

# Hedged Assertions and Questions

Sarah E. Murray  
Cornell University

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## Introduction: Hedges

Lakoff 1973: hedges are “words whose meaning implicitly involves fuzziness – words whose job is to make things fuzzier or less fuzzy.”

SOME HEDGES AND RELATED PHENOMENA	
sort of	in a real sense
kind of	in an important sense
loosely speaking	in a way
more or less	mutatis mutandis
on the _____ side (tall, fat, etc.)	in a manner of speaking
roughly	details aside
pretty (much)	so to say
relatively	a veritable
somewhat	a true
rather	a real
mostly	a regular
technically	virtually
strictly speaking	all but technically
essentially	practically

## Sentential Hedges (Urmson 1952, Ross 1973, Slote 1979, a.o.)

**Sentential hedge:** an element that affects the ‘force’ of a sentence (e.g., weakens the commitment made by a sentence)

Un-hedged sentences:

- (1) Shelly left yesterday. declarative
- (2) Did Shelly leave yesterday? interrogative

Hedged sentences:

- (3) Shelly left yesterday, **I think**. declarative
  - (4) Did Shelly leave yesterday, **do you think**? interrogative
- A: Yes = I think she left  
A': No = I think she didn't leave

**Goal:**

A unified semantics for mood, compositional contribution of hedges

## Sentential Hedges

Not restricted to sentence-final parentheticals (Urmson 1952):

- (5) **I suppose** that your house is very old. (somewhat different)
- (6) Your house is, **I suppose**, very old.
- (7) Your house is very old, **I suppose**.

or to first person:

- (8) **Norma thinks** (that) Shelly left yesterday.
- (9) Shelly, **Norma thinks**, left yesterday.

Verbs like *suppose* in (5) have a “assertion-qualifying use” (Horn 1978, also Urmson 1952, Slote 1979, Simons 2007, a.o.)

## Sentential Hedges

Not all parentheticals are hedges:

- (10) Jones was, **I conclude**, the murderer. (Urmson 1952)
- (11) Jones was, **it follows**, the murderer. or **I've shown**
- (12) The Holland Tunnel is the quickest way to Manhattan, **I've realized**. **I find (?)**

Not all hedges are 1st person slifting parentheticals:

- (13) Bob was the murderer, **reportedly**.
- (14) Bob was the murderer, **they say**.
- (15) Bob was the murderer, **it's said**.
- (16) Bob was the murderer, **according to Dale**.

- (non-parenthetical) modals? adverbs? a bit more later...

## Analysis Preview

- (1) Shelly left yesterday.
- (2) Did Shelly leave yesterday?
- (3) Shelly left yesterday, **I think**.
- (4) Did Shelly leave yesterday, **do you think?**

Example	Main proposition	Not-at-issue proposition	Mood	Analysis
(1)	$q$		declarative	$D(q)$
(2)	$q$		interrogative	$I(q)$
(3)	$q$	$think(i, q)$	declarative	$D(\diamond q)$
(4)	$q$	$think(u, q)$ $\vee think(u, \neg q)$	interrogative	$I(\diamond q)$

Where  $q$  = that Shelly left yesterday

## Analysis Preview

Example	Main proposition	Not-at-issue proposition	Mood	Analysis
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- On this analysis, hedges are not really 'force modifiers'
  - Mood semantically contributes a relation (here:  $D, I$ )
  - What is modified is the argument of this relation
  - This will affect the force of an utterance, but indirectly
- (1) and (3) are both declaratives, both typically used for assertions, but what is asserted is different
- main propositional content is unchanged

## Outline

- 1 Introduction
- 2 Evidentials and (Not)-at-issue Content
- 3 Hedged Assertions
- 4 Hedged Questions
- 5 Summary

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# Background on Evidentiality

(Willet 1988, Aikhenvald 2004, a.o.)

- Evidentiality: the encoding of source of information
  - marked on every sentence in many languages
- In declaratives, evidentials indicate the speaker's source of information for their utterance
  - can be direct: I saw, I witnessed
  - or indirect: I guess, I infer, I was told
- In interrogatives, evidentials can indicate the expected source of information for the requested answer
  - can be direct: given what you witnessed, ...
  - or indirect: given what you were told, ...

# Cheyenne Evidential Distinctions

Cheyenne (Plains Algonquian, Montana and Oklahoma) data primarily from my fieldwork (since 2006), plus Cheyenne grammar, texts, and dictionary (e.g., Leman 1980b,a, Fisher et al. 2006)

## Direct evidential

- (17) *É-hoo'koho-Ø*.  
3-rain-DIR  
'It's raining, I'm sure'  
'Given my experience...'

## Narrative evidential

- (19) *É-x-hoo'kóhó-nehó*.  
3-PST-rain-NAR.SG.B  
'Long ago, it rained, it is said'

## Reportative evidential

- (18) *É-hoo'kóhó-nése*.  
3-rain-RPT.SG.B  
'It's raining, I hear'

## Inferential evidential

- (20) *Mó-hoo'kóhó-hané-he*.  
INF-rain-INF-INF  
'It's raining, I take it'

# Evidentials and Illocutionary Mood

## Direct evidential

*Né-némene-Ø*  
2-sing-DIR  
'You (sg.) sang  
(I witnessed)'

## Interrogative

*Né-némene-he*  
2-sing-he  
'Did you (sg.) sing?'

## Hortative

*Némene-ha*  
sing-HRT.3SG  
'Let him sing!'

## Reportative evidential

*Né-némene-máse*  
2-sing-RPT.2SG  
'You (sg.) sang, I hear'

## Imperative

*Néméné-stse*  
sing-IMP.2SG  
'(You (sg.)) sing!'

- Excerpt of the Cheyenne mood paradigm
- Also: other evidentials, delayed imperative, and dependent moods

## Direct Challengeability

(21) *É-némene-séstse Andy.*  
 3-sing-RPT.3SG Andy  
 ‘Andy sang, I hear.’

(22) ✓ That’s not true. He danced.

(23) ✓ No he didn’t. He danced.

(24) # That’s not true. You didn’t hear that.

(25) # No you didn’t (hear that).

- diagnostics in Faller 2002, Matthewson et al. 2007, Simons et al. 2011, a.o.
- holds for grammatical evidentials crosslinguistically

## Sentences with Evidentials: Two Contributions

(26) A: *É-némene-séstse Andy.* B: ✓ No he didn’t.  
 3-sing-RPT.3SG Andy # No you didn’t.  
 ‘Andy sang, I hear.’

- ‘propositional’ contribution ( $q = \text{Andy sang}$ )
  - challengeable/deniable, up for negotiation
  - the ‘main point’ (e.g., Simons 2007)
  - **at-issue** proposition
- evidential contribution (speaker heard that  $q$ )
  - not challengeable/deniable, not up for negotiation
  - not the ‘main point’, but new
  - **not-at-issue** proposition
- (Related ideas: Abbott 2000, Asher 2000, Potts 2005, a.o.)

## The Scope of the Reportative Can be False

- Evidentials can also affect the ‘force’ of a sentence
- Scope of reportative evidential can be false, denied

(27) (i) *É-hó'táheva-séstse Shelly naa+oha*  
 3-win-RPT.3SG Shelly but

(ii) *é-sáa-hó'táhévá-he-Ø*  
 3-NEG-win-*h(an)e*-DIR

‘Shelly won, they say, but (I was there and) she didn’t.’

- behavior typical of parenthetical-like evidentials (e.g., Quechua, Faller 2002, 2006)
- cf. modal-like evidentials where parallel of (27) is infelicitous (e.g., in Lillooet, Matthewson et al. 2007)

## Evidentials and Polar Questions

Questions with an interrogative clitic can contain an evidential:

(28) *Mó=é-némene-séstse Andy?* A: yes...  
 y/n=3-sing-RPT.3SG Andy ...✓ 3-sing-RPT  
 ‘Given what you heard, did Andy sing?’ ...# 3-sing-DIR

- A ‘yes’ answer carries with it the reportative evidential
- Is this a “crazy language”?

(29) Is Bob reportedly the murderer? A: yes

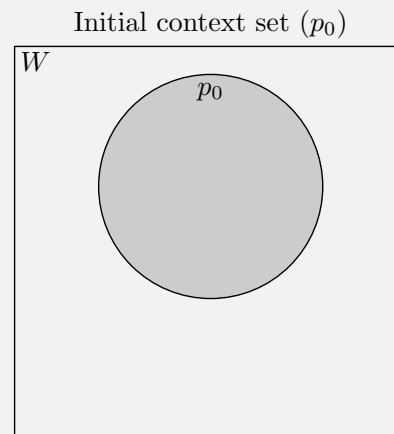
(4) Did Shelly leave yesterday, do you think? A: yes

# Analysis: Three Semantic Contributions

(Murray 2010, forthcoming)

- Every sentence contributes:
  - at-issue proposition
  - not-at-issue restriction (if there is not-at-issue content)
  - illocutionary relation (contribution of sentence mood)
    - constrains, but does not determine, the force of an utterance of a sentence
- Modeled as:
  - introduction of discourse referent
  - direct update of the common ground
  - update that structures the context
- (Related: Ginzburg 1996, Roberts 1996, Gunlogson 2001, Groenendijk and Roelofsen 2009, Farkas and Bruce 2010, Krifka *to appear*, a.o.)

# Initial common ground: 3-sing-DIR Andy

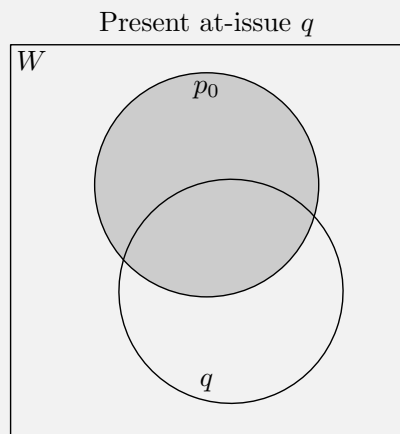


**Initial context set:**  
set of candidate speech worlds

information that the speaker and hearer take for granted for the purpose of the conversation

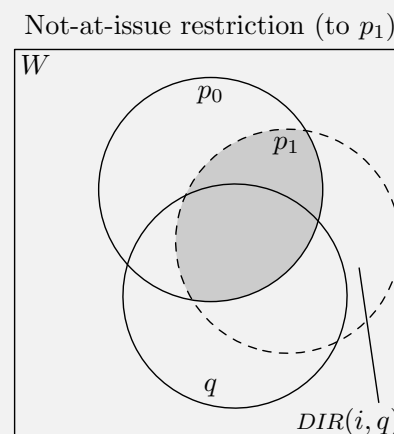
(Analysis illustrated here with diagrams; update semantics in Murray 2010, forthcoming)

# Presentation: 3-sing-DIR Andy



**Presentation:**  
present the at-issue proposition  
 $q =$  that Andy sang  
introduce it for discussion  
'put it on the table'  
a discourse referent introduced for  $q$  (represented by solid lines)

# Direct update: 3-sing-DIR Andy



**Not-at-issue restriction:**  
reduce context set to worlds where speaker has direct evidence that  $q$

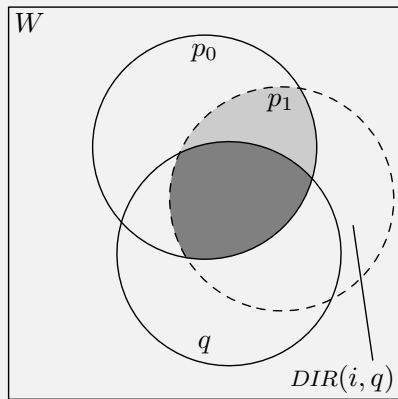
$DIR(i, q)$  not represented by a discourse referent (dashed lines)

not at-issue  
non-negotiable (not deniable)

A: 3-sing-DIR  
(‘He sang (I witnessed)’)  
B: # ‘No you didn’t’

# Structuring update: 3-sing-DIR Andy

Illocutionary relation ( $\leq_q$ )



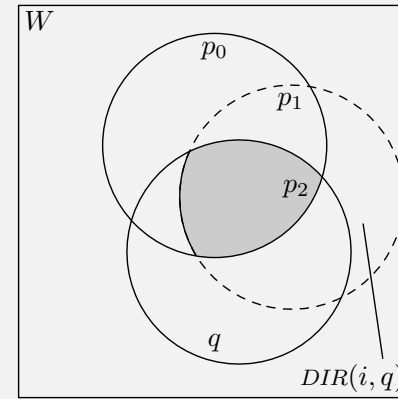
**Illocutionary relation:**  
add  $q$  to common ground  
 $\langle c_1, \leq_q \rangle$  (update to  $q$ -worlds)

at-issue proposition  
negotiable (deniable)

A: 3-sing-DIR  
(‘He sang (I witnessed)’)  
B: ✓ ‘No he didn’t’

# New context set: 3-sing-DIR Andy

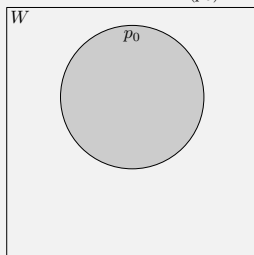
New context set ( $p_2$ )



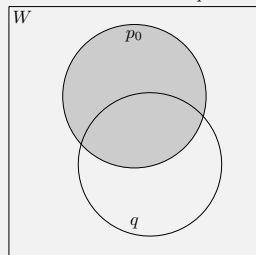
**New context set:**  
 $p_0$  updated with the information  
that  $DIR(i, q)$  and that  $q$

# Reportative Evidential

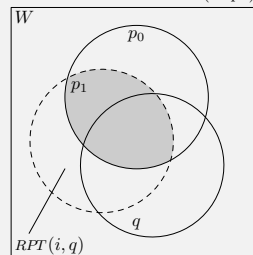
Initial context set ( $p_0$ )



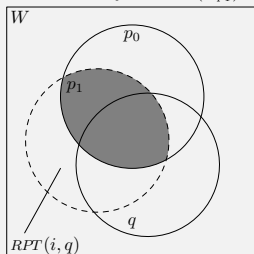
Present at-issue  $q$



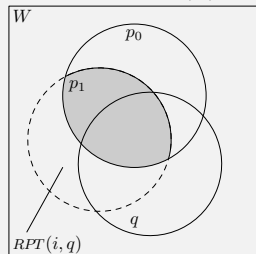
Not-at-issue restriction (to  $p_1$ )



Illocutionary relation ( $\leq_{p_1}$ )



New context set ( $p_1$ )



**New context set:**  
 $p_0$  updated with the information  
that  $RPT(i, q)$

# Analysis: Three Semantic Contributions

(Murray 2010, forthcoming)

- Evidentials:
  - contribute an evidential not-at-issue restriction
  - can change the argument of the illocutionary relation
    - affects the commitment to the at-issue proposition
- Welcome results:
  - evidentials contribute new information, but not-at-issue
  - no appeal to separate level of meaning or illocutionary primitives, e.g., PRESENT (cf. Faller 2002)
  - unified semantics of mood, elements making not-at-issue contributions
  - challengeability results comes out as propositional anaphora
  - can be extended to other evidential systems, related phenomena

## Evidentials vs. Parentheticals

- Connection often noted: Simons 2007, Higginbotham 2009, a.o.

- Some parentheticals are evidential:

(30) The Holland Tunnel is the quickest way to Manhattan, **I find**. (Murray 2010)

(31) Bob was the murderer, **it's said**.

- Some are not:

(32) Shelly left yesterday, **I think**.

(33) Max is a Martian, **I feel**. (Ross 1973)

- Yet, they are parallel in the kind of meaning that they contribute (though not the content)

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## Hedges in Declaratives

(1) Shelly left yesterday.

- Slifting (sentence lifting, Ross 1973):

(3) Shelly left yesterday, **I think**.

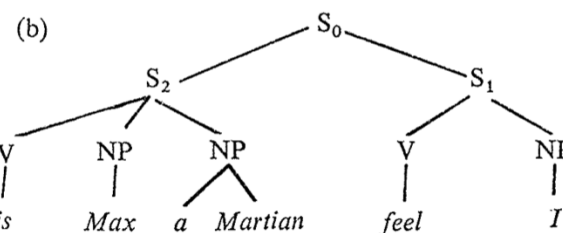
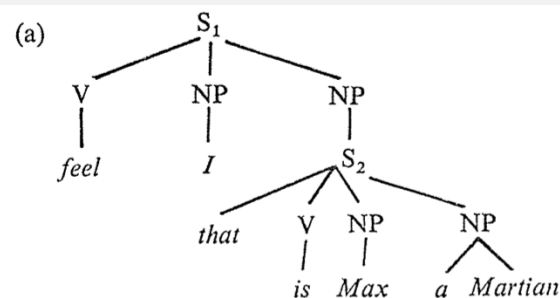
(34) Shelly left yesterday, **I suppose**.

(35) Shelly left yesterday, **I gather**.

(36) Shelly left yesterday, **it's said**.

Max is a Martian,  $\left\{ \begin{array}{l} I \text{ feel} \\ we \text{ realized} \\ it \text{ seems to have been believed} \\ remember \\ don't \text{ you think} \end{array} \right\}$ .

## Slifting (Ross 1973)



# Mood and Force

- Illocutionary (sentence) mood: morphosyntactic
- Illocutionary relation: semantic
- Illocutionary force: pragmatic
  
- I assume we want a semantics for illocutionary mood
  - Crosslinguistic semantics
  - Declarative mood often used in assertions
- Declarative mood constrains, but does not determine, the force of an utterance of a sentence in declarative mood
  
- However, assigning semantics to mood makes hedges problematic for a pragmatic account

# Hedged Assertion and Level of Commitment

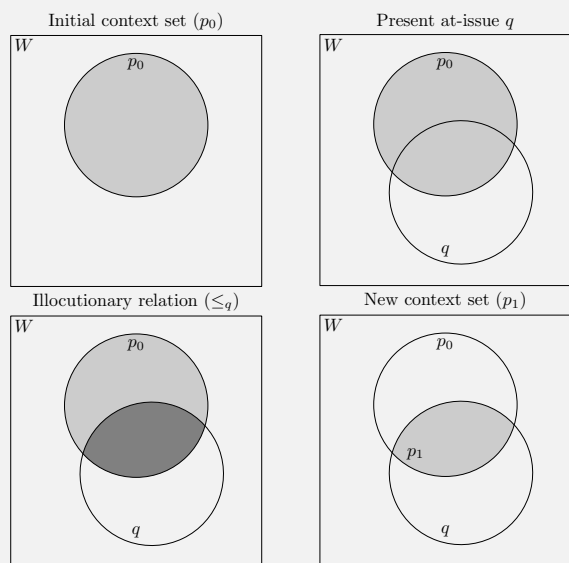
Less committed to  $q$ :

- “[T]he whole point of some parenthetical verbs is to modify or to weaken the claim to truth which would be implied by a simple assertion  $q$ ” (Urmson 1952)
- Evidentials, slifting parentheticals lower the quality threshold (Davis et al. 2007)

Alternate view:

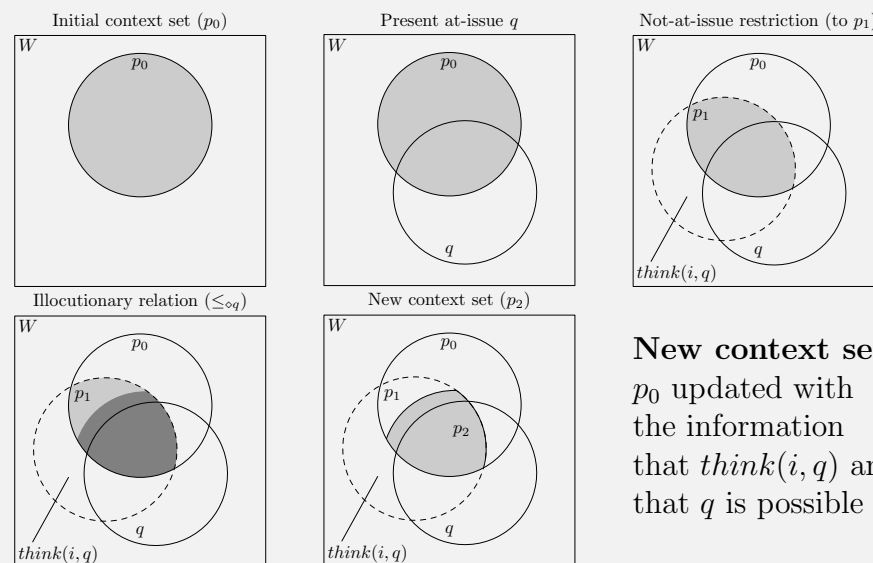
- committed to the possibility of  $q$
- with Cheyenne evidentials: direct commits to  $q$ , reportative to neither  $q$  nor the possibility of  $q$
- the (propositional) argument of the illocutionary relation is changed, various grades of modality for different hedges

## (1) Shelly left yesterday.



**New context set:**  
 $p_0$  updated with the information that  $q$

## (3) Shelly left yesterday, I think.



**New context set:**  
 $p_0$  updated with the information that  $think(i, q)$  and that  $q$  is possible



## Hedged Assertion: Analysis Summary

- (1) Shelly left yesterday.  
 (3) Shelly left yesterday, I think.

Example	AI	NAI	Mood	IR
(1)	$q$		declarative	$\leq(q)$
(3)	$q$	$think(i, q)$	declarative	$\leq(\diamond q)$

Where  $q$  = that Shelly left yesterday

- difference in commitment to AI proposition is a difference in the argument of the illocutionary relation (IR)
- hedges affect what this argument is, altering the level of commitment compositionally
- hedged declarative, and thereby hedged assertion

## Hedged Assertion: Analysis Summary

- (1) Shelly left yesterday.  
 (3) Shelly left yesterday, I think.

Example	AI	NAI	Mood	IR
(1)	$q$		declarative	$\leq(q)$
(3)	$q$	$think(i, q)$	declarative	$\leq(\diamond q)$

Where  $q$  = that Shelly left yesterday

- IR of a sentence uses a proposition to constrain the force of an utterance
  - changing this proposition allows different constraints on force
  - thus different kinds of hedges, with different levels of commitments, including no commitment
  - $\diamond q$  an approximation, graded modality (e.g., Kratzer 1981)
- a large class of lexical items that can appear in parentheticals

## Hedged Assertion: Analysis Summary

Example	AI	NAI	Mood	IR
(1)	$q$		declarative	$\leq(q)$
(3)	$q$	$think(i, q)$	declarative	$\leq(\diamond q)$

Where  $q$  = that Shelly left yesterday

- No change in the semantic contribution of mood (DEC:  $\leq$ )
- Just a change in the argument
- Refined definition of a hedge: where AI proposition and argument of IR are different
  - will extend to other moods
- cf. *I think Shelly left yesterday*, where the AI proposition can be  $think(i, q)$  (e.g., Simons 2007)

## Outline

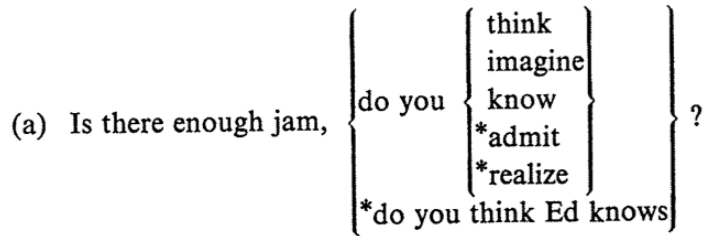
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# Hedges in Interrogatives

(2) Did Shelly leave yesterday?

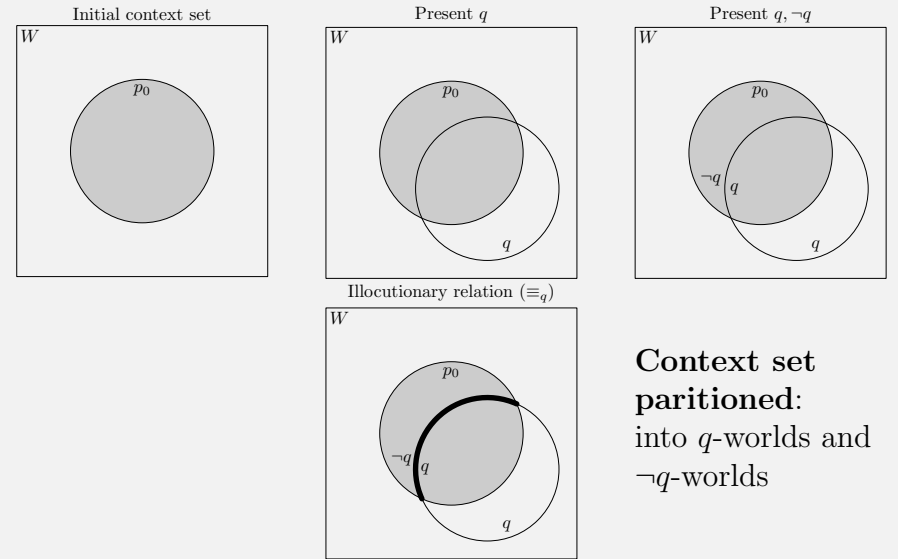
- Slifting in interrogatives: “double-top” questions (Ross 1973):

(4) Did Shelly leave yesterday, **do you think?**

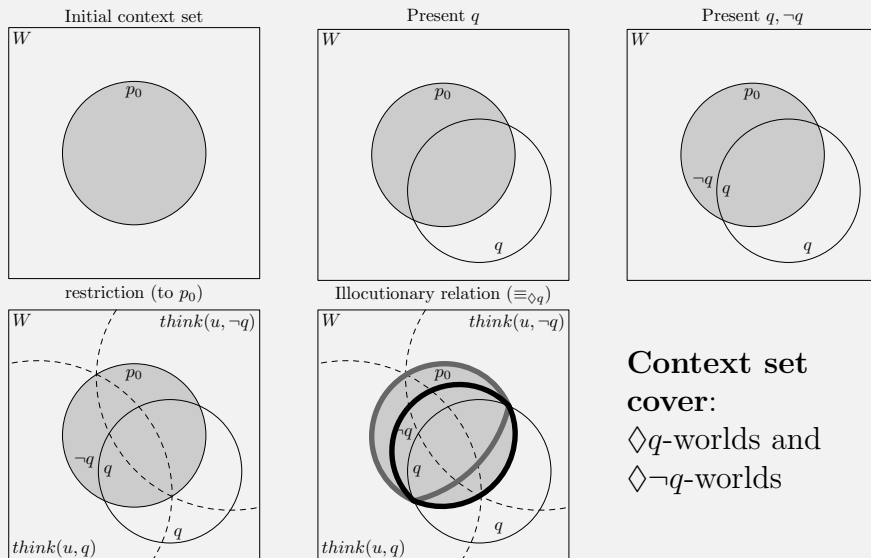


- Parallel to declaratives, interrogative mood contributes a structuring relation ( $\equiv$ )
- Hedges affect what the argument of the relation is

# (2) Did Shelly leave yesterday?



# (4) Did Shelly leave yesterday, do you think?



# Analysis

(2) Did Shelly leave yesterday?

(4) Did Shelly leave yesterday, **do you think?**

Example	AI	NAI	Mood	IR
(2)	$q$		interrogative	$\equiv(q)$
(4)	$q$	$\text{think}(u, q)$ $\vee \text{think}(u, \neg q)$	interrogative	$\equiv(\diamond q)$

Where  $q$  = that Shelly left yesterday

- No change in the semantic contribution of mood (INT:  $\equiv$ )
- Just a change in the argument
- NAI contribution in interrogatives: anchored to addressee ( $, I \text{ think}$  vs  $, \text{do you think?}$ ), presuppositional

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# Analysis Summary

- (1) Shelly left yesterday.
- (2) Did Shelly leave yesterday?
- (3) Shelly left yesterday, I think.
- (4) Did Shelly leave yesterday, do you think?

Example	AI	NAI	Mood	IR
(1)	$q$		declarative	$\leq(q)$
(2)	$q$		interrogative	$\equiv(q)$
(3)	$q$	$think(i, q)$	declarative	$\leq(\diamond q)$
(4)	$q$	$think(u, q)$ $\vee think(u, \neg q)$	interrogative	$\equiv(\diamond q)$

Where  $q$  = that Shelly left yesterday

- Hedged declaratives and interrogatives, and thereby assertions and questions, because mood constrains force

# Modals, Adverbs?

- (37) Bob was the murderer.
- (38) Bob **might** have been the murderer.
- (39) Bob was **reportedly** the murderer.
- (40) **Might** Bob have been the murderer? A: yes
- (41) Was Bob **reportedly** the murderer? A: yes

- Arguably these can be part of the at-issue proposition
  - e.g., modal proposition is directly challengeable (e.g., von Stechow and Gillies 2007 mastermind example)
  - AI:  $\diamond q$  and IR:  $\leq(\diamond q)$
- In contrast to hedges, where AI:  $q$  and IR:  $\leq(\diamond q)$

# Thanks!

I would like to thank Maria Bittner, Jeroen Groenendijk, Larry Horn, Roger Schwarzschild, Matthew Stone, William Starr, and the Cornell Semantics Group for their comments and discussion. I would also like to thank my Cheyenne consultants for their collaboration and our discussions of Cheyenne. Any errors are my own.

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# Contact

Sarah E. Murray  
Department of Linguistics  
212 Morrill Hall  
Cornell University  
Ithaca, NY 14853

[sarah.murray@cornell.edu](mailto:sarah.murray@cornell.edu)  
<http://conf.ling.cornell.edu/sem/index.shtml>