

# Notions of At-issueness

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## Abstract

Upon hearing the sentence *Messi, who once scored a goal with his hand, won the Ballon d'Or*, the addressee is likely to interpret the main clause as conveying the “main point” and view the appositive relative clause as contributing secondary information. The intuition that some part of the utterance conveys the main point has recently been discussed in formal semantics and pragmatics under the label of “at-issueness”. However, this label has been used in a variety of ways and there is often little clarity as to what is meant by it. This survey tries to clear things up by identifying and spelling out three specific notions of at-issueness, i.e. Q(uestion)-at-issueness, P(roposal)-at-issueness, and C(ohere)nce-at-issueness. After looking into what they say about similar kinds of data, I conclude that while these notions appear to capture facets of the same broad intuition, they are truly distinct. The paper also discusses potential connections of at-issueness to projection and commitment strength.

**Keywords:** at-issueness, questions under discussion, proposals, coherence relations, projection, speaker commitments

## 1 At-issueness: intuitions, theories, diagnostics, conventional marking

AT-ISSUE CONTENT is that part of the sentence meaning that is intuitively felt to express the “main point” when the sentence is uttered in a given context. Potts (2005; 2007) was among the first to use the term “at-issue content” in the relevant sense, characterizing it as content that “carr[ies] the main themes of a discourse” (Potts 2005:7) and that speakers are “most expecting to have to negotiate with their interlocutors before it is accepted into the common ground” (Potts 2007:666). The first property, i.e. the ability to contribute to the discourse topic, is often expressed by saying that at-issue content is what is relevant to the question under discussion. The second property, i.e. the ability to represent what is being negotiated among interlocutors, is typically captured by saying that at-issue content constitutes a proposal to update the common ground. As detailed in section 2, the literature has pursued these two ideas relatively independently.

This initial characterization raises several important questions:

- (A) How should the intuition of a “main point” be explicated in a theory of at-issueness?
- (B) How is at-issueness to be empirically diagnosed?
- (C) Are there language constructions that mark content for a given at-issue status?

- (D) What predictions does a particular theory make about the relationship between at-issueness and other semantic phenomena?

By way of addressing question A, section 2 spells out and section 3 juxtaposes three theories of at-issueness, i.e. those based on questions under discussion (Simons et al. 2010; Beaver et al. 2017), common ground negotiation (Koev 2013; see also Farkas & Bruce 2010; Murray 2014; AnderBois et al. 2015), and discourse coherence (Hunter & Asher 2016; Jasinskaja Ms). Since not all of the individual accounts cited above fall squarely under a given theory, the emphasis will be on the core ideas, with the aim of exploring and comparing the empirical predictions in each case.

Similar remarks apply to question B. There exist several empirical tests for at-issueness, e.g. question/answer pairs, accessibility to direct denials or other discourse continuations, etc. Existing accounts have employed such tests rather indiscriminately, or without elaborating on how these tests relate to a given theoretical construal. In order to be able to judge a given theory on its own merits, in each case I will consider only those diagnostics that transparently follow from what counts as at issue in the relevant sense.

As for question C, several constructions have been claimed to conventionally mark semantic content as not at issue: parenthetical expressions (nominal appositives like *Edna, a fearless leader, started the descent*; appositive relative clauses like *Lance, who admitted to doping, lost all of his titles*; slifting parentheticals like *The dean, Jill said, flirted with the secretary*), presupposition triggers (e.g. definite descriptions like *the king of France* or factive predicates like *regret*), evidential markers in some languages, expressive adjectives like *damn*, etc. The comparison in section 3 will mostly focus on sentences with parentheticals as a prime example of conventionalizing the at-issue/not-at-issue divide, although nothing substantial depends on this choice. The goal here is not to provide an exhaustive list of issue-sensitive constructions and study their properties; rather, the goal is to demonstrate that there are meanings that drive a wedge between the different notions of at-issueness.<sup>1</sup>

Finally, section 4 briefly addresses question D by exploring potential connections to projection and speaker commitments and by offering some general thoughts on the usefulness of at-issueness for semantic theory.

## 2 Three theories

### 2.1 Q-at-issueness

One view of at-issueness is grounded in the idea that topicality is the main organizing principle of discourse. Following up on this idea, van Kuppevelt (1995), Ginzburg (1996; 2012), Büring (2003), and Roberts (2012) lay out a framework according to which discourse is structured by questions under discussion that are partially ordered by the relative informativity of their (complete) answers. The following example is from Roberts (2012:16) and provides an illustration.<sup>2</sup>

- (1) Who ate what?

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<sup>1</sup>I also limit my attention to declarative sentences. The question of how or whether at-issueness interacts with other sentence types will have to await another study.

<sup>2</sup>Here it is assumed that there are only two salient individuals, Hilary and Robin, and only two kinds of food, bagels and tofu. Indentation marks hierarchical order.

- a. What did Hilary eat?
  - i. Did Hilary eat bagels? Yes.
  - ii. Did Hilary eat tofu? Yes.
- b. What did Robin eat?
  - i. Did Robin eat bagels? Yes.
  - ii. Did Robin eat tofu? Yes.

Uttering a declarative sentence usually conveys various propositions in tandem, but typically only some of these will inform the question under discussion and will be appropriately marked as such. Accordingly, Simons et al. (2010:323) call “at issue” that part of the utterance meaning which is intended to address the question under discussion, where the intention is felicitous if this meaning is presented as relevant to that question. I refer to at-issueness thus understood as Q(UESTION)-AT-ISSUENESS.

- (2) A proposition  $p$  is Q-AT ISSUE relative to a question under discussion  $Q$  and a context  $c$  iff
- $p$  is relevant to  $Q$  in  $c$ , and
  - $p$  is appropriately conventionally marked relative to  $Q$ .

The first clause of this definition is essentially the Gricean maxim of relevance, although relativized to a question. The idea is that in order for a proposition to be at issue, it needs to help interlocutors decide between the alternatives raised by the question under discussion. One very sensitive conception of relevance (which goes as far back as Carnap 1950:ch.6) states that a relevant proposition, if assumed to hold true, modifies the likelihood of at least one question alternative. Below,  $Pr_c$  is a probability measure relativized to a context  $c$ , and  $Pr(q|p)$  is the conditional probability of  $q$  given  $p$ .<sup>3</sup>

- (3) A proposition  $p$  is RELEVANT to a question under discussion  $Q$  and a context  $c$  iff for some  $q \in Q : Pr_c(q) \neq Pr_c(q|p)$ . (cf. Büring 2003:541; Simons et al. 2010:ft.3)

Defining relevance this way covers a wide range of cases where a declarative utterance is felt to inform the question under discussion. The simplest case is when an utterance provides a complete answer (e.g.  $Q$ : *Where are you from?*  $A$ : *Canada*). In terms of (3) and assuming that question alternatives are mutually exclusive, this amounts to selecting a unique alternative and assigning it a probability of 1 while excluding all remaining alternatives by assigning them a probability of 0.

A less straightforward case of relevance involves partial answers. In (4), the response eliminates an alternative but may not completely answer the question.

- (4) Q: Where is Xavier right now?  
A: He is not in Peru.

Partial answers are informative because they reduce the set of question alternatives, although they need not select a single alternative and fully resolve the question. Excluding an alternative amounts

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<sup>3</sup>A probability measure  $Pr$  is a function from sets of worlds in  $W$  to a real number in the interval  $[0, 1]$  such that  $Pr(W) = 1$  and  $Pr(p \cup q) = Pr(p) + Pr(q)$ , if  $p$  and  $q$  are incompatible (do not overlap). The conditional probability  $Pr(q|p)$  is standardly defined as  $Pr(q \cap p) / Pr(p)$ .

to assigning it a probability of 0 and accordingly bumping up the likelihoods of the remaining alternatives in order to fill up the probability space.

An even weaker case of relevance arises with answers which do not eliminate alternatives but effect a gain in informativity by reassigning probability weights to alternatives. For example, in most contexts (5A) would merely raise the likelihood of a negative answer to (5Q).

(5) Q: Is Miley's favorite color lime green?

A: Liam doesn't think so.

While informative, this response may not be incompatible with any of the question alternatives. Thus, any notion of relevance based on excluding alternatives would incorrectly treat it as non-relevant to the question at hand.

Finally, a relevant proposition may answer the question under discussion not by itself but only in conjunction with contextual information. The answer in (6) is presumably not among the polar alternatives evoked by the yes/no question but this answer becomes relevant in the presence of the background information that the drinking age is twenty-one.

(6) Q: Is Avi old enough to drink?

A: He is twenty-two.

(Simons et al. 2010:316)

This type of contextual dependence is captured by the fact that the probability measure in (3) is relativized to contexts. If contexts  $c$  are assumed to contain all agreed-upon propositions, then  $Pr_c$  can be viewed as the probability measure  $Pr$  conditionalized on the intersection of the propositions in  $c$ .

The second clause in definition (2) requires that Q-at-issue content be appropriately packaged. When this requirement is not met, an utterance may not felicitously answer the question under discussion even if it contains relevant information. For example, (7A) entails that NASA made an announcement and thus contains the right type of information to answer (7Q). However, this information is presented as parenthetical and the discourse is ill-formed.

(7) Q: What happened after the spacecraft sent back the first pictures?

A: # There was water on Mars, NASA announced.

Beaver et al. (2017) construe appropriate conventional marking as the restriction that only content whose triggering expression obligatorily contributes to the truth conditions of the host clause can be Q-at issue. This excludes canonical projective inferences, such as conventional implicatures (e.g. implications triggered by appositives) or presuppositions. At the same time, Simons et al. (2010) acknowledge that conventional marking is a defeasible constraint rather than a strict indicator of Q-at-issueness and that projective content sometimes ends up at issue (see sections 3 and 4 for examples). Thus, when probing for Q-at-issueness, I will impose no a priori restrictions on how content is linguistically encoded.

In closing, let me comment on the identification of questions under discussion. Above, Q-at-issueness was diagnosed in question/answer pairs. This is consistent with the question-based definition in (2), provided that an overt question is assumed to manifest the current question under discussion. This is reasonable in simple cases, but sometimes the focus marking of an utterance seems to point at an implicit question that differs from the overt question. In (8), the answer is

congruent to the question *Where is Tim going?* (the focused constituent in the former corresponds to the *wh*-phrase in the latter) while the overt question spells out a more general question that the larger discourse is about. This type of question/answer mismatch is signaled by the contrastive topic intonation and the discourse marker *well*.

(8) Q: Who is going where?

A: Well, [Tim]<sub>CT</sub> is going to [Cambridge]<sub>F</sub>.

For the purposes of this paper, I will identify questions under discussion with overt questions, assuming that cases of mismatch in topicality are grammatically or intonationally marked. But it is important to keep in mind that diagnosing Q-at-issueness depends on what the current discourse is assumed to be about.

## 2.2 P-at-issueness

Another view of at-issueness is rooted in Stalnaker's (1978; 1999) model according to which discourse evolves against a shared set of background beliefs, modeled as a set of propositions (the COMMON GROUND) or, alternatively, as a set of possible worlds (the CONTEXT SET). The context set represents the live options of how the actual world could be and contains the worlds that are compatible with all of the common ground propositions. The goal of discourse participants is to gain information and the main tool for this is assertion. An act of assertion constitutes a proposal to reduce the context set to those worlds in which the asserted content is true; this is what Stalnaker calls the "essential effect" of assertion. If the proposal is accepted, the context set is shrunk; if the proposal is rejected, the context set is left unaffected.

There are two features of assertion that are particularly pertinent to our discussion of at-issueness. The first feature has to do with proposalhood. Asserted content eliminates live possibilities only if accepted by all speech participants; it does not automatically reduce the context set. Stalnaker (1999:99) alludes to this feature by stating that "[a]n assertion can [...] be understood as a proposal to alter the context by adding the information that is the content of the assertion to the body of information that defines the context" (underlining mine). The second feature is that a (sincere) act of assertion incurs public commitments, as speakers are held responsible for what they say. This feature is less explicit in Stalnaker's own papers but is emphasized in related work (e.g. Hamblin 1971; Gunlogson 2001; Farkas & Bruce 2010; Koev 2013).

Given this background, several authors identify at-issue content with the proposal introduced by a declarative utterance, i.e. with its asserted content (Potts 2005; Farkas & Bruce 2010; Koev 2013; Murray 2014; AnderBois et al. 2015). Let us call this notion P(ROPOSAL)-AT-ISSUENESS. Since many of the proponents of this view blend ideas from the common ground model with ideas from the question-based model presented in the previous subsection, the exposition here will follow Koev (2013), who most clearly distinguishes P-at-issueness from Q-at-issueness. Koev's definition of at-issueness is based on a chain of auxiliary notions. Following up on Stalnaker's view of assertion, the basic notion is that of an update proposal, defined as a proposition that a discourse participant has publicly committed to.<sup>4</sup> A proposal counts as accepted if the context set has been updated with it, and it counts as rejected if there is a counterproposal to it. A counterproposal to

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<sup>4</sup>This way of looking at proposalhood is likely an oversimplification, given the claim that at-issue content may as well be non-committing (e.g. Faller 2002; AnderBois 2016).

a previous proposal  $p$  is a proposal  $q$  such that it is not possible to accept both  $p$  and  $q$  without a contradiction. Given all this, P-at-issueness amounts to open proposalhood, i.e. to content that a discourse participant has committed to but that has not yet been accepted or rejected.

(9) A proposition  $p$  is P-AT-ISSUE in a context  $c$  iff

- $p$  is a proposal in  $c$ , and
- $p$  has not been accepted or rejected in  $c$ . (cf. Koev 2013:51)

This definition suggests that in order to test a proposition for proposalhood, we need a linguistic tool that tracks what is being negotiated at any given point. One widely used diagnostic to this effect is the ASSENT/DISSENT test, which probes the amenability of semantic content to direct responses.<sup>5</sup> Direct responses are reactions that take issue with the truth of the assertion and include things like *That's not true* or *No, she didn't*.<sup>6</sup> To illustrate, the contrast in the following examples suggests that while content expressed by main clauses is P-at-issue, content expressed by nominal appositives is not.

(10) A: Edna, a fearless leader, started the descent.

B<sub>1</sub>: That's not true – Edna has not started the descent.

B<sub>2</sub>: # That's not true – Edna is not a fearless leader. (after Amaral et al. 2007:731)

(11) A: My friend Sophie, a classical violinist, performed a piece by Mozart.

B<sub>1</sub>: No, she didn't.

B<sub>2</sub>: # No, she's not. (cf. Syrett & Koev 2015:541)

The assent/dissent test renders intuitive results here. Indeed, the main point of (10A) appears to be that Edna started the descent, not that she is a fearless leader; and the main point of (11A) is very likely that Sophie played Mozart, not that she is a classical violinist.

This test brings up the question of what counts as a direct response. One peculiarity about the responses in (10)-(11) is that they are anaphoric to parts of the target utterance through propositional anaphors like *that* or *no*.<sup>7</sup> This is important because non-anaphoric denials behave differently: they can felicitously target nominal appositives (see also Hunter & Asher 2016).

(12) A: Edna, a fearless leader, started the descent.

B: She's far from being a fearless leader.

(13) A: My friend Sophie, a classical violinist, performed a piece by Mozart.

B: Sophie isn't a classical violinist.

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<sup>5</sup>The assent/dissent test is known under different names in the literature and has been used to distinguish asserted content from implications triggered by constructions as different as presupposition markers (Strawson 1950; Shanon 1976; Karttunen & Peters 1979; Chierchia & McConnell-Ginet 2000), epistemic modals (Lyons 1977; Papafragou 2006; von Stechow & Gillies 2007), evidentials (Faller 2002; Matthewson et al. 2007; Murray 2014), and appositives (Tonhauser 2012; Koev 2013; AnderBois et al. 2015; Syrett & Koev 2015).

<sup>6</sup>I limit my attention to negative direct responses, which give rise to crisper judgments. Positive direct responses like *Yeah* can be used to acknowledge that the message has been understood and need not imply agreement.

<sup>7</sup>For general restrictions on propositional anaphora, see Asher (1993:ch.6), Eckert & Strube (2000), Krifka (2013), Roelofsen & Farkas (2015), and Snider (2017).

One possible reaction to the contrast in (10)-(11) v. (12)-(13) is to say that the assent/dissent test tracks anaphoric potential rather than P-at-issueness. This is reasonable, although it has also been claimed that P-at-issue content obligatorily establishes a propositional discourse referent (Murray 2014). Indeed, it is hard to imagine that a proposition constitutes a negotiable proposal without providing speakers with the possibility of referring back to it by appropriate anaphoric means. In addition, responses as in (10)-(11) do more than just track anaphoricity; they function as discourse denials that prevent the proposal from entering the common ground. I will thus follow the bulk of the literature in assuming that such responses target the assertion and will employ them as the main diagnostic for P-at-issueness, leaving the precise link between anaphoricity and at-issueness to further research.

I close this subsection by looking at the flip side of P-at-issueness. We have characterized content that is not at issue in purely negative terms. However, such content is sometimes presented in a positive light, e.g. by accomplishing a special kind of common ground update (Murray 2014; AnderBois et al. 2015). If so, how is such content to be diagnosed? Are there positive tests for not-at-issueness, i.e. tests that work on not-at-issue content but fail on at-issue content?

It is often claimed that indirect responses like *Hey, wait a minute* halt the discourse flow and specifically target not-at-issue content (e.g. Amaral et al. 2007). Originally, such responses were employed as a means of singling out presuppositions (Shanon 1976), as in the following example from von Stechow (2004:317).

- (14) A: The mathematician who proved Goldbach's Conjecture is a woman.  
B<sub>1</sub>: Hey, wait a minute. I had no idea that someone proved Goldbach's Conjecture.  
B<sub>2</sub>: # Hey, wait a minute. I had no idea that that was a woman.

However, Syrett & Koev (2015) offer robust experimental evidence against the above contrast. They show that *Hey, wait a minute* is generally acceptable when targeting at-issue content, suggesting that this type of response may be used as a polite way to voice disagreement and/or indicate surprise. This type of response apparently does not draw the right boundaries.

A related test that is more likely to render appropriate results is based on responses that not only halt the discourse flow but also explicitly state that the addressee is disagreeing with something outside the main point. The following contrast is from Ai Taniguchi (p.c.), who dubs this the "peripherality test".

- (15) A: Steve, who is Amy's husband, wrote this book.  
B<sub>1</sub>: Wait. This is peripheral to your point but: Steve isn't Amy's husband.  
B<sub>2</sub>: ? Wait. This is peripheral to your point but: Steve didn't write this book.

If definite descriptions like *your point* are construed as referring back to the proposal, we can understand why the follow-up sentence has to target content that is peripheral to it.

### 2.3 C-at-issueness

A third notion of at-issueness is situated within theories which view discourse as structured by coherence relations, also called "rhetorical" or "discourse" relations (Hobbs 1979; 1985; Mann & Thompson 1988; Kehler 2002; Asher & Lascarides 2003; a.o.). The guiding idea is that newly uttered clauses (with the exception of discourse-initial ones) must attach to some part of the existing

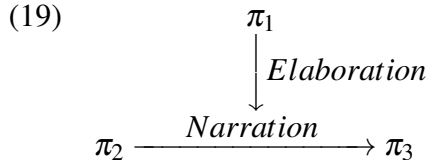
discourse, thus building tree structures. The intuition of coherence then arises because speakers draw inferences – often defeasibly so – about the way discourse segments are connected into a meaningful whole. The impact of coherence relations on interpretation can be illustrated by the following often cited contrast.

- (16) John took a train from Paris to Istanbul. He has family there. (Hobbs 1979:67)  
 (17) John took a train from Paris to Istanbul. #He likes spinach. (Kehler 2002:2)

(16) is easy to interpret, and speakers would naturally draw the inference that the second sentence provides an explanation for why the event described by the first sentence happened. By contrast, (17) is hard to interpret, the reason being that the two sentences are not obviously connected. While having family abroad often makes people travel to other countries, the availability or the quality of spinach rarely does so.

The way discourse trees grow depends on the type of coherence relation at hand. COORDINATING relations (e.g. Narration or Result) push the discourse forward, projecting edges in a left-to-right fashion. SUBORDINATING relations (e.g. Explanation, Elaboration, Background) provide additional information and project edges top-down. The following example, adapted from Asher & Lascarides (2003:8–9), serves as an illustration ( $\pi_1, \pi_2, \pi_3$  label discourse units).<sup>8</sup>

- (18)  $\pi_1$ : John had a lovely evening.  
 $\pi_2$ : He had a great meal.  
 $\pi_3$ : He then won a dancing award.



Discourse trees are important for interpretation because they limit the attachment possibilities for subsequent utterances. For example, a subsequent utterance of *It came with free movie tickets* in the above story can be understood as a continuation of  $\pi_3$  (where *it* refers to the dancing award) but not as a continuation of  $\pi_2$  (where *it* is resolved to the meal). The reason is that, roughly, only segments placed on the right edge of a discourse tree are open for attachment. This restriction is known as the RIGHT FRONTIER CONSTRAINT (Polanyi 1988; Webber 1991; Asher & Lascarides 2003) and is at the heart of coherence-based accounts of at-issueness (Hunter & Asher 2016; Jasinskaja Ms). Hunter & Asher (2016:1030) define the right frontier of a discourse tree as consisting of the unit that is added last plus any unit that dominates or includes a right-frontier unit.

- (20) A discourse unit  $\pi$  is on the RIGHT FRONTIER of a discourse tree  $D$  iff
- $\pi$  is added to  $D$  last,
  - $\pi$  is connected to a right frontier unit by a series of subordinating relations, or
  - $\pi$  is a complex discourse unit that contains a unit on the right frontier.

<sup>8</sup>For ease of exposition, I blur the distinction between linguistic expressions that enter into coherence relations, discourse units (logical representations of such expressions), and the propositions expressed. For technical details, see Asher & Lascarides (2003).



For example, the right frontier of the graph in (19) includes  $\pi_3$  (by the first clause of the definition),  $\pi_1$  (by the second clause of the definition),  $Narration(\pi_2, \pi_3)$  and  $Elaboration(\pi_1, Narration(\pi_2, \pi_3))$  (by the third clause of the definition), but not  $\pi_2$  alone. This is the reason why discourse continuations cannot attach to the latter node alone, as illustrated above.

The crucial ingredient of coherence-based accounts is the claim that at-issueness is inextricably linked to the right frontier: it is the content expressed by the nodes along the right frontier of the current discourse tree. This notion will be referred to as C(OHERENCE)-AT-ISSUENESS.

- (21) A proposition expressed by a node  $\pi$  of a discourse tree  $D$  is C-AT ISSUE iff  $\pi$  is on the right frontier of  $D$ .  
(cf. Hunter & Asher 2016:1036)

Why should the right frontier play such a pivotal role in determining C-at-issueness? Because it underlies the empirical generalization that incoming utterances must attach to nodes on the right frontier, as discussed in (18)-(19) above.

- (22) RIGHT FRONTIER CONSTRAINT  
A freshly uttered segment is attached to a node along the right frontier of the current discourse tree.

From the definition of C-at-issueness and the Right Frontier Constraint one can derive the following empirical diagnostic for C-at-issueness.

- (23) A proposition is C-AT ISSUE iff a freshly uttered segment can attach to it by some appropriate coherence relation.

As an illustration, consider the discourse below (from Hunter & Asher 2016:1028). The intuition about the first sentence would likely be that the main clause  $\pi_2$  is at issue while the appositive relative clause  $\pi_1$  is not. This intuition is supported by the observation that a discourse continuation can naturally be built off of the former segment, e.g. by uttering  $\pi_3$ , but not (very easily) of the latter segment, e.g. by uttering  $\pi_4$ .

- (24)  $\pi_1$ : \_\_\_\_\_, who has a sister in fashion design,  
 $\pi_2$ : A guy at work \_\_\_\_\_ gave me this shirt.  
 $\pi_3$ : I like it a lot.  
 $\pi_4$ : ? She works for Stella McCartney.

This observation is explained as follows. If a unit gets added to the discourse tree as soon as it is produced, the appositive will be attached first and the main clause will be attached second. Disregarding previous discourse, interpreters will likely connect those two segments by drawing the inference that me getting a shirt from a guy at work resulted from him having a sister in fashion design. This produces the flat structure in (25), given that Result is a coordinating relation. Since the right frontier of this structure includes  $\pi_2$  (as well as the entire discourse tree  $Result(\pi_1, \pi_2)$ ) but excludes  $\pi_1$ , the discourse can be extended by  $\pi_3$  (which attaches to  $\pi_2$ ) but not by  $\pi_4$  (which attaches to  $\pi_1$ ).

- (25)  $\pi_1 \xrightarrow{Result} \pi_2$

It is important to stress that both Hunter & Asher (2016) and Jasinskaja (Ms) view C-at-issueness as a generalization of P-at-issueness. This becomes clear when one compares the assent/dissent test, which targets the truth-conditional content of an utterance, with the diagnostic formulated in (23), which probes for any kind of discourse continuation. Coherence-based accounts thus view the assent/dissent test as a special case of discourse attachment, i.e. one in which the response is connected to the target by an Agreement/Denial relation. If so, there should be nothing special about proposals or how they are reacted to. Direct responses are only one among many ways in which subsequent utterances can be attached to the discourse tree; other options include providing explanations, describing effects, etc. This reasoning suggests that content that is P-at issue (or amenable to direct responses) is necessarily C-at issue as well (or open for attachment by Agreement/Denial). The reverse need not be the case, though. Content could in principle be open for attachment by coherence relations that do not take issue with the truth of the targeted segment.

### 3 Comparing the different theories

I now discuss some theoretical and empirical discrepancies between the three notions of at-issueness. I first mention one difference in directionality and then list several differences in empirical prediction, i.e. cases in which the same (type of) content counts as at issue relative to one but not (necessarily) relative to another of the given notions and corresponding diagnostics. While such data are by no means conclusive, they furnish initial evidence that the different theories do not yield a uniform pattern.

As laid out in the previous section, different notions of at-issueness are rooted in different discourse frameworks: Q-at-issueness is rooted in the topic-based model (e.g. Roberts 2012), P-at-issueness falls out from Stalnaker's (1978; 1999) common ground model, and C-at-issueness is based on discourse segmentation models like Asher & Lascarides' (2003) SDRT. Trying to compare these notions would then require a full-scale comparison between the underlying frameworks, and such an ominous task goes far beyond the scope of this survey.<sup>9</sup> Instead, here I emphasize one difference that draws on how at-issue content interacts with the surrounding discourse in linear terms. Recall that Q-at-issueness is defined relative to what the existing discourse is about. We ask whether a proposition expressed by the target utterance felicitously answers a topical question that may remain implicit but is viewed as given (or else can be accommodated). Thus, Q-at-issueness is primarily a BACKWARD-looking notion, or relates to existing discourse. By contrast, P-at-issueness and C-at-issueness are FORWARD-looking, or relate to what is to come. Here we ask whether a given segment can be agreed/disagreed with or attached to by a subsequent segment. This contrast in directionality gives a first hint that – from a global perspective – the former and the latter two notions of at-issueness are not on par.<sup>10</sup> In practical terms, this allows us to evaluate the same content against different conceptions of at-issueness simultaneously, i.e. relative to what is assumed to hold and what can come next. This feature will be exploited in some of the examples below.

Empirically, the important question is: Do the diagnostics that fall out from the different theories make comparable predictions about the same type of content? If they do, then we are likely

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<sup>9</sup>For first steps towards unifying question-based and coherence-based approaches, see Onea (2016), Hunter & Abrusán (2017), Riester (To appear), and Jasinskaja (Ms).

<sup>10</sup>I owe this point to Daniel Gutzmann (p.c.).

looking at one and the same linguistic phenomenon but from different angles. If they do not, however, we may conclude that what could have been notational variants of the same thing appears to be distinct, though certainly not unrelated, notions. I will now try to demonstrate that the latter seems to be the case, i.e. that the different theories and corresponding notions appear to be truly distinct.

I first compare Q-at-issueness and P-at-issueness, arguing that neither property entails the other. It is often claimed that appositive content cannot be P-at issue, as evidenced by its inability to serve as a target of direct rejections.<sup>11</sup> Evidence involving nominal appositives was already cited in (10)-(11) and the example below makes the same point for appositive relative clauses (in medial positions).

- (26) A: Mary took care of her husband, who had prostate cancer, for almost a year.  
B: ? No, he didn't.

At the same time, appositive content can be Q-at issue. On the basis of examples as in (27), Syrett & Koev (2015:571) argue that appositive relative clauses are often taken into consideration when answering the question under discussion. Here the crucial information that Mary experienced first-hand the terrible consequences of cancer comes from the appositive; the main clause alone does not answer the question, at least not without loss of information.

- (27) Q: Why is Mary fundraising for the upcoming Walk For Cancer?  
A: She took care of her husband, who had prostate cancer, for almost a year.

Notice that one cannot attribute the contrast in (26)-(27) to the idea that A's utterance is evaluated with respect to two different contexts. The judgments remain the same when the question under discussion and the rejection appear in the same context: it is not possible to felicitously follow up on (27A) by uttering the objection in (26B).

Relevance implicatures exhibit a similar pattern. Such implicatures are Q-at issue by definition, as they inform the discourse topic in the most efficient way. But, as the following example demonstrates, they need not be P-at issue.<sup>12</sup>

- (28) A: Is Jimmy coming to the party?  
B: His car broke down. (~> Jimmy is not coming to the party.)  
C: Not true – his car is fine. / #Not true – he'll be coming to the party.

The existence of content that is Q-at issue but not P-at issue (relative to the same context) suggests that the former property does not entail the latter property.

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<sup>11</sup>Although, sentence-final appositive relative clauses challenge this generalization (see AnderBois et al. 2015; Syrett & Koev 2015).

<sup>12</sup>A reviewer suggests an alternative explanation for why the second response in (28C) is infelicitous, one that would not force us to say that the implicature is not P-at issue. This response could be bad because A's initial question is resolved by the implicature itself while B's literal utterance goes on to answer the new implicit question *Why is Jimmy not coming to the party?*. However, there is something suspicious about the suggested timing here, where a question is answered by the implicature of an utterance that itself targets a follow-up question. Established Gricean orthodoxy has it that implicatures are calculated on the basis of what is explicitly said and thus they must be processed last.

P-at-issueness does not seem to entail Q-at-issueness either. One case in point are slifting parentheticals, e.g. evidential adverbials like *Bill said* or *Sarah discovered*, whose content speakers find to be overall a good target for direct rejections. This is illustrated in (29) and the judgment is generally compatible with the results of a small online study.<sup>13</sup> At the same time, a slifting parenthetical is not able to answer the question under discussion even when the corresponding embedding construction easily can (30).

- (29) A: Ellen is a passionate cook, her fiancé claimed.  
B: No, he didn't.
- (30) Q: What did she do next?  
A: # Her husband was a real sweetheart, she announced.  
A': She announced that her husband was a real sweetheart.

Q-at-issueness and P-at-issueness thus appear to be somewhat independent notions.

Next, I compare P-at-issueness and C-at-issueness. Consider again slifting implications. We already know from (29) that these may be P-at issue, so we might expect that they are more generally C-at issue as well. However, slifting implications do not really allow for all kinds of continuations, especially when compared to similar examples without parentheticals. In (31), the second part of the sentence is connected to the first by Result, demonstrating that matrix reports can naturally serve as attachment sites for subsequent segments. But if the reporting component is turned into a parenthetical, as in (32), the acceptability significantly deteriorates. The results of a small experimental study suggest that such examples are indeed degraded.<sup>14</sup>

- (31) Jill said Rich has no taste, so he felt offended.  
(32) ? Rich has no taste, Jill said, so he felt offended.

Since slifting content can be P-at-issue (it is generally a good target of direct rejections as instantiating one type of discourse continuation), we cannot really say that such content is not C-at-issue, if the latter property is taken to generalize the former property. Yet it is puzzling that direct rejections but not necessarily other types of continuations can be naturally built off of such content. What gets the two notions apart then is the fact that C-at-issueness does not impose an all-or-nothing state of accessibility for future continuations.

Finally, let us compare Q-at-issueness and C-at-issueness. (27) above suggests that implications triggered by appositive relative clauses can be Q-at-issue, in line with the finding in (12)-(13) that non-anaphoric denials of such implications are felicitous. At the same time, appositive implications may not tolerate other types of continuations from outside the sentence. For example, the appositive

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<sup>13</sup>Four similar discourses were presented to nine native speakers of American English through the Amazon Mechanical Turk platform. The average acceptability on a five-point Likert scale was 3.75, which is at the 80th percentile of the range delineated by the averages for the good and the bad controls (4.3 and 1.5, respectively).

<sup>14</sup>Ten participants were asked to rate for acceptability four sentences with parentheticals similar in shape to (32). The sample means were as follows: 1.35 for the bad controls, 4.57 for the good controls, and 3.3 for the target sentences (or at the 61th percentile of the suggested range).

in (33) would intuitively contribute to the question of why Sheen was refused bail, and yet it does not naturally allow for Narration sequences.<sup>15</sup>

(33) Sheen, who stole the armored vehicle, had a long rap sheet. ?He parked it in the garage.

We may conclude that (medial) appositive relative clauses are not good attachment sites for all kinds of continuations, although they are good targets for non-anaphoric denials, which apparently enjoy a larger range of attachment possibilities. Leaving denials aside though, contrasts as between (27) and (33) suggest that it is possible for given semantic content to be Q-at issue but not C-at issue. Q-issueness and C-at-issueness then cannot be fully equivalent notions either.

## 4 Relativizing at-issueness

Is there a “right” notion of at-issueness? I believe one can take two different but complementary tacks when trying to answer this question. First, we can ask which notion of at-issueness matches most closely our intuitions about linguistic meaning. For example, appositive content is felt to lack in salience but may be Q-at issue; slifting content feels secondary to the core proposition but turns out to be able to be P-at issue; etc. Findings like these could be held against the intuitive value of a given notion of at-issueness. Another way to probe into the same question is to agree that each notion captures something of theoretical interest and ask which notion is at play relative to a given language phenomenon. By way of elaborating on this last point, I discuss potential connections of at-issueness to projection and speaker commitments.

Projection is the ability of implications to survive when the triggering expression is placed under the scope of an entailment-canceling operator. One classic example of projective inferences is presuppositions. For example, *Katie regrets tweeting about Barron* presupposes that Katie tweeted about Barron and entails that she regrets doing so, which is why when this sentence is embedded under negation or modals the former implication survives while the latter implication is canceled. Simons et al. (2010) and Beaver et al. (2017) claim that projectivity is perfectly correlated with (the lack of) Q-at-issueness and mount the following empirical hypothesis.

(34) PROJECTION PRINCIPLE

An implication projects iff it is not Q-at issue in the given context.

Indeed, *Katie regrets tweeting about Barron* can be taken to answer *Does Katie regret tweeting about Barron?*, which targets the assertion, but it cannot be taken to answer *Did Katie tweet about Barron?*, which targets the presupposition. The latter implication is presented as not Q-at issue and it is expected to project.

I would like to make two observations about the Projection Principle. The first observation is that the link between projection and Q-at-issueness may not be as strong as claimed. In (35), the appositive content seems to inform the question under discussion but it projects past the possibility

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<sup>15</sup>Hunter & Asher (2016) rule in this type of attachment. Since a medial appositive is assumed to be processed before the main clause, the latter will be attached to the former by a subordinating relation like Background or Explanation, which would place the appositive on the right frontier. It is not clear that this is a bad prediction, as other types of continuations may be possible. For example, a reviewer notes that the appositive in (27A) can be elaborated on by *It was a very aggressive kind of cancer* (although this utterance could also be construed as an Explanation of the main clause).

modal found in the main clause.<sup>16</sup> In (36), the embedded proposition is clearly not relevant to the question under discussion and yet this proposition fails to project.

(35) Q: Why is Jon not in his office?

A: He might be talking with the director, who fired him on a whim.

(36) Q: What happened after the satellite started sending bogus data?

A: The space agency claimed that there was water on Jupiter.

The Projection Principle then appears to be problematic in both directions: projecting content can be Q-at issue, and non-projecting content can be not Q-at issue. Looking at (35)-(36), we may say that projection is much more of a conventionally triggered property than the Projection Principle would let us believe.

The second observation is that the Projection Principle is stated in terms of Q-at-issueness, and other notions of at-issueness may lead to different predictions. The question of which notion of at-issueness (if any) makes the right predictions about projection is yet to be systematically investigated.

Another potential interaction is that between at-issueness and commitment strength. Going back to the question of why certain utterance content is felt to carry the main point, one possible response is that such content is what the speaker tries to bring across and what she is publicly committed to. Despite that, all three notions turn out to be compatible with lack of commitment. To illustrate, a sentence like *Mary said it's raining* does not make its utterer responsible for the complement proposition, and yet this proposition can address a question (*Is it raining?*), can be targeted by a discourse continuation (*Downtown has been flooded*), and can be squarely rejected (*No, it's not*). This finding is compatible with the predictions of some but not all of the different theories. Q-at-issueness requires relevance to the discourse topic and appropriate conventional marking, but there are no explicit restrictions on the degree of commitment. C-at-issueness predicts strong commitment only if the coherence relation involved is VERIDICAL, i.e. if it entails the propositions it connects (Asher & Lascarides 2003). In the example above, the reported clause is presumably connected to the matrix clause through a non-veridical relation like Attribution (e.g. Hunter 2016), so there is no commitment requirement in this case either. P-at-issueness is the only notion that (apparently incorrectly) predicts full commitment, the reason being that a speaker is assumed to be responsible for the proposal they introduce. As with projection, the important point here is that different notions of at-issueness – while contributing to the same broad intuition – would in principle make different predictions about the level of commitment on the part of the speaker and that these predictions may or may not be borne out by the data.

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<sup>16</sup>Appositive content typically projects, so it could be argued that it is not “intended” as being at issue (see Simons et al. 2010). However, given its significance in the above context and the fact that conventional marking of at-issueness is often overruled, the information that the director fired Jon would very likely be taken into consideration when answering the question under discussion.

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