

## Using Tautologies and Contradictions

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September 17, 2014

- Classical logical tautologies

(1)  $a = a$ ;  $p \vee \neg p$ ;  $p \rightarrow p$  necessarily true

- and classical logical contradictions

(2)  $a = \neg a$ ;  $a \neq a$ ;  $p \wedge \neg p$ ;  $\neg(p \rightarrow p)$  necessarily false

- L-analytic or L-trivial, in Chierchia's (2013) terms

- Thought to be well understood

- Existing literature on  $a = a$  tautologies

- There are some other phenomena which might be related:
  - necessary truths (including mathematical truths)
  - world knowledge truisms
  - performatives that are always true
  - rhetorical questions
  - reduplication
  - the intonational patterns which often accompany these phenomena
- I won't be dealing with these here.

- Felicitous uses of tautologies and contradictions

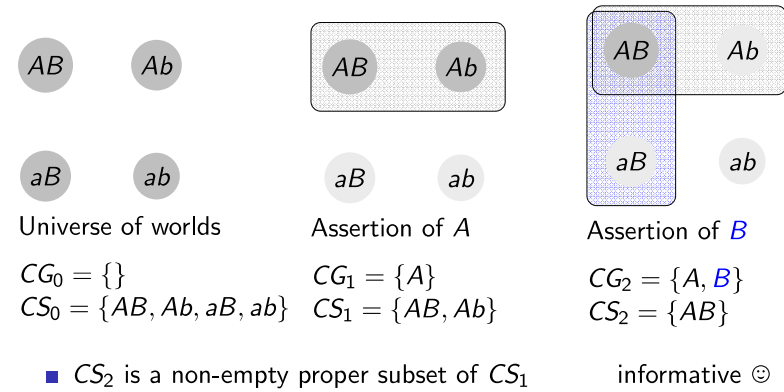
(3) [Antoine has been pestering Cheryl all week, asking her if she'll be at his party on Saturday night. After the twentieth time he's asked, she responds:]  
I'll be there if I'll be there.

(4) [Janice is at the top of her class at a prep school in Manhattan, which she commutes to from Brooklyn. Felicia is talking to Tracy about her.]  
Felicia: Did you hear about Janice? Yesterday after school, she accidentally took the bus to Yonkers!  
Tracy: Really? Isn't she valedictorian?  
Felicia: Janice is smart, but she's not smart.

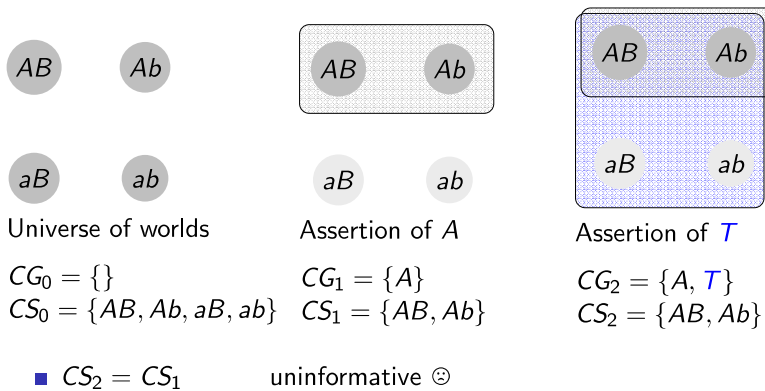
## Why are these a puzzle?

- (3) and (4) are felicitous but not classically informative
- Informative in the Stalnaker (1974, 1978) sense
- Assertions denote a set of worlds that is a non-empty proper subset of  $\mathcal{U}$  (the universe of possible worlds)
  - They describe some worlds, but not all
- Tautologies, being necessarily true, denote **all worlds** ( $\mathcal{U}$ )
- Contradictions, being necessarily false, denote **no worlds** ( $\emptyset$ )
- Using them doesn't narrow down the set of relevant worlds

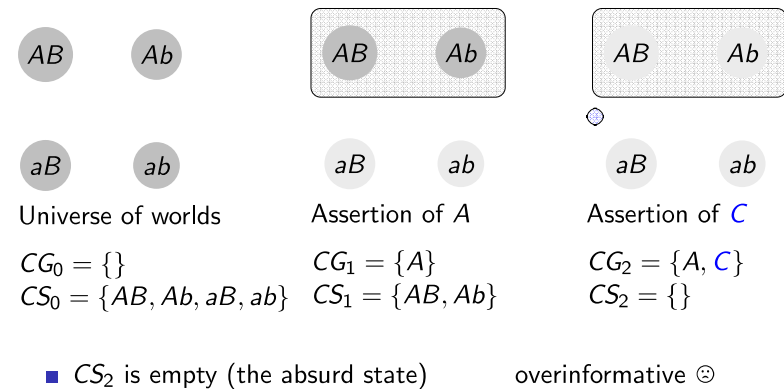
## A Paradigm Assertion



## Tautology: Uninformative



## Contradiction: Overinformative



- Since they're not informative, we might expect them to not be useful ... but they are
- If they were useful, we might expect them to behave the same way ... but they don't

### My proposal

- I'll show that tautologies and contradictions each give rise to an implication
  - For tautologies, it's a particular conversational implicature
  - For contradictions, it's part of the literal content, a result of the process of semantic interpretation

## Outline

- 1 Introduction
- 2 Tautologies
- 3 Contradictions
- 4 Discussion

- The idea is a unified account of a variety of shapes of tautologies, each involving some repeated element (propositional or nominal)
- (3) I'll be there if I'll be there. *propositional, conditional*
- (5) Either I'll like him or I won't. *propositional, disjunctive*
- (6) Hubert is Hubert. *nominal, equative*

- Useful in different contexts, but they share some commonalities
- We'll focus on just one example, (3), but the stories are parallel
- On all major analyses, (3) is tautologous

## Use

[Antoine has been pestering Cheryl all week, asking her if she'll be at his party on Saturday night. After the twentieth time he's asked, she responds:]

- (3) I'll be there if I'll be there.
- Cheryl is using (3) to politely absolve herself of responsibility for her actions, to discharge any obligation to attend
  - She's saying that her attendance is beyond her control
  - Might paraphrase as *Stop asking!*, but this is secondary, derived from it being out of her control
  - Where do we get this 'beyond control' meaning?

## Speaker Control

- Explicitly claiming control over her decision makes the utterance bizarre (Cancellation)
  - (7) # It's entirely up to me. I'll be there if I'll be there.
  - (8) # Nothing could possibly stop me. I'll be there if I'll be there.
- Denying control is felicitous (Strengthening)
  - (9) { It's out of my hands. } I'll be there if I'll be there.  
 { It's beyond my control. }
  - (10) I'll be there if I'll be there, (but) { It's out of my hands. }  
 { It's beyond my control. }
- We don't get the same behavior for the secondary contextual meaning
  - (11) Nothing could possibly stop me. Stop asking.

## Non-speaker Factors

- It's not just the speaker's control that matters, however
  - Others agents' control can make the tautology infelicitous
    - (12) # I'm not sure I can handle it. It's up to my doctor. I'll be there if I'll be there.
    - (13) I'm not sure I can handle it. It's up to my doctor. I'll be there if she says it's okay.
  - Even non-agents' influence can renders it infelicitous
    - (14) # It depends on the weather. I'll be there if I'll be there.
    - (15) It depends on the weather. I'll be there if it's not raining.
- Not always restricted to the speaker's control

## Knowledge of Factors

- [Your interview went well, I heard. Did you get the job?]
- (16) a. I'll get it if I get it.
  - b. It's up to the hiring manager, Dennis. I'll get it if I get it.
  - c. ? It depends on the hiring manager, Dennis. I'll get it if I get it.
  - d. ?/# It depends on whether the hiring manager, Dennis, likes me enough. I'll get it if I get it.
  - e. # It depends on whether the hiring manager, Dennis, thinks I'm tall enough. I'll get it if I get it.
  - f. ## It depends on whether the hiring manager, Dennis, is taller than me. I'll get it if I get it.
- The more that's known about the determining factors, the less felicitous the tautology

## Tense?

- (17) a. While you were away, the cat broke your lamp.
  - b. If it broke, it broke.
  - (18) a. While you were away, the cat knocked over your lamp, and (now) it's broken.
  - b. If it's broken, it's broken.
  - (19) a. What happens if, while you're away, your cat breaks your lamp?
  - b. If it breaks, it breaks.
- Whether the outcome is known or unknown, the speaker expresses a lack of control over its (present or future) state
  - ~ 'nothing I can do about it (now)'

## Context-sensitive

- Not just any tautology will do in any particular context

[Antoine has been pestering Cheryl all week, asking her if she'll be at his party on Saturday night. After the twentieth time he's asked, she responds:]

- (5) # Either I'll like him or I won't.  
 (6) # Hubert is Hubert.

- The particular proposition being discussed must be relevant

## Cross-linguistically

- Not just a quirk of English
- Documented in a variety of languages, including
  - Japanese (Okamoto 1991, 1993)
  - Colloquial Jordanian Arabic (Farghal 1992)
  - Dutch (Bulhof & Gimbel 2004)
  - Cantonese (Wong 2006)
  - Korean (Kwon 2009)
- All of these fit the pattern illustrated here

## In Discourse

- Because they convey uncontrollability, they tend to express a sense of finality—they close a line of questioning
- Usually see them in response to a question, or discourse-final

(20) PINKSTON: People look at you and say, 'You're 16 years old. What the heck could you possibly know about singing the blues?'  
 LANG: To me, music is music. (CBS Sunday Morning, 1997)

(21) Traylor warns, "In the end, however hard I work for you, whatever strings I can pull, the buyer'll either like the product – or he won't."  
 (*Inc. magazine*, 2003)

- In a framework like Roberts's (1996), we can think of tautologies as marking the current QUD-addressing strategy as unanswerable, leading to a shift in strategy or topic

## Uncontrollability

- The proposition in question is understood to be beyond at least the speaker's influence
- Call this an *uncontrollability inference*
- What type of content is this?
- One good place to start: conversational implicature
- As described by Grice (1975), four key features of conversational implicature: cancelability, strengthenability, nondetachability, calculability
- Caveat: these features aren't perfect diagnostics (Sadock 1978; Simons 2012)
  - The tautological/trivial nature of these examples doesn't help

## Conversational Implicature?

- As we've seen in (7-8), this inference isn't cancelable
- But as we saw in (9-10), it is strengthenable
- We can test for nondetachability:

(22) [Same context:]

- a. I'll be there if I'm there.
- b. If I'm there, I'm there.
- c. If I can make it, I can make it.

- These variants carry the same uncontrollability inference
  - Nondetachability ✓
- Calculability has two parts:
  - 1 Motivate a search for additional content (using Gricean maxims)
  - 2 Derive the additional content from the literal (using general reasoning)

## Summary

- Tautologies trigger a consistent conversational implicature
- They implicate the uncontrollability of the repeated element
- The uncontrollability inference is in fact an *uncontrollability implicature*
- Same across all shapes of tautologies, with only minor differences
  - Relevance restrictions for disjunctions
  - Nominal tautologies additionally invoke some contextual feature of the referent

## Calculating Uncontrollability

- 1 Motivating the search is easy (assuming Cooperativity)
  - Cheryl said something literally uninformative (trivially true)
  - She knew Antoine would know it was necessarily true...
  - So she must have meant to say something additional
- 2 Deriving the content
  - Cheryl wanted to say something about her attendance
  - Given Grice's Quantity (or Horn's Q Principle), she would have said the strongest possible thing
  - Unwilling/unable to say anything stronger than (3)—the weakest possible utterance
  - She couldn't endorse any of the alternative antecedents
    - An extension of alternatives for scalar implicature
  - No combination of states of affairs would make a proposition true (beyond setting the value of the proposition itself)  $\rightsquigarrow$  the proposition must be free of external influences
    - At least as far as the speaker knows  $\rightsquigarrow$  at least beyond the speaker's influence

- As with tautologies, we want a unified analysis across contradiction shapes
  - (4) Janice is smart, but she isn't smart. *propositional, conjunctive*
  - (23) If Peter is there, he won't be there. *propositional, conditional*
  - (24) Kevin isn't Kevin. *nominal, equative*
- And as before, we'll stick with a single example, (4)

## Use

[Janice is at the top of her class at a prep school in Manhattan, which she commutes to from Brooklyn. Felicia is talking to Tracy about her.]

Felicia: Did you hear about Janice? Yesterday after school, she accidentally took the bus to Yonkers!

Tracy: Really? Isn't she valedictorian?

(4) Felicia: Janice is smart, but she's not smart.

- Felicia is using (4) to say that Janice is smart in one sense, but not smart in another
- Inference that the interpretations are non-identical
- Here, we could paraphrase this as *Janice is book-smart but not street-smart*, but that's contextually cued

## Use

[Gustavo and Alexandra have been hiking for a week, led by their very capable nature guide, Janice.]

Gustavo: You'll never believe it! Janice told me she dropped out of high school.

Alexandra: Really? But she's so knowledgeable about these woods, and such a good guide!

(25) Gustavo: Janice is smart, but she's not smart.

- Can't paraphrase (25) the same way as (4)
- Here, Janice isn't book-smart, but (something like) hiking-smart
- In both, however, Janice is smart in one sense but not smart in another

## Use

- We understand each occurrence of *smart* differently

*"What we are doing in making [a contradiction] informationally useful is reinterpreting in different ways distinct occurrences of [the repeated predicate]" (Chierchia 2013)*

- But when does this arise, and why?

## One or Two

- Same effect whether the contradiction is unisential or split

(26) a. Tracy: Your friend Janice is the smart one, right?  
 b. Felicia: Yeah, she's smart.  
 c. Tracy: I heard she took the bus to Yonkers yesterday. What happened?  
 d. Felicia: Well, she's not smart.

- Here, too, we understand the second *smart* as being different from the first

## Vagueness

- We can interpret these because of the vague predicate *smart*
- Plays on a *minimal kind of vagueness*, not specific to gradable adjectives
- Non-gradable adjectives, nouns, and even verbs exhibit the same sort of vagueness (Kamp & Partee 1995; Barker 2006)

(27) Javier drives a truck, but he doesn't drive a truck.

- We can reinterpret either *drive* or *truck* in (27) (cued by intonation)
- Like assignment-sensitivity (Cumming 2008), but not just for names

## Context-sensitive

- Like tautologies, not just any contradiction is felicitous in any context

[Janice is at the top of her class at a prep school in Manhattan, which she commutes to from Brooklyn. Felicia is talking to Tracy about her.]

Felicia: Did you hear about Janice? Yesterday after school, she accidentally took the bus to Yonkers!

Tracy: Really? Isn't she valedictorian?

(28) # Felicia: Janice is tall, but she isn't tall.

(29) # Felicia: Javier drives a truck, but he doesn't drive a truck.

- Not just the contradictory-nature doing the work, but the contextually-appropriate relevant referents and predicates

## Canceling

- Denying the nonidentity restriction is infelicitous

(30) Janice is smart, but she's not smart. #In fact, she's (not) smart in all senses of the term.

(31) Janice is smart, but she's not smart. #I don't mean to say that she's not smart in some way.

- These follow-ups render the utterances self-contradictory

## Strengthening

(32) Janice is smart, but she's not smart. She's book-smart, but not street-smart.

- This is felicitous, but it's not additional content; it's an elaboration
- We can make this explicit

(33) Janice is smart, but she's not smart. That is, she's book-smart but not street-smart.

(34) # Janice is smart but she's not smart, and (also) she's book-smart but not street-smart.

- (33) is an explicit elaboration: felicitous
- (34) explicitly asserts additional content: infelicitous
- One can elaborate, specifying the intended meaning, but it's not strengthening



## Nondetachability

- (35) # Janice is smart, but she's not intelligent.  
 (36) # Janice is clever, but she's not smart.
- These involve differentiating among meanings of *smart*, *intelligent*, and *clever*
  - Not felicitous in (4)'s context
- (37) # Janice is intelligent, but she's not intelligent.  
 (38) # Janice is clever, but she's not clever.
- More similar, but still not felicitous in the original context of (4)
    - They mean something, but not the book-smart/street-smart distinction that the context requires

## Summary

- This nonidentity inference has none of the features of conversational implicature
- No suitable calculation story to be told:
  - Such an analysis assumes a contradictory literal meaning with a 'repairing' inference
  - Gricean conversational implicatures *add* content, they don't modify it
- The requirement that the interpretations of each predicate be different is not some additional content alongside the literal content
- Part of the literal content
- How should we understand this?

## What's at-issue

- Can test for at-issueness (Simons et al. 2010) using diagnostics from Tonhauser 2011
- (4) A: Janice is smart, but she's not smart.  
 (39) a. # Yes, that's true, she's both smart and not smart in the same sense.  
 b. # No, that's not true, she's not both smart and not smart in the same sense.  
 c. Yes, that's true, she's smart in one sense but not in another sense.  
 d. No, that's not true, it's not the case that she's smart in one sense but not in another sense.
- It's not that the literal content is contradictory, to be modified
  - In fact, nonidentity is part of the at-issue content

## Possible Interpretations

- An extension of how we analyze this minimal sort of vagueness
    - Contextual parameters?
    - Using variables? (a la assignment sensitivity)
  - With repeated elements, different combinations of interpretations
- (40) Janice is smart, and so is Tracy.
- |                      |                    |                      |
|----------------------|--------------------|----------------------|
| – smart <sub>1</sub> | smart <sub>1</sub> | <i>identical</i>     |
| – smart <sub>1</sub> | smart <sub>2</sub> | <i>non-identical</i> |
- By default, we have a preference for identical interpretations
    - Similar to anaphora
  - We can elaborate on (40), both combinations available
- (41) a. They're both book-smart.  
 b. Janice is book-smart and Tracy is street-smart.  
 c. They're both smart in the same way.  
 d. (But) They're both smart in different ways.

## Interpreting Contradictions

(4) Janice is smart, but she's not smart.

— smart<sub>1</sub> ————— smart<sub>1</sub> ← literally contradictory  
 — smart<sub>1</sub>                      smart<sub>2</sub>

- Rule out identical interpretations, which would lead us to the absurd state
  - Left only with dispreferred non-identical interpretations
  - Hence contradictions feeling contradictory, despite being interpreted informatively
- What we're left with isn't contradictory
- Process of semantic interpretation (not additional content or enrichment) which allows us to use contradictions felicitously

## Possible Implementations

- This could be implemented in a variety of ways
  - e.g., an extension of DPL (Groenendijk & Stokhof 1991) to contextual standards
- 3 things:
  - 1 to represent different possible interpretations
  - 2 to model the preference for identical interpretations
    - e.g., with a salience list
    - without eliminating dispreferred combinations
  - 3 to eliminate absurd combinations

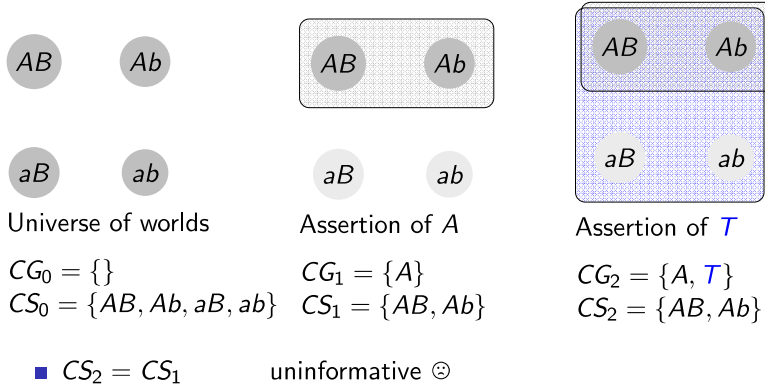
## Summary

- Tautologies trigger an uncontrollability implicature
  - Convey the uncontrollability of the repeated element
- Contradictions trigger a reevaluation of the interpretations of the repeated element
- This reevaluation is part of the literal content, as absurd assignments are ruled out by the process of semantic interpretation

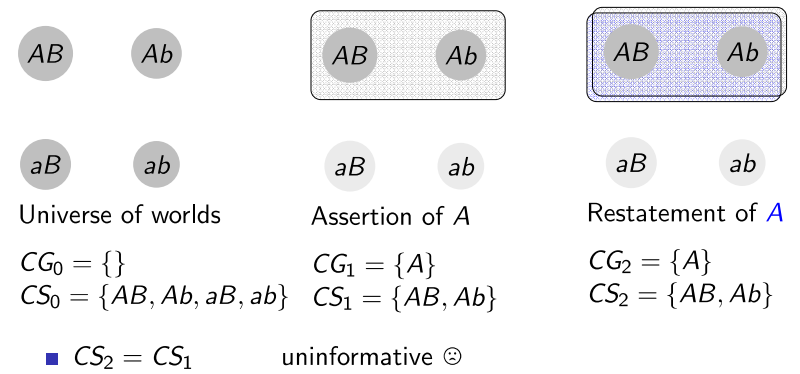
## Bonus: Tautologies vs. Restatements

- Tautologies behave differently from restatements, another kind of contextually-entailed truth
- Restatements don't trigger this same uncontrollability implication
- We might expect restatements to pattern with tautologies
  - They have the same semantic effect on the context set
  - Namely, they don't reduce it at all

## Assertion of a Tautology



## Assertion of a Restatement



## Tautologies vs. Restatements

- Both leave an unchanged context set, but they have different behavior
- (42)
- a. Sue: We have to get to the party. Who do we know that has a car?
  - b. Bill: John has a car.
  - c. Andy: Mary has a car, but it's in the shop.
  - d. Bill: John has a car.
- Restatements serve to return attention to something already known
  - Tautologies don't have this function, and restatements don't trigger the uncontrollability inference
  - An argument for theories of update which don't relativize assertions to the context set, e.g. Murray 2014
    - Relativizing collapses the distinction between tautologies and restatements (cf. AnderBois, Brasoveanu & Henderson 2011)

Thanks!

My thanks to Molly Diesing, Sally McConnell-Ginet, Sarah Murray, Mats Rooth, Will Starr, and the Cornell Semantics Group for their advice. All errors are my own.

- AnderBois, Scott, Adrian Brasoveanu & Robert Henderson. 2011. Crossing the appositive / at-issue meaning boundary. In Nan Li & David Lutz (eds.), *Semantics and Linguistic Theory (SALT)*, vol. 20, 328–346. CLC Publications.
- Barker, Chris. 2006. Vagueness. In Keith Brown (ed.), *Encyclopedia of Language & Linguistics*, 294 – 298. Oxford: Elsevier 2nd edn.  
doi:<http://dx.doi.org/10.1016/B0-08-044854-2/01083-X>.  
<http://www.sciencedirect.com/science/article/pii/B008044854201083X>.
- Bulhof, Johannes & Steven Gimbel. 2004. A tautology is a tautology (or is it?). *Journal of Pragmatics* 36(5). 1003–1005.  
doi:[http://dx.doi.org/10.1016/S0378-2166\(03\)00003-1](http://dx.doi.org/10.1016/S0378-2166(03)00003-1).  
<http://www.sciencedirect.com/science/article/pii/S0378216603000031>.
- Chierchia, Gennaro. 2013. *Logic in Grammar: Polarity, Free Choice, and Intervention*, vol. 2. Oxford University Press.
- Cumming, Samuel. 2008. Variabilism. *Philosophical Review* 117(4). 525–554.
- Farghal, Mohammed. 1992. Colloquial Jordanian Arabic tautologies. *Journal of Pragmatics* 17(3). 223–240.
- Grice, H Paul. 1975. Logic and conversation. *Syntax and Semantics* 3. 64–75.
- Grice, H Paul. 1978. Further notes on logic and conversation. *Syntax and Semantics* 9. 113–127.

- Groenendijk, Jeroen & Martin Stokhof. 1991. Dynamic predicate logic. *Linguistics and Philosophy* 14(1). 39–100.
- Horn, Laurence. 1984. Toward a new taxonomy for pragmatic inference: Q-based and R-based implicature. *Meaning, Form, and Use in Context* 42.
- Kamp, Hans & Barbara Partee. 1995. Prototype theory and compositionality. *Cognition* 57(2). 129–191.
- Kwon, Iksoo. 2009. A tautology is a tautology: specificity and categorization in nominal tautological constructions. In *Berkeley Linguistics Society*, vol. 35, 1–36.
- Murray, Sarah E. 2014. Varieties of update. *Semantics and Pragmatics* 7(2). 1–53.  
doi:10.3765/sp.7.2.
- Okamoto, Shigeko. 1991. Nominal tautologies in Japanese: X wa x, x ga x, and x mo x. In *Berkeley Linguistics Society*, vol. 17, .
- Okamoto, Shigeko. 1993. Nominal repetitive constructions in Japanese: The tautology controversy revisited. *Journal of Pragmatics* 20(5). 433–466.  
doi:[http://dx.doi.org/10.1016/0378-2166\(93\)90039-R](http://dx.doi.org/10.1016/0378-2166(93)90039-R).  
<http://www.sciencedirect.com/science/article/pii/037821669390039R>.
- Roberts, Craige. 1996. Information structure in discourse: Towards an integrated formal theory of pragmatics. *Working Papers in Linguistics–Ohio State University Department of Linguistics* 49. 91–136.

- Sadock, Jerrold M. 1978. On testing for conversational implicature. *Syntax and Semantics* 9. 281–297.
- Simons, Mandy. 2012. Conversational implicature. *Semantics: An international handbook of natural language and meaning* 33.
- Simons, Mandy, Judith Tonhauser, David Beaver & Craige Roberts. 2010. What projects and why. In Nan Li & David Lutz (eds.), *Semantics and Linguistic Theory (SALT)*, vol. 20, 309–327. CLC Publications.
- Stalnaker, Robert. 1974. Pragmatic presuppositions. In Peter K. Unger Milton K. Munitz (ed.), *Semantics and Philosophy*, 197–214. New York: New York University Press.
- Stalnaker, Robert. 1978. Assertion. *Syntax and Semantics* 9. 315–332.
- Tonhauser, Judith. 2011. Diagnosing (not-)at-issue content. In *The Semantics of Under-represented Languages in the Americas (SULA)*, vol. 6, 239–254.
- Wong, King-on. 2006. *Semantics and Pragmatics of Tautology in Cantonese*. University of Hong Kong MA thesis.  
<http://hub.hku.hk/bitstream/10722/51819/6/FullText.pdf?accept=1>.

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