Murray: Three kinds of update

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Plan:

- Dynamics matters for more than presupposition and anaphora
- Murray argues for three different elements of update
  - Non-negotiable updates
    - which update context set automatically
    - Example: evidentials in Cheyenne
  - At-issue (proferred) update
    - Offered for consideration as an update
    - Example: the at-issue content of a declarative sentence
  - Discourse structuring: illocutionary force
    - Recipe for how to use the content to update the context set
    - Reportative vs. direct evidentials in Cheyenne
    - yes/no questions
- [Time permitting] Dekker's 2004 PLA

"Now how does an assertion change the context?. . .

- Stalnaker 1978: . . . There are two ways":
  - The fact that the speaker is speaking, saying the words they are saying, etc., and <hey, where'd that goat come from?>.
  - The "esssential" effect: add the content (a proposition) to the context set
- So some aspects of utterances automatically change the context in a non-negotiable way.
- Answering the question "In what way is natural language dynamic?", then, amounts to deciding where to draw the line between ineluctable update and negotiated update.
- Murray: the line falls in between at-issue content and not-at-issue content

At-issue vs. Not-at-issue

- Origin, afik: Ladusaw via Potts
- Simons et al. 2010
  - content is at-issue only if the speaker intends for that content to address the Question Under Discussion
  - projection correlates with at-issueness
- If entailment-cancelling operators (negation, epistemics, etc.) have traction on a piece of content, it's at-issue

E.g., presupposition

1. Sue doesn't know that it's raining.

- (1) entails it's raining,
- So the content of the embedded clause survives sentence negation
- Presuppositions typically project
- When they do, they're NAI

E.g., appositives

2. Maybe Ann, who is a genius, can solve the problem.

- (2) entails Ann is a genius
- The content of the appositive survives epistemic hedging
- Appositives tend to be NAI
- Next week: AnderBois et al. on appositives

Deniability test for at-issueness

1. A: Sue doesn't know that it's raining.
   - 1.2 B: You're wrong, look, she's carrying an umbrella.
   - 1.3 B′: #You're wrong, look, the ground is dry.
2. A: Sue, who is a genius, can solve the problem.
   - 2.5 B: You're wrong, no one can solve this problem.
   - 2.6 B′: #You're wrong, Sue is not that smart.

- Murray: unchallengable content == non-negotiable update
- Evidentials are unchallengable
- What's an evidential?

Evidentiality

Murray's 2010 dissertation, p. 20: "In languages with grammatical evidentials, every sentence must be marked for this information, much like English sentences must be marked for tense. Evidentials can indicate whether the speaker's statement is based on direct evidence, usually visual, hearing, or touch, or else on indirect evidence, such as inference, reports, hearsay, or common knowledge."

- Some languages (estimate: 1/4) have a grammatical category for marking the source of information
  - Independent of epistemic modality
  - Often realized via verbal morphology

Aikenvald's typology

Aikhenvald, Alexandra Y. (2003). Evidentiality in typological perspective. In A. Y. Aikhenvald & R. M. W. Dixon (Eds.) (pp. 33–62).

Two-term systems:

1. witness, nonwitness
   - Jarawara, Yukaghir languages, Myky, Godoberi, Kalasha-mun, Khowar, Yanam
2. nonfirsthand, everything else
   - Abkhaz, Mansi, Khanty, Nenets, Enets, Selkup, Northeast Caucasian languages
3. reported, everything else
   - Turkic languages, Tamil, Enga, Tauya, Lezgian, Kham, Estonian, Livonian, Tibeto-Burman languages, several South American languages

Three-term systems: at least one sensory category

1. visual sensory, inferential, reportative
   - Aymara, Shastan languages, Qiang languages, Maidu, most Quechuan languages, Northern Embera languages
2. visual sensory, nonvisual sensory, inferential
   - Washo
3. nonvisual sensory, inferential, reportative
   - Retuarã, Northern Pomo

Four-term systems:

1. visual sensory, nonvisual sensory, inferential, reportative
   - Tariana, Xamatauteri, Eastern Pomo, East Tucanoan languages
2. visual sensory, inferential #1, inferential #2, reportative
   - Tsafiki, Pawnee, Ancash Quechua
3. nonvisual sensory, inferential #1, inferential #2, reportative
   - Wintu
4. visual sensory, inferential, reportative #1, reportative #2
   - Southeastern Tepehuan
5. witness (non-subjective, non-renarrative), inferential (subjective, non-renarrative), renarrative (non-subjective, renarrative), dubitative (subjective, renarrative)
   - Bulgarian

Beyond four terms:

1. visual sensory, nonvisual sensory, inferential, reportative, assumed
   - Tuyuca, Tucano
2. witness, inferential, reportative, assumed, “internal support”
   - Nambikwaran languages
3. visual sensory, nonvisual sensory, inferential, reported, heard from known source, direct participation
   - Fasu
4. nonvisual sensory, inferential #1, inferential #2, inferential #3, reportative
   - Western Apache
5. inferential, anticipation, performative, deduction, induction, hearsay, direct observation, opinion, assumed, “to know by culture”, “to know by internal”
   - Lojban

English has evidential-like elements, but no proper evidential system

- Marking source of information is not obligatory
- Slifting is often thought of as a kind of evidential marking
  - Ross: "Slifting" = "Sentence lifting":
    a. I suspect that Sue won.
    b. Sue, I suspect, won.
- Slifting has an intriguing prohibition against negation:

1. *John, I don't suspect, left.
2. Sue won, I suspect.
3. Sue won, I heard.
4. Sue won, I see.

Cheyenne: verbal morphology

Cheyenne is an endangered Plains Algonquian language spoken in Montana and Oklahoma.

I	II	III	IV	V	VI	VII	VIII	IX
person–	temporal–	(directional)–	(prefix^{+})–	root	–(suffix^{+})–	[voice]–	arguments^{+}–	mood
1	PST	TRL	neg	see	cause	SO	3PL.A.OBV	RPT
2	FUT	CIS	again	give.up	be	OS	2PL	IMP
3	PRS/REC		back	sing	by.hand	1:2	3PL.B	Y/N

Table 2.1: Template of the Cheyenne Verb

As an illustration of this template, consider example (2.1), a common Cheyenne farewell. In (2.1), nearly all of the verbal slots are filled.

(2.1)	I	II+III	IV	V	VII	VIII	IX	(Fisher et al. 2006)
	Nė-	*sta-*	*évȧ-hóse-*	*vóom*	*-atsé*	*-me*	*-Ø.*	
	2-	FUT+TRL-	back-again-	see$_A$	-1:2	-2PL	-DIR	
	'I will see you all again soon.'							

Figure 1: Cheyenne verbal morphology

Cheyenne: four-way evidential system

a. direct b. reportative c. narrative d. conjectural

a. *É-hoo'koho-**Ø**.*
3-rain-DIR
'It's raining, I'm sure.'

b. *É-hoo'kȯhó-**nėse**.*
3-rain-RPT.SG.B
'It's raining, I hear.'

c. *É-hoo'kȯ'hó-**neho**.*
3-rain-NAR.SG.B
'It rained, it is said.'

d. ***Mó**-hoo'kȯhó-**hané-he**.*
CNJ-rain-MOD_{B}-Y/N
'It's raining, I gather.'

Targets for analysis

(1) a. *É-hó'tàhéva-Ø* *Sandy.*
3-win-DIR Sandy
'Sandy won (I witnessed).'

b. *É-hó'tàheva-**sèstse*** *Sandy.*
3-win-RPT.3SG Sandy
'Sandy won, I hear.' / 'Sandy won, they say.'

(2) *Floyd won the race**, I hear**.*

(3) *Tivi**, who is a cat,** likes to chase her tail.*

(4) ***Did** Floyd win the race?*

(5) *É-hó'tàheva-**he*** *Sandy?*
3-win-Y/N Sandy
'Did Sandy win?'

Cheyenne direct evidential

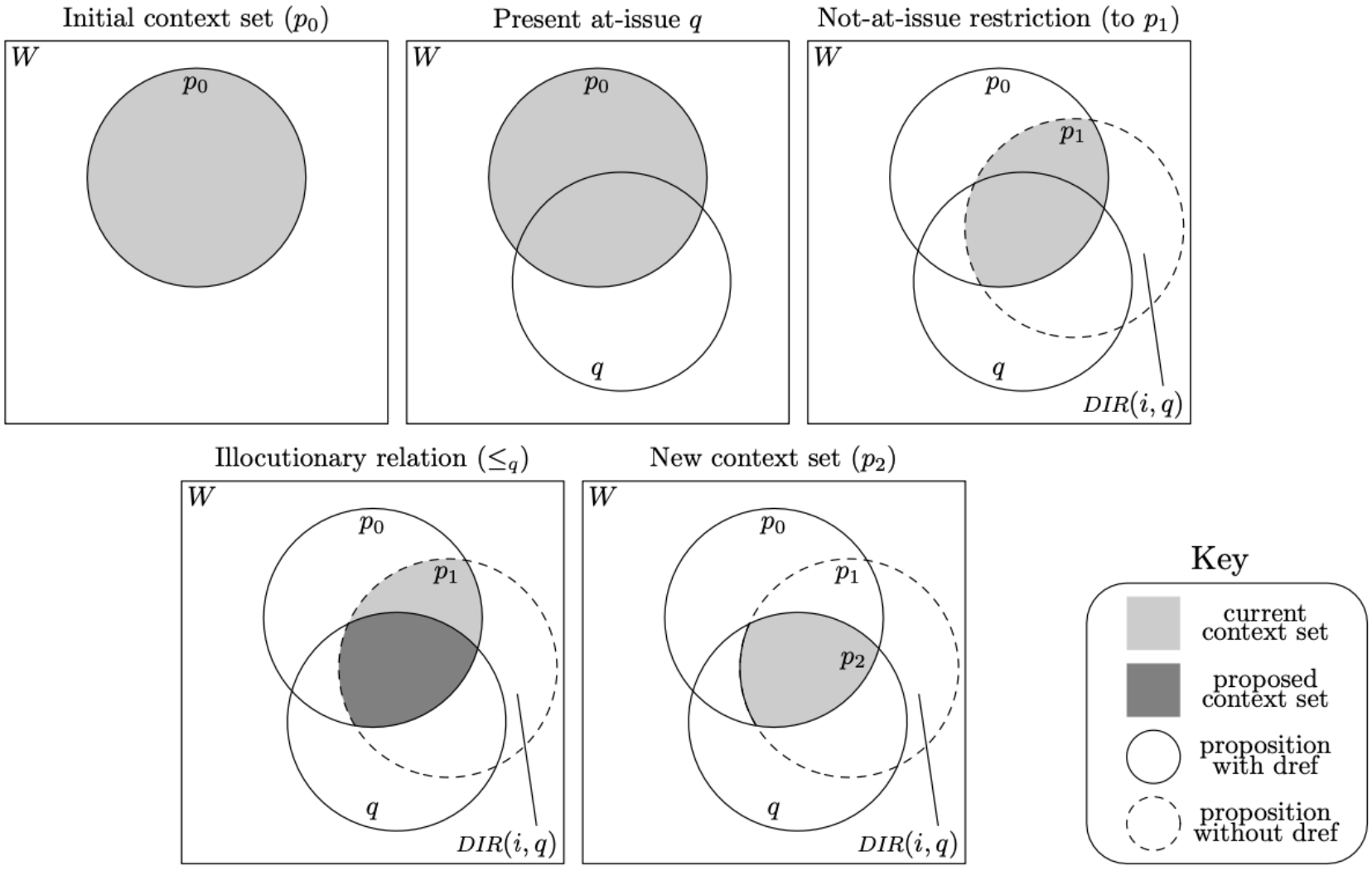

Figure 4: Sandy won, I'm sure

Cheyenne reportative

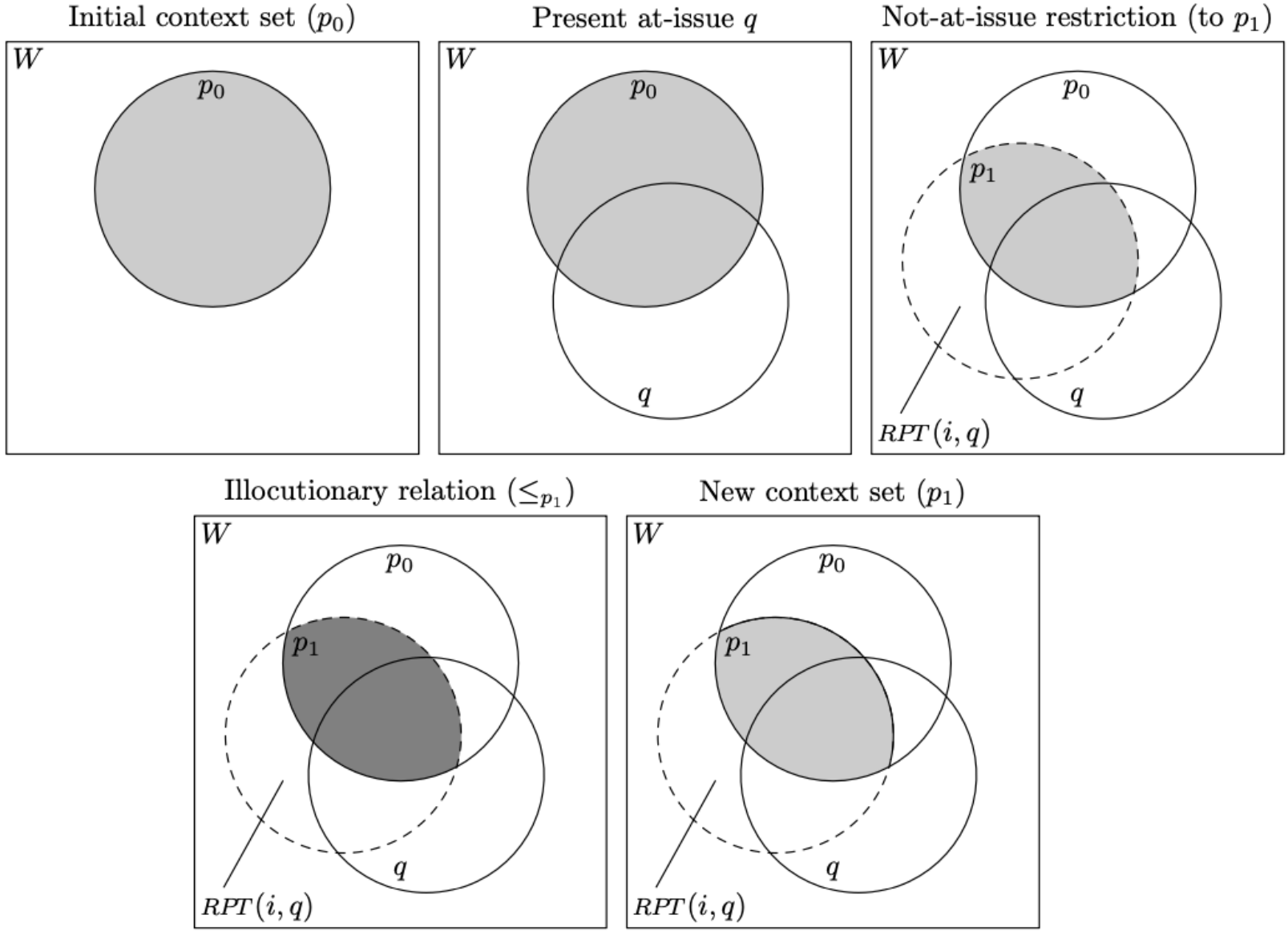

Figure 5: Sandy won, they say

English slift hedge

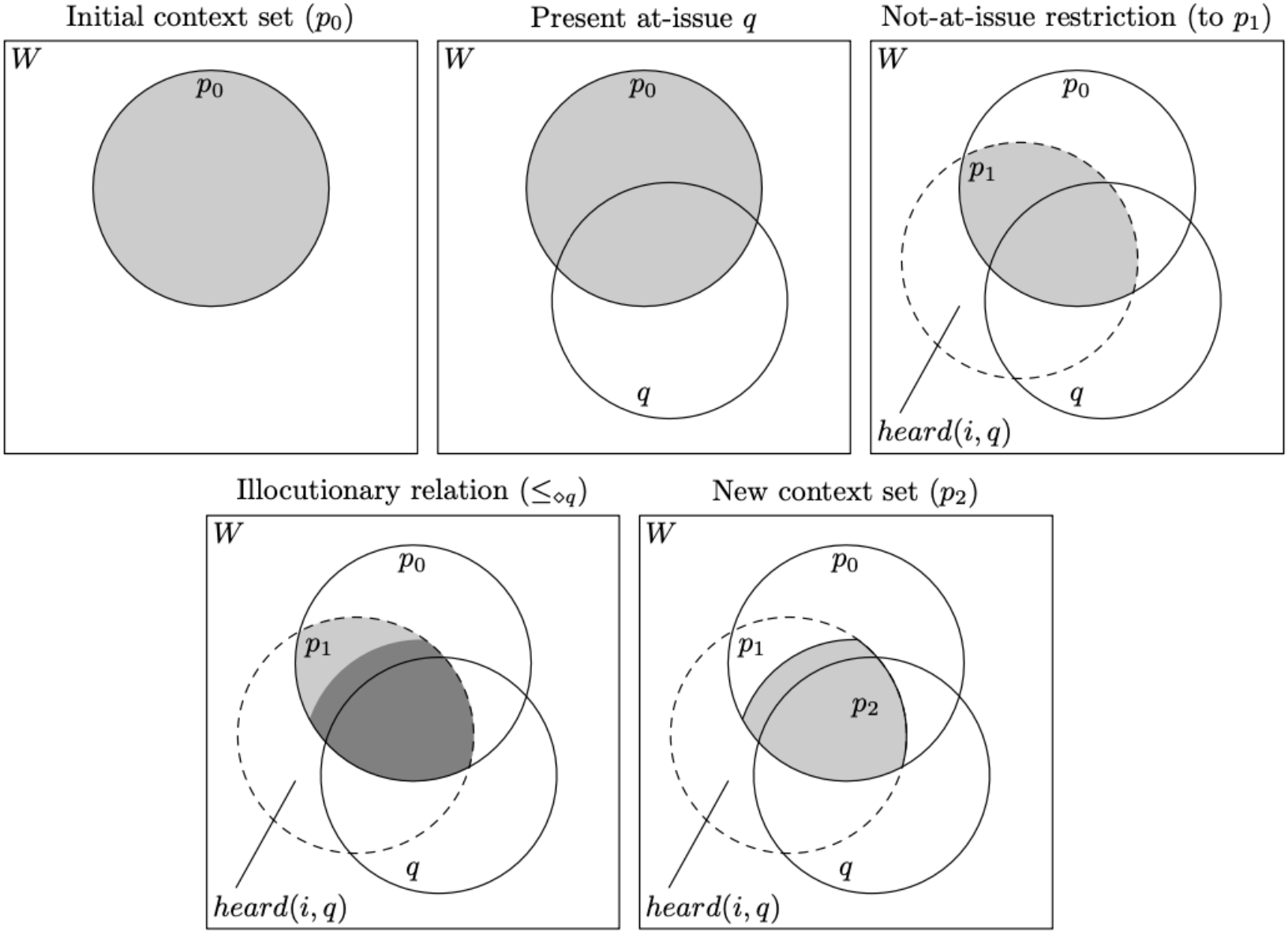

Figure 6: Floyd won the race, I hear

English appositive

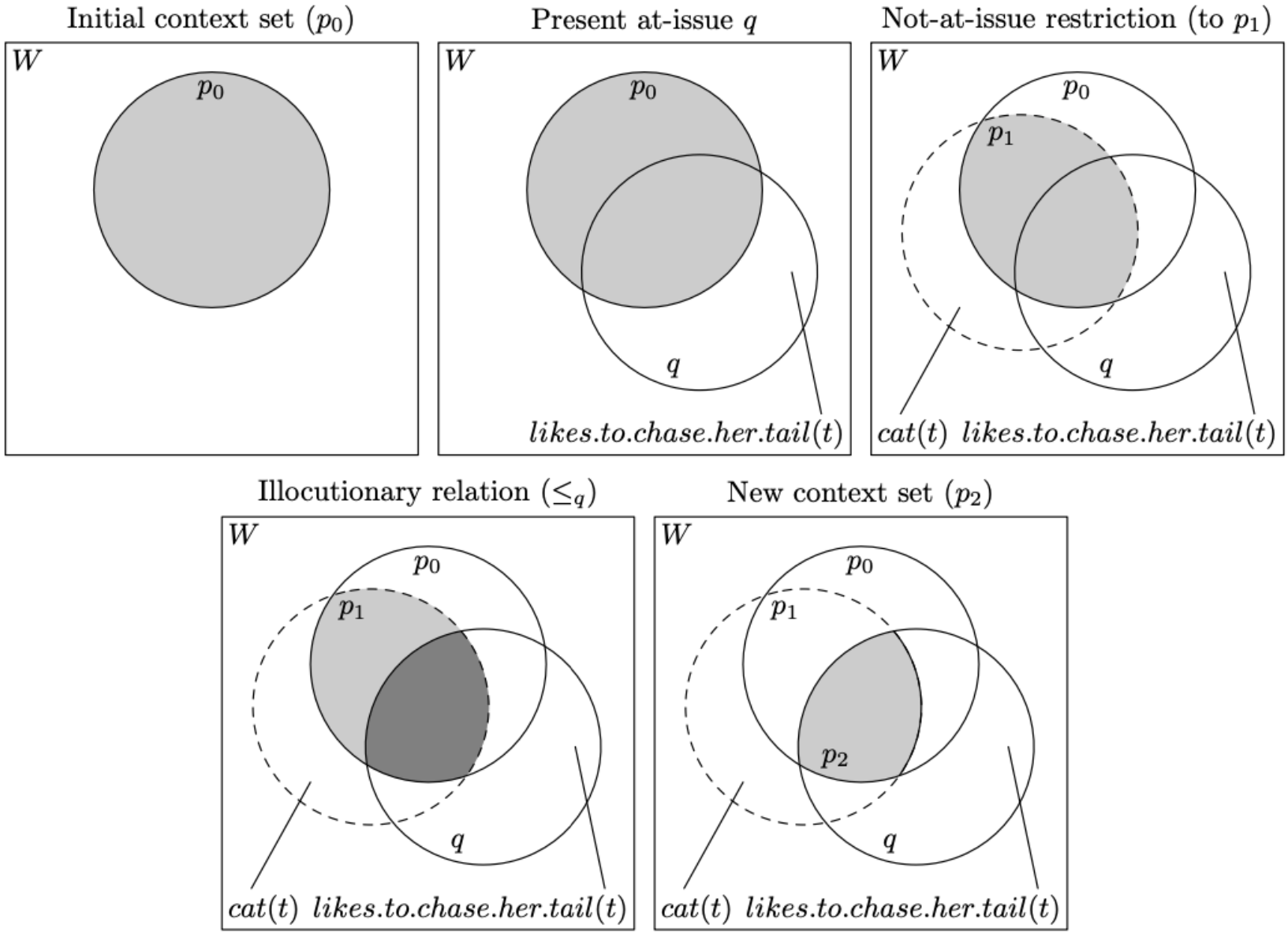

Figure 7: Tivi, who is a cat, likes to chase her tail

Formal implementation [simplification]

- Murray's system is a fragment (subset) of Bittner's
- There is a fairly complex data structure
  - points are pairs of sequences $\langle \top, \bot \rangle$
    - $\top$ is the top list, tracking the common ground
    - $\bot$ is the bottom list, tracking what's at issue
  - sequences are a hodge-podge of
    - individuals (type δ)
    - worlds (type ω), and
    - propositions (type Ω)
  - The closer to the beginning of the sequence, the more salient
    - '$\top\delta$' names the most salient individual in the top sequence
    - '$\bot\Omega$' names the most salient proposition in the bot sequence
    - generalized to $\top\delta_2$, $\top\omega_3$, etc.
  - '$^{\top}[x|P(x)]$': add an indiv x to each top sequence st. $P(x)$
  - '$[\phi]$': filter points that don't satisfy ϕ

Cheyenne: denying a reportative

(33) i. *É-hó'tȧheva-sėstse Sandy naa oha* ii. *é-sáa-hó'tȧhévá-he-∅.*
3-win-RPT.3SG Sandy and CNTR 3-neg-win-MOD$_A$-DIR
'(i) Sandy won, they say, but (ii) (I was there and) she didn't.'

This can be translated into UC$_\omega$ as (34), which is just (32) for the first conjunct and (27) for the second, with a slightly different at-issue proposition: $\neg q$. Conjunction is treated as sequential update; I have not incorporated any meaning for the contrastive component of the conjunction.

(34) i. $\underbrace{{}^{\top}[x|\ x = sandy];[w|\ won_w\langle\top\delta\rangle];[p|\ p = \bot\omega\|];}_{\text{(present at-issue proposition } q\text{)}}$ $\underbrace{[\text{RPT}_{\top\omega}\langle i, \bot\Omega\rangle];}_{\text{(not-at-issue restriction)}}$

$\underbrace{[w|w = \top\omega];}_{\text{(RPT commitment)}}$ $\underbrace{[\bot\omega \in \top\omega\|];[\top\omega = \bot\omega];}_{\text{(illocutionary relation)}}$ $\underbrace{{}^{\top}[p|\ p = \top\omega\|]}_{\text{(new context set)}}$

ii. $\underbrace{[w|\ won_w\langle\top\delta\rangle];[w|\ w \notin \bot\omega];[p|\ p = \bot\omega\|];}_{\text{(present at-issue proposition } \neg q\text{)}}$ $\underbrace{[\text{DIR}_{\top\omega}\langle i, \bot\Omega\rangle];}_{\text{(not-at-issue restriction)}}$

$\underbrace{[\bot\omega \in \top\omega\|];[\top\omega = \bot\omega];}$ $\underbrace{{}^{\top}[p|\ p = \top\omega\|]}$

Figure 8: Denying a reportative

Gloss of (34i):

1. Establish a dref on top for Sandy; make worlds in which Sandy won bot-prominent; create a dref on bot for the set of worlds in which Sandy won, the at-issue proposition
2. Eliminate points containing top worlds in which the speaker does not stand in the RPT relation to the at-issue proposition
3. Commit only to the context set by making the top world bot prominent (English has a different RPT commitment)
4. Eliminate points in which the bot world is not in the context set; eliminate points in which the top world is not equal to the bot world (this will leave the intersection of the context set with the reportative commitment, which in this case is simply the context set)
5. Establish a dref on the top sequence for the new context set

Gloss of (34ii):

1. Establish a dref for the at-issue proposition, which is that Sandy didn't win
2. Eliminate points containing top worlds in which the speaker does not stand in the DIR relation to the at-issue proposition
3. (No explicit commitment for DIR evidential, so the at-issue proposition is bot-prominent)
4. Intersect the context set with the at-issue proposition
5. Establish a top dref for the new context set

- Final truth conditions:
  - the speaker has indirect evidence that Sandy won
  - the speaker has direct evidence that Sandy didn't win
  - Sandy didn't win

Understanding the system

- Top and bottom: context set and at-issue proposition
- Some expressions trigger non-negotiable updates
  - indefinites trigger anaphoric discourse referents
  - Evidentials trigger context update for the evidential claim
  - Appositives trigger context update
- Some expression trigger negotiable updates
  - assertions
  - evidentials, for the object of the evidence
  - questions and imperatives

Separating non-negotiable from negotiable update

- Separated into different regions of the information state
- However, when all updates have been executed, the context set will be updated
- There is an identifiable moment in the unfolding of the update process at which the proffered content goes from being tentative to being accepted
- But there is no explicit mechanism for rejecting update

How does the grammar encode the nature of the updates?

Variability in projection

- If being at-issue depends on what the QUD is, changing the QUD changes what's AI

1. a. Who won the race last night?
   b. I heard that Sandy won.

   At-issue: q = Sandy won. NAI: heard(speaker, q)

2. a. What did you hear?
   b. I heard that Sandy won.

   At-issue: heard(speaker, q)

Cheyenne evidentials

- Murry: evidentials are "grammatically not at issue"
- Cheyenne evidentials cannot contribute at-issue entailments even when those entailments address the QUD
- To understand what that would feel like:

1. a. A: What did you hear?
   b. B: I heard Sandy won.
   c. B′: #Sandy won, I heard.

- Murry judges (1c) as infelicitous
- Her diagnosis: unlike unslifted *heard*, the evidential contribution of a slift is grammatically not at issue.
- Technically: evidentials in Cheyenne can't be at issue, because there is no dref introduced for the evidential proposition
- Murray page 8: adding a dref to the bottom sequence "represents the presentation of the at-issue proposition as the 'main point' of the sentence, setting the topic under discussion, or addressing a question under discussion.'

Discourse structuring

- Different illocutionary forces correspond to different structuring proposals
  - declarative: accept at-issue proposition
  - yes/no question: partition the context set by adding drefs for the possible answers
    - Note that these drefs are sets of worlds rather than names or variables
  - We'll see a different kind of structuring for imperatives in two weeks (Starr)

[switch to PLA notes]