (0.9)	1.3 (0.8)
Context condition	6.1 (1.2)	1.7 (1.2)

Table 2: Mean ratings and standard deviations for the 120 selected stimuli in the four conditions

D Materials of Experiment 1

The control stimuli of Experiment 1 also consisted of two-sentence discourses: the content of interest in (33a-c) was hypothesized to be true, and the content of interest in (33d-f) was hypothesized to be false. Participants were excluded if they gave a response lower than Possibly yes/5 to at least one of the control stimuli in (33a-c) or higher than Possibly no/3 to at least one of the control stimuli in (33d-f).

(33) a. Fran lived in Paris. She wasn't sad to live alone.
(Question to participants: Did Liv live alone?)

b. Charles served in Iraq. He was proud to have been a soldier.
(Question to participants: Was Charles a soldier?)

c. Tess participated in a marathon. She was happy to cross the finish line.
(Question to participants: Did Tess cross the finish line?)

d. Earl had a bad toothache. He forgot to call his dentist.
(Question to participants: Did Earl call his dentist?)

e. Ross was doing his laundry. He didn't manage to find coins anywhere.
(Question to participants: Did Ross find coins anywhere?)

f. Liv went on a trip to Europe. She failed to visit Italy.
(Question to participants: Did Liv visit Italy?)

There were 12 target stimuli for each of the 10 evaluative adjectives: 6 stimuli in the Content condition (Cn) and 6 in the Context condition (Cx). For stimuli marked whose coding ends with an 'T' (i.e., [xxT]), the norming study established that the strength of the inference to the truth of the generalization from the common ground was high, i.e., the generalization follows from the common ground. For stimuli whose coding ends with an 'F' (i.e., [xxF]), the norming study established that the strength of the inference to the falsity of the generalization was high.

- **brave**

CnT Greg wrote a controversial article. He wasn't brave to use his own name.

CnT Greg saw a child drowning in a river. He wasn't brave to jump into the river.
CnT Greg saw a man hit a dog. He wasn't brave to stand up to the man.
CnF Greg wrote a controversial article. He wasn't brave to use a fake name.
CnF Greg saw a man hit a dog. He wasn't brave to walk away.
CnF Greg saw a child drowning in a river. He wasn't brave to watch from the river bank.
CxT Greg was being attacked by five men. He wasn't brave to take them on.
CxT Greg was asked to speak up against the crime boss. He wasn't brave to agree to do it.
CxT Greg was offered a job as a lion tamer. He wasn't brave to take the job.
CxF Greg was asked to help his friend move. He wasn't brave to agree to do it.
CxF Greg was asked to mow his neighbor's lawn. He wasn't brave to take the job.
CxF Greg was being tickled by two small boys. He wasn't brave to take them on.

- **foolish**

CnT Kate's doctor told her to lose weight. She wasn't foolish to ignore him.
CnT Kate took her nephew to the playground. She wasn't foolish to wear high heels.
CnT Kate was working a very stressful job. She wasn't foolish to ignore her health problems.
CnF Kate's doctor told her to lose weight. She wasn't foolish to start exercising.
CnF Kate took her nephew to the playground. She wasn't foolish to bring water and a snack.
CnF Kate was working a very stressful job. She wasn't foolish to take relaxation classes.
CxT Kate had a broken ankle. She wasn't foolish to go for a run.
CxT Kate was completely broke. She wasn't foolish to go shopping.
CxT Kate was drunk at a bar. She wasn't foolish to take her top off.
CxF Kate needed a new dress. She wasn't foolish to go shopping.
CxF Kate was getting a breast exam. She wasn't foolish to take her top off.
CxF Kate wanted to exercise. She wasn't foolish to go for a run.

- **fortunate**

CnT Sue was traveling in France. She wasn't fortunate to speak some French.
CnT Sue was bitten by a shark. She wasn't fortunate to get away with a few cuts.
CnT Sue was training to become a dancer. She wasn't fortunate to have a great sense of rhythm.
CnF Sue was bitten by a shark. She wasn't fortunate to lose a leg.
CnF Sue was traveling in France. She wasn't fortunate to get robbed.
CnF Sue was training to become a dancer. She wasn't fortunate to develop back problems.
CxT Sue needed to get some rest. She wasn't fortunate to fall asleep.
CxT Sue spontaneously went to the beach. She wasn't fortunate to be wearing flip-flops.
CxT Sue needed a present for her sick friend. She wasn't fortunate to have a flower bouquet.
CxF Sue is allergic to pollen. She wasn't fortunate to have a flower bouquet.
CxF Sue was at her best friend's wedding. She wasn't fortunate to fall asleep.
CxF Sue spontaneously went on a hike in the mountains. She wasn't fortunate to be wearing flip-flops.

- **lucky**

CnT Eve bought a raffle ticket. She wasn't lucky to win the first prize.
CnT Eve was in a car accident. She wasn't lucky to get away unscathed.

CnT Eve wanted to be a model. She wasn't lucky to have beautiful skin.
CnF Eve wanted to be a model. She wasn't lucky to have bad skin.
CnF Eve bought a raffle ticket. She wasn't lucky to lose it the next day.
CnF Eve was in a car accident. She wasn't lucky to break her neck.
CxT Eve has a 5th grade education. She wasn't lucky to get a minimum wage job.
CxT Eve was a finalist in The Bachelor. She wasn't lucky to be chosen.
CxT Eve did not understand her chemistry class. She wasn't lucky to get a B.
CxF Eve was the best student in this class. She wasn't lucky to get a B.
CxF Eve was called in for jury duty. She wasn't lucky to be chosen.
CxF Eve has a first rate college education. She wasn't lucky to get a minimum wage job.

- **mean**

CnT Jack bumped his shopping cart into a woman. He wasn't mean to laugh when she cried.
CnT Jack walked past an old man with a cane. He wasn't mean to push the man.
CnT Jack saw a hungry dog. He wasn't mean to pretend to have food for him.
CnF Jack walked past an old man with a cane. He wasn't mean to help him across the street.
CnF Jack bumped his shopping cart into a woman. He wasn't mean to apologize to her.
CnF Jack saw a hungry dog. He wasn't mean to feed him a can of food.
CxT Jack didn't like the movie his wife was watching. He wasn't mean to turn off the movie.
CxT Jack's daughter is lactose intolerant. He wasn't mean to give her a milk shake.
CxT Jack's wife wanted to sleep in. He wasn't mean to wake her up at 5am.
CxF Jack's wife had asked him to wake her really early. He wasn't mean to wake her up at 5am.
CxF Jack's young daughter was watching an R-rated movie. He wasn't mean to turn off the movie.
CxF Jack's daughter was a little hungry. He wasn't mean to give her a milk shake.

- **polite**

CnT Chad had insulted his wife. He wasn't polite to apologize.
CnT Chad was standing in front of his friend's door. He wasn't polite to knock gently.
CnT Chad was visiting his grandmother. He wasn't polite to bring a gift.
CnF Chad was visiting his grandmother. He wasn't polite to insult her caretaker.
CnF Chad was standing in front of his friend's door. He wasn't polite to be eavesdropping.
CnF Chad had insulted his wife. He wasn't polite to laugh at her tears.
CxT Chad's friend wanted to change her clothing. He wasn't polite to close his eyes.
CxT Chad was watching a theater play. He wasn't polite to applaud.
CxT Chad watched a street comedian. He wasn't polite to laugh.
CxF Chad was in a meeting with his boss. He wasn't polite to close his eyes.
CxF Chad saw an old lady trip on the street. He wasn't polite to laugh.
CxF Chad saw an old lady trip on the street. He wasn't polite to applaud.

- **rude**

CnT Ann was standing in front of her friend's door. She wasn't rude to be eavesdropping.
CnT Ann had insulted her husband. She wasn't rude to laugh at his tears.
CnT Ann was visiting her older brother. She wasn't rude to insult his wife.

CnF Ann was visiting her older brother. She wasn't rude to bring a gift.
CnF Ann was standing in front of her friend's door. She wasn't rude to knock gently.
CnF Ann had insulted her husband. She wasn't rude to apologize.
CxT Ann got reprimanded by her boss. She wasn't rude to ignore him.
CxT Ann was eating pasta with her friends. She wasn't rude to use her fingers.
CxT Ann's neighbor greeted her. She wasn't rude to ignore him.
CxF Ann untied her shoes. She wasn't rude to use her fingers.
CxF Ann's neighbor made an inappropriate comment. She wasn't rude to ignore him.
CxF Ann's boyfriend made fun of her haircut. She wasn't rude to ignore him.

- **smart**

CnT Jane was baby-sitting for her sister. She wasn't smart to keep an eye on the baby at all times.
CnT Jane's computer was hacked. She wasn't smart to change her passwords immediately.
CnT Jane wanted to get a good job. She wasn't smart to get her high school degree.
CnF Jane's computer was hacked. She wasn't smart to keep using the same passwords.
CnF Jane wanted to get a good job. She wasn't smart to drop out of high school.
CnF Jane was baby-sitting for her sister. She wasn't smart to leave the baby unattended.
CxT Jane saw a man with a gun. She wasn't smart to call the police.
CxT Jane's father couldn't hear the TV. She wasn't smart to turn up the volume.
CxT Jane wanted to get a good job. She wasn't smart to go to school.
CxF Jane was prank-calling people. She wasn't smart to call the police.
CxF Jane's neighbor complained about the loud music. She wasn't smart to turn up the volume.
CxF Jane had the measles. She wasn't smart to go to school.

- **stupid**

CnT Zack left the bar drunk. He wasn't stupid to drive home.
CnT Zack was offered some contaminated heroin. He wasn't stupid to inject it.
CnT Zack discovered that his girlfriend was cheating. He wasn't stupid to marry her.
CnF Zack was offered some contaminated heroin. He wasn't stupid to refuse to take it.
CnF Zack left the bar drunk. He wasn't stupid to call a taxi.
CnF Zack discovered that his girlfriend was cheating. He wasn't stupid to break up with her.
CxT Zack had the measles. He wasn't stupid to go to school.
CxT Zack saw two wasps in his drink. He wasn't stupid to take a sip.
CxT Zack was sitting in the bath tub. He wasn't stupid to use the hair dryer.
CxF Zack was drinking a glass of wine. He wasn't stupid to take a sip.
CxF Zack had wet hair. He wasn't stupid to use the hair dryer.
CxF Zack wanted to get a good job. He wasn't stupid to go to school.

- **wise**

CnT Paul ran a marathon on Sunday. He wasn't wise to go to bed early the night before.
CnT Paul was staying in a bad part of town. He wasn't wise to stay at home at night.
CnT Paul lost his wallet with his credit cards. He wasn't wise to cancel the credit cards immediately.
CnF Paul lost his wallet with his credit cards. He wasn't wise to wait a week to cancel the credit cards.

CnF Paul ran a marathon on Sunday. He wasn't wise to get very drunk the night before.
CnF Paul was staying in a bad part of town. He wasn't wise to go out alone at night.
CxT Paul wanted to keep his excellent employee happy. He wasn't wise to promote her.
CxT Paul bought an expensive TV. He wasn't wise to ask about the return policy.
CxT Paul went on a hike in the Alps. He wasn't wise to wear hiking boots.
CxF Paul had an inefficient employee. He wasn't wise to promote her.
CxF Paul bought some heroin from a street dealer. He wasn't wise to ask about the return policy.
CxF Paul went into the public pool. He wasn't wise to wear hiking boots.

E Materials of Experiment 2

The following two control stimuli were used in Experiment 2: we expected participants to respond 'yes' to the control stimuli because main clause content is at-issue.

(34) Main clause control stimuli

a. Debby: Mary brought a fruit salad.
Harry: Are you sure?
Debby: Yes, I am sure that Mary brought a fruit salad.

b. Debby: Phillip, a yoga teacher, is wearing sweat pants.
Harry: Are you sure?
Debby: Yes, I am sure that Phillip is wearing sweat pants.

The following four stimuli assessed the at-issueness of the content of a nominal appositive, of the possession content of a possessive noun phrase, of the content of the clausal complement of the emotive predicate *be annoyed* and of the content of the clausal complement of the cognitive change-of-state predicate *discover*.

(35) Projective content control stimuli[18]

a. Nominal appositive
Debby: Sue, a teacher, runs three times a week.
Harry: Are you sure?
Debby: Yes, I am sure that Sue is a teacher.

b. Possessive noun phrase
Debby: Larry is flirting with your neighbor.

[18]The projective contents of these stimuli differed in the extent to which they received 'no' ratings (indicating not-at-issueness): 94% (64 of 68) for the appositive content in (35a), 90% (61 of 68 for the possession content in (35b), 75% (51 of 68) for the content of the clausal complement of *be annoyed* in (35c) and 44% (30 of 68) for the content of the clausal complement of *discover* in (35d). We can compare these findings with the findings reported for similar contents in Tonhauser et al. 2018, whose Exp. 2a used the same diagnostic for at-issueness, but participants gave ratings on a slider. Further differences between the two experiments is that Tonhauser et al. 2018 included more than one item for each of the projective contents but only included EASs with *stupid*. With these caveats in mind, we can note a similarity in the findings of the two experiments: as in the experiment reported on here, Tonhauser et al. (2018) found that the possession content and appositive content were most not-at-issue (mean ratings of .83 and .82, respectively), followed by the content of the clausal complement of *be annoyed* (mean: .78) and the prejacent of EASs (mean: .7), and finally the content of the clausal complement of *discover* (mean .47). This finding suggests that the prejacent of EASs overall is not highly not-at-issue, which converges with the finding of the web-based corpus study (Appendix B) that the prejacent of NEAS is not highly projective.

Harry: Are you sure?

Debby: Yes, I am sure that you have a neighbor.

c. Emotive predicate *be annoyed*

Debby: Tamara is annoyed that the pizza is gone.

Harry: Are you sure?

Debby: Yes, I am sure that the pizza is gone.

d. Cognitive change-of-state predicate *discover*

Debby: Paula discovered that her husband is cheating.

Harry: Are you sure?

Debby: Yes, I am sure that Paula's husband is cheating.

There were 6 target stimuli for each of the 10 evaluative adjectives: for 3 stimuli, the generalization was neutral (N); for 3, the generalization was taken to follow from the common ground (F). For each 3-turn stimulus, we provide the first and third turn, leaving out the second turn (*Are you sure?*).

- **brave**

N Greg was brave to take the job. Yes, I am sure that he took the job.

N Greg was brave to watch them. Yes, I am sure that he watched them.

N Greg was brave to agree to do it. Yes, I am sure that he agreed to do it.

F Greg was brave to publish a controversial article under his own name. Yes, I am sure that he published the article under his own name.

F Greg was brave to save a child from drowning in the river. Yes, I am sure that he saved the child.

F Greg was brave to take on the five men attacking him. Yes, I am sure that he took on the five men.

- **foolish**

N Kate was foolish to wear that dress. Yes, I am sure that she wore that dress.

N Kate was foolish to bring a snack. Yes, I am sure that she brought a snack.

N Kate was foolish to go shopping. Yes, I am sure that she went shopping.

F Kate was foolish to ignore her doctor's recommendations. Yes, I am sure that she ignored his recommendations.

F Kate was foolish to wear high heels at the playground. Yes, I am sure that she wore high heels at the playground.

F Kate was foolish to go for a run with a broken ankle. Yes, I am sure that she went for a run with a broken ankle.

- **fortunate**

N Sue was fortunate to meet this man. Yes, I am sure that she met him.

N Sue was fortunate to be wearing flip-flops. Yes, I am sure that she was wearing flip-flops.

N Sue was fortunate to attend the workshop. Yes, I am sure that she attended the workshop.

F Sue was fortunate to speak French when she went to France. Yes, I am sure that she spoke French when she went to France.

F Sue was fortunate to have a great singing voice. Yes, I am sure that she had a great singing voice.

F Sue was fortunate to get upgraded to first class on her flight to Asia. Yes, I am sure that she was upgraded to first class.

- **lucky**

N Eve was lucky to grow up in that city. Yes, I am sure that she grew up in that city.

N Eve was lucky to wake up. Yes, I am sure that she woke up.

N Eve was lucky to get into that college. Yes, I am sure that she got into that college.

F Eve was lucky to get the lead in a major TV show. Yes, I am sure that she got the lead.

F Eve was lucky to win the lottery. Yes, I am sure that she won the lottery.

F Eve was lucky to inherit a fortune from her uncle. Yes, I am sure that she inherited a fortune from her uncle.

- **mean**

N Jack was mean to wake up his wife. Yes, I am sure that he woke her up.

N Jack was mean to laugh. Yes, I am sure that he laughed.

N Jack was mean to turn off the movie. Yes, I am sure that he turned off the movie.

F Jack was mean to laugh when he bumped his shopping cart into a woman. Yes, I am sure that he laughed when he bumped his cart into her.

F Jack was mean to turn off the movie his wife was watching. Yes, I am sure that he turned off the movie she was watching.

F Jack was mean to give a milkshake to his lactose intolerant daughter. Yes, I am sure that he gave her a milkshake.

- **polite**

N Chad was polite to wait for her. Yes, I am sure that he waited for her.

N Chad was polite to close the door. Yes, I am sure that he closed the door.

N Chad was polite to laugh. Yes, I am sure that he laughed.

F Chad was polite to applaud the street comedian. Yes, I am sure that he applauded the comedian.

F Chad was polite to bring his grandmother a gift for her birthday. Yes, I am sure that he brought her a gift.

F Chad was polite to apologize to his insulted wife. Yes, I am sure that he apologized to her.

- **rude**

N Ann was rude to say that. Yes, I am sure that she said that.

N Ann was rude to ask that. Yes, I am sure that she asked that.

N Ann was rude to change the song. Yes, I am sure that she changed the song.

F Ann was rude to eat the pasta with her fingers. Yes, I am sure that she ate the pasta with her fingers.

F Ann was rude to laugh at her husband's pain. Yes, I am sure that she laughed at his pain.

F Ann was rude to ignore her friendly new neighbor. Yes, I am sure that she ignored him.

- **smart**

N Jane was smart to stay home. Yes, I am sure that she stayed home.

N Jane was smart to say no. Yes, I am sure that she said no.

N Jane was smart to go to the store. Yes, I am sure that she went to the store.

F Jane was smart to stay home when she had the flu. Yes, I am sure that she stayed home when she had the flu.

F Jane was smart to change her passwords when her computer was hacked. Yes, I am sure that she changed her passwords when her computer was hacked.

F Jane was smart to report her stalker. Yes, I am sure that she reported him.

- **stupid**

N Zack was stupid to go to the store. Yes, I am sure that he went to the store.

N Zack was stupid to leave the bar. Yes, I am sure that he left the bar.

N Zack was stupid to dance like that. Yes, I am sure that he danced like that.

F Zack was stupid to go to school with the measles. Yes, I am sure that she went to school with the measles.

F Zack was stupid to drive home completely drunk. Yes, I am sure that he drove home completely drunk.

F Zack was stupid to use the hair dryer in the bath tub. Yes, I am sure that he used the hair dryer in the bath tub.

- **wise**

N Paul was wise to reprimand his employee. Yes, I am sure that he reprimanded her.

N Paul was wise to wear hiking boots. Yes, I am sure that he wore his hiking boots.

N Paul was wise to stay at home. Yes, I am sure that he stayed at home.

F Paul was wise to promote his excellent employee. Yes, I am sure that he promoted his excellent employee.

F Paul was wise to go to bed early the night before the marathon. Yes, I am sure that he went to bed early that night.

F Paul was wise to wear hiking boots on his hike in the Alps. Yes, I am sure that he wore hiking boots on his hike.

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