At-issueness Does Not Predict Projection

The notion of PROJECTION was introduced in Langendoen & Savin (1971) and has since been employed to describe the ability of certain implications to survive embedding under entailment-canceling operators, e.g. negation or modals. The term has traditionally been applied to presupposed inferences (Karttunen 1973; 1974; Heim 1983; Beaver 2001; a.o.) and has more recently been discussed in the context of non-presupposed projective content, including inferences triggered by appositives, expressives, and evidentials (Potts 2005; Koev 2013; 2016; Murray 2014; AnderBois et al. 2015). In turn, Potts (2005) introduced the term AT-ISSUE content to describe implications that constitute the main point of an utterance. In a series of recent papers, David Beaver, Craige Roberts, Mandy Simons, and Judith Tonhauser (henceforth BRST) made the influential proposal that projection can be explained in terms of at-issueness, hypothesizing that there is a perfect correlation between these two linguistic categories, in the sense that semantic content projects if and only if it is not at issue (see especially Simons et al. 2010 and Beaver et al. 2017). This squib critically evaluates BRST’s proposal and raises several theoretical and empirical issues. I argue that although projection and not-at-issueness appear to be strongly correlated, there is no perfect overlap in the way envisaged by BRST. In particular, semantic content may project and be at issue, and it may not project but be not at issue.

1. Defining and Diagnosing Projection

Projection is the ability of semantic content to remain unaffected by the presence of entailment-canceling operators such as negation, modals, etc. Simons et al. (2010) define this notion as follows.

(1) PROJECTION (Simons et al. 2010: 309)

An implication PROJECTS if and only if it survives as an utterance implication when the expression that triggers the implication occurs under the syntactic scope of an
entailment-canceling operator.

For example, (2) implies that Katie tweeted about Barron and that she regrets doing so. However, when embedded under negation, a modal, an if-operator, or a question operator, as in (3), the former implication survives while the latter implication is canceled.\(^1\) According to (1), the implication that Katie tweeted about Barron projects.

(2) Katie regrets tweeting about Barron.

(3) a. Katie doesn’t regret tweeting about Barron.
   b. It’s possible that Katie regrets tweeting about Barron.
   c. If Katie regrets tweeting about Barron, then she is a good person.
   d. Does Katie regret tweeting about Barron?

An inference which passes this test need not project to the top level of a more complex sentence. As is well known, presupposed inferences can be canceled if the triggering expression is embedded in a larger sentence, as in *If Katie tweeted about Barron, then she regrets doing so*. Projection is thus not an all-or-nothing property, and there appear to be different kinds of projection behavior. Potts (2005) and Koev (2013) argue that conventionally implicated inferences – e.g. inferences triggered by appositive constructions – project in a stronger sense than presupposed inferences do. Tonhauser et al. (2013) establish four distinct classes of projective content, and Smith & Hall (2013) provide experimental evidence for projection variability depending on the lexical trigger and the embedding environment. Any good account of projection then needs to crosscut the different classes of projective inferences. As Simons et al. (2010) point out, previous approaches to projection – including common ground approaches (Karttunen 1974; Stalnaker 1974; Heim 1983; Beaver 2001),

\(^1\)This diagnostic is often called the family of sentences test (cf. Chierchia & McConnell-Ginet 2000: 29–30), as in such cases an inference is generated not just by the plain sentence but also by its embedded relatives.
anaphoric approaches (van der Sandt 1992; Geurts 1999), and two-dimensional approaches (Karttunen & Peters 1979; Potts 2005) – are tailored to fit the projection pattern of either presupposed or conventionally implicated inferences, but not both. The challenge would then be to offer a comprehensive, unified, and explanatory account of projection that subsumes different lexical triggers and projection patterns. BRST propose to do this by paying close attention to the discourse status of projective inferences.

2. Defining and Diagnosing At-issueness

It is often said that utterances carry a main point, perhaps alongside some backgrounded information. Potts (2005) dubbed the implications that constitute the main point of an utterance its AT-ISSUE content. BRST explicate this label in Roberts’ (1996/2012) framework, according to which discourse is structured by QUESTIONS UNDER DISCUSSION (QUDs), which set up discourse goals and guide the conversation. BRST call “at issue” that part of the utterance that addresses the (current) QUD.2

(4) A proposition is AT ISSUE relative to a QUD iff it is relevant to the QUD. 

(cf. Simons et al. 2010: 317)

In turn, relevance to a question under discussion is defined in terms of the answerhood relation.3

(5) A proposition is RELEVANT to a QUD iff it contextually entails a partial or complete answer to the QUD. 

(cf. Simons et al. 2010: 316)

Contextual entailment is preferred over the stricter notion of logical entailment because background information is often needed in order to draw the desired inferences. For example, the inference from Avi is twenty-two to Avi is old enough to drink requires the back-

2The definition below is presented in a slightly simplified form.

3Simons et al.’s definition of relevance mentions assertions, not propositions. But this precludes the possibility that non-asserted propositions, e.g. those expressed by embedded clauses, may interact with the QUD as well.
ground information that the drinking age is twenty-two or less (Simons et al. 2010: 316). Notice also that (5) allows for partial answers. Partial answers are informative because they reduce the set of question alternatives, but they need not fully resolve the QUD and pick a single alternative.

Putting (4) and (5) together, we arrive at the following definition of at-issueness.

(6) AT-ISSUENESS

A proposition is AT ISSUE relative to a QUD iff it contextually entails a partial or complete answer to the QUD.

This will be the core definition of at-issueness assumed in this squib. Simons et al. (2010) and Beaver et al. (2017) consider two elaborations of it, to be discussed in Section 3.

As visible from (6), the at-issue status of a proposition turns on the QUD in the current context. Unfortunately, BRST do not offer a clear way of determining the QUD and suggest that the content expressed by a sentence can occasionally answer a subquestion or a superquestion of the immediate QUD. The issue is particularly pressing because QUDs are typically left implicit and without an operational way of selecting the QUD, the theory of projection would make no falsifiable predictions.

In order to be able to evaluate BRST’s proposal, I will focus on exchanges with explicit questions and (in the absence of evidence to the contrary) will make the simplifying assumption that these overlap with the QUD. Specifically, I will treat an implication as at-issue relative to an explicit question just when the minimal clause that contains the triggering expression can be uttered in the same context to answer that question (see also Tonhauser 2012). According to this criterion, the main clause content in (7) is at issue, because What
did you eat for dinner? I ate broccoli constitutes a congruent question/answer pair, but the appositive content is not at issue, because What did you eat for dinner? #Broccoli is packed with vitamins and minerals is not a congruent question/answer pair.

(7) Q: What did you eat for dinner?
A: I ate broccoli, which is packed with vitamins and minerals.

3. Correlating Projection and At-issueness

The centerpiece of BRST’s approach to projection is the claim that there is a perfect correlation between projecting and not-at-issue content, or equivalently, between non-projecting and at-issue content. The authors call this the PROJECTION PRINCIPLE, which (in a slightly simplified form) can be rendered as follows.

(8) PROJECTION PRINCIPLE (Simons et al. 2010: 315; Beaver et al. 2017: 280)

An implication projects iff it is not at issue relative to the QUD in the given context.

The workings of the Projection Principle are illustrated on the following two examples, both from Simons et al. (2010). Imagine that a nutritionist has been visiting first grade classrooms to talk to the children about healthy eating. Given the QUD in (9Q), the intuition about (9A) is that the sentence as a whole answers the QUD and is thus at issue. The embedded proposition that you can eat raw vegetables projects through the matrix negation. This is as predicted by the Projection Principle, because the latter proposition does not answer the QUD, so it is not at issue.

(9) Q: What most surprised you about the first graders?
A: They didn’t know that you can eat raw vegetables.

Conversely, the inference that France has a king does not project in (10A); the existence implication is trapped under negation and can be paraphrased as “There was no king of
France attending the opening of Parliament”. This again is predicted by the Projection Principle, as this implication does answer the QUD in (10Q) and thus is at issue.

(10)  Q: Does France have a king?
A: Well, the king of France didn’t attend the opening of Parliament.

So far, projection and not-at-issueness seem to line up.

The Projection Principle has several characteristics that call for a closer look. Most importantly, its biconditional nature entails that projection and not-at-issueness are extensionally one and the same property. However, since not-at-issueness is intended as an explanation for projection (Simons et al. 2010: 309, 319), one might ask why we cannot explore the opposite route, i.e. that projection explains not-at-issueness. This would be plausible, as BRST posit the strongest possible logical relation between these two properties, i.e. that of mutual entailment.

This brings up the question of the theoretical status of the Projection Principle. In line with Simons et al. (2017: 204), I will view it as an empirical hypothesis that connects the independently motivated properties of projection and at-issueness, and that eventually may turn out to be false. Another possibility is that this principle is a theoretical desideratum that any theory of projection should meet. The equivalence between projection and not-at-issueness would then be stipulated and could not be empirically refuted. I see little value in exploring this latter route, as it is unclear why such a principle should hold in the first place.

Assessing the Projection Principle will depend on how much we pack into the notions of projection and at-issueness. Indeed, when faced with empirical difficulties, BRST step away from the purely pragmatic notion of at-issueness in (6) and acknowledge the role of conventional meaning. In order to deal with projecting inferences that answer the QUD, Simons et al. (2010: 323) redefine at-issueness along the following lines.
(11) A proposition is at issue relative to a QUD iff the speaker intends to address the QUD with it. This intention is felicitous only if

- the proposition is relevant to the QUD, and
- the speaker can reasonably expect the addressee to recognize her intention by using appropriate conventional marking.

However, as the authors themselves admit, this definition and the Projection Principle would incorrectly rule out model examples as in (10), where a QUD-relevant proposition is marked by the speaker as presupposed and thus is not expected to be at issue. More generally, (11) would bar the possibility that conventionally triggered projective inferences fail to project if they are at issue.

Beaver et al. (2017: 280) offer a second elaboration of the core notion of at-issueness.\(^5\)

(12) A proposition expressed by a constituent is at issue relative to a QUD iff

- it entails that some possible answer to the QUD is false, and
- it contributes to the ordinary semantics of the clause in which the constituent is located.

Contributing to the ordinary semantics of a clause is what BRST call having obligatory local effect, defined as being an obligatory target of embedding operators (Tonhauser et al. 2013; Beaver et al. 2017). However, it is unclear whether this property is any different from non-projection. While Tonhauser et al. claim that certain projective inferences (e.g. inferences triggered by *almost, only, stop, know*) have obligatory local effect, they only illustrate this property on belief predicates, pointing out that *Jane believes that Bill has stopped smoking* implies that Jane (rather than the speaker) believes the projected inference, i.e. that Bill used to smoke.\(^6\) But this does not mean that *stop* has obligatory local effect in...

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\(^5\)For ease of comparison to the previous definitions, I once again slightly adjust the original wording.

\(^6\)Similar data have previously been discussed in Karttunen (1974), Heim (1992), Geurts (1999), a.o.
some absolute sense, because the inferences it triggers would routinely project past other modal operators, such as modal auxiliaries or if-operators (cf. Bill might have stopped smoking or If Bill has stopped smoking, he can run a marathon). If having obligatory local effect is meant in a relative sense, say only with respect to (non-factive) attitude predicates, it is hard to see why this property should play any role when no such predicate is present in the sentence (e.g. (13)-(14) below). If, however, having obligatory local effect is intended to apply across entailment-canceling operators, then projective inferences would lack this property by definition because, as their name suggests, they will project in at least some cases. According to (12), this would mean that projection entails not-at-issueness, and make the left-to-right direction of the Projection Principle true by definition, despite its status as an empirical hypothesis. Given these difficulties with complicating the definition of at-issueness, I will stick to the original definition in (6).

4. Against the Projection Principle

The main contribution of this squib is the claim that there is no perfect overlap between projective meanings and not-at-issue meanings. In fact, the Projection Principle turns out to be problematic in both directions: content that does not project can be not at issue, and content that projects can be at issue.

I start off by presenting challenges to the left-to-right direction of the Projection Principle, i.e. the entailment from projection to not-at-issueness (or equivalently, from at-issueness to non-projection). Appositives (non-restrictive relative clauses, nominal appositions, etc.) constitute paradigm constructions that trigger projective inferences (Potts 2005; Koev 2013). While appositive inferences are typically not at issue, they may occasionally inform the QUD. In the following example, there are two questions on the conversational table and the main sentence addresses one of them while the appositives address the other. There is a clear sense that the appositives provide a reason and thus answer the why-part of the question. Even though the appositive content is at issue, it projects past the modal or the
negation found in the main clause, in violation of the Projection Principle.

(13) Q: Who should we invite to the workshop and why?

A: We may want to invite Josh, who knows a lot about indexicality, but I don’t think we should invite Greg, who is a phonologist.

Even with single QUDs, appositive implications are sometimes relevant and thus count as at issue, yet projection is not blocked. In the following example (modeled on Syrett & Koev 2015: 571), the appositive states that Kelly was fired, so it contextually entails an answer to the QUD.

(14) Q: Why is Kelly out of the office?

A: She might be talking to the director, who fired her on a whim.

There is no entailment relation between Kelly talking to the director and Kelly being fired on a whim, so both parts of the sentence are plausibly at issue relative to the same question. It is also possible that the appositive is addressing a different question that is left implicit, i.e. Why might Kelly be talking to the director?. But since this last question presupposes the first part of the answer (i.e. that Kelly might be talking to the director), this question is likely the current QUD, which would imply that the appositive content is at issue and make (14) parallel to (13).

A similar case is presented by factive implications that instruct the QUD. Upon a husband walking home and seeing his wife, the following exchange may occur between them. The implication that the store is closed today projects past negation, yet it provides a (negative) answer to the question and thus counts as at issue. In fact, in the given context the at-issue status of the embedded proposition lives on its projective behavior.

(15) Wife: So, did you go shopping?

Husband: I didn’t realize the store was closed today.
Clearly, the wife’s intention here is to determine whether her husband went shopping and brought food. It would be hard to argue that the QUD is, say, about the husband’s realization that the store is closed and thus the factive implication is not at issue. Overall, we see that projective content can occasionally answer the QUD and yet escape the semantic scope of operators.

Next, I discuss counterexamples to the right-to-left direction of the Projection Principle, or the claim that not-at-issue content obligatorily projects. While BRST’s data focuses on projective inferences (i.e. inferences that have the potential to project), the Projection Principle also predicts that embedded content under non-factive predicates should project if it is not at issue, and this is not borne out. (16Q) below asks about an event and the embedded proposition in (16A) describes a state, so it cannot answer it (cf. What happened next? #There is water on Mars). According to (6), the embedded proposition is not at issue, yet it clearly does not project.

(16) Q: What happened next?

A: NASA claimed / made the claim that there is water on Mars.

A similar point can be made with contrastive focus examples involving attitude predicates. According to one influential theory, focus introduces a set of alternatives produced by substituting the focus-marked constituent by expressions of a similar type (Rooth 1992; Beaver & Clark 2008). Beaver et al. (2017) propose that the focus semantic value of an utterance is a superset of the QUD it answers. In (17), the focus semantic value of B’s utterance – a set of propositions of the form Jack V that Mary is in love with him, where V is an attitude predicate – suggests that the current QUD is about Jack’s mental attitude toward Mary being in love with him. The embedded proposition itself does not decide on this

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Notice also that the factive implication here would count as at issue even under the revised definition in (12), because of Tonhauser et al.’s (2013) assumption that such implications have obligatory local effect.
QUD, so it is not at issue. But this proposition nevertheless does not project, the intuitive reason being that hope is not a factive verb.

(17) A: Jack knows that Mary is in love with him.
B: No, Jack [hopes] that Mary is in love with him.

In general, any embedded content that is not relevant to the QUD is predicted to project by the Projection Principle. In reality, it will do so only if the embedding predicate is factive.

The data cited in this section are quite general and can easily be multiplied. They posit a serious challenge to the Projection Principle, as they seem to argue against an entailment relation between projection and not-at-issueness. These two properties appear to be logically independent, and one does not predict the other.

5. Discussion

BRST’s account of projection revolves around the Projection Principle, according to which semantic content projects if and only if it is not at issue in a given context. I have argued that this principle faces empirical challenges and that projection and not-at-issueness appear to be logically independent. If we want to preserve the Projection Principle, we seem to have two options left: somehow explain the problematic data away or tweak the definitions of projection and/or at-issueness so as to fit the data. Here I take the data at face value and briefly explore the latter route.

The problematic data presented in the previous section were of two major types. Examples (16)-(17) involved content embedded under non-factive operators that is not at issue but does not project. Perhaps we could decide to call such content at issue, as the carrier expression is a sub-constituent of a larger constituent associated with an at-issue proposition. However, this would lead to a syntactic view of at-issueness, as only expressions (not propositions) can enter into constituency relations. This syntactic view would fail to distinguish between the projectivity of embedded propositions under factive vs. non-factive
predicates when what is at issue is the main sentence. For example, if the QUD is \textit{Why is Mary so upset?}, we would incorrectly predict neither \textit{She discovered that the President lied to the public} nor \textit{She believes that the President lied to the public} implies the embedded clause, because this clause is a constituent of a bigger at-issue sentence in both cases. In reality, it would project in the former but not the latter sentence. Overall, the pragmatic status of non-factive implications seems to have little impact on their projective properties. All we can say is that such implications do not project because of the nature of the embedding predicate.

The other major set of problematic data, illustrated in (13)-(15), appears to posit an even bigger challenge to the Projection Principle. If projecting inferences can in principle be at issue, there is little hope that their projectivity could be explained in terms of their discourse status. At the heart of the problem lies the apparent fact that projection and at-issueness belong to two different linguistic domains. Projection seems to primarily be a conventionally encoded property of expressions that is difficult to manipulate, while at-issueness is a discourse property that is relatively flexible. It is then unsurprising that the at-issue status of an implication does not always predict its projective behavior.

References


