SDRT 3: Commitment, Intonation, Focus

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Dialogue

Dialogue has disagreement

- Disagreement data shows that dialogues need not be consistent.

(1) π_1 : A: There's a dog in the park.
π_2 : B: No it's a cat.
π_3 : A: I just heard it barking.
]-Counterevidence]-Correction]-Elaboration

- $\pi_0 = \mathit{Correction}(\pi_1, \pi_2) \wedge \mathit{Counterevidence}(\pi_2, \pi_3) \wedge \mathit{Elaboration}(\pi_1, \pi_3)$.

$$f[\![\mathcal{F}(\pi_0)]\!]g \text{ iff } f[\![\mathcal{F}(\pi_2)]\!] \circ [\![\Phi_{Corr}]\!] \circ [\![\mathcal{F}(\pi_3)]\!] \circ [\![\Phi_{CE}]\!] \circ [\![\mathcal{F}(\pi_1)]\!] \circ [\![\mathcal{F}(\pi_3)]\!] \circ [\![\Phi_{Elab}]\!]g$$

Self-correction is possible

- But speakers need to be consistent.

(2) a. A: It's raining outside.
b. A: Also, it's not raining outside.

- But this needs to be spelled out with care, since self-correction is possible.

(3) a. A: It's raining outside.
b. A: Oh wait, it's not.

- Idea: speakers make commitments to certain contents and these commitments are inferred by default (i.e. can be revised or cancelled).

What's that, Commitment?

- Hamblin 1971: it's just a formal device for scorekeeping.
- Brandom 1994: speakers make themselves responsible for the truth of their commitments.
- Asher & Lascarides 2003: it's speakers' publicised beliefs.
- Condoravdi & Lauer (ongoing): speakers promise to act as if their commitments were true.

Commitment to what?

- Classically conceived: the undertaking of a commitment is the context-update effect of making an assertion.
- This is thought to explain *Why?* questions:
  if you are committed to something, you are responsible for vindicating it.
- We now make speakers commit to speech acts.

Responsibility

- Then, if you are committed to a speech act, you are responsible for its felicity conditions.

(4) a. A: John is in hospital.
b. B: Why is that?
b.′ B: You don't know that.

(5) a. A: I'm telling you to do that!
b. B: What makes you think you can order me around?
b.′ B: You don't have the authority.
b.″ B: You and what army?

(6) a. A: When do I have to be home?
b. B: I think you know the answer to that.

In SDRT

- In SDRT this means you commit to discourse relations.
- And this commitment is closed under veridicality.
- So, e.g., if you commit to *Correction*(α, β), you must also commit to β, but not to α.
- That is, speakers commit to entire SDRSs that may be sub-SDRSs of the context.
  - → If everything is veridical, speakers just commit to full SDRSs in the context.
  - → Trouble only with non-veridical ones.

Example

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– The full SDRS:

(8) π_0: *Correction*$(\pi_1, \pi_2) \wedge$ *Counterevidence*$(\pi_2, \pi_3) \wedge$ *Elaboration*(π_1, π_3)

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- Note that the anaphora work out!

Revised MDC for Dialogue

MDialogueC

An SDRS K is at least as coherent as an SDRS K', $K' \leqslant^{c} K$, if and only if all of the following hold:

1. *Prefer consistent commitments:* If in K', both speakers' commitments are consistent, then also in K.
2. *Prefer rich structure:* K has at least as many coherence relations as K'.
3. *Prefer resolution:* K binds (over accommodates) at least as many presuppositions as K' does.
4. *Prefer better relations:* For every rhetorical relation $R(\pi_1, \pi_2)$ that K' and K share: $R(\pi_1, \pi_2)$ is at least as coherent in K as it is in K'.
5. *Prefer flat structure:* K has at most as many labels as K' unless K' has a *semantic clash* and K does not.

Commitments about commitments

- Speakers can talk about their and each other's commitments.

(11) a. A: I said that *p*.
A is committed to $A\ is\ committed\ to\ p$

(12) a. A: You said that *p*.
A is committed to $B\ is\ committed\ to\ p$

(13) a. A: You said that I said that *p*, but in fact I never did.
A is committed to $B\ is\ committed\ to\ \mathrm{A\ is\ committed\ to\ p}$
and *A is committed to* $A\ is\ not\ committed\ to\ p$

- So, commitment recurses.

- Let's use modal logic for this ("commitment" is like "belief").

Modal Logic for Commitments 1

- We want a propositional modal logic.
- So again use the shallow representation of glue logic.
- Add some axioms such that, e.g., $p_{\neg K} \wedge p_K$ are inconsistent.
- The Glue logic adds whatever other information needed.
- Note that nothing stops us from having defeasible $>$ in this logic.

Modal Logic for Commitments 2

- Let C_A and C_B stand for "A/B is committed to" and give them $\Box$-like semantics.

  $\rightarrow$ $M, w \models C_A\varphi$ iff for all $v \in R_{C_A}(w)$, $M, v \models \varphi$

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- Let I_A and I_B be second order modals and for "A/B intends".

- That is, I_A can take other modals as arguments (e.g. $I_A C_A \varphi$ is well-formed, "A intends to commit to φ").

- $M, w \models I_A M\varphi$ iff for all $v \in R_{I_A}(w) \cap R_M(w)$, $M, v \models \varphi$.

Pragmatic Axioms

- Call this modal logic the Cognitive Modelling Logic.
- We can phrase some rationality axioms about cognitive information and felicity conditions.

- **Sincerity.** (a) $C_A\varphi > \mathcal{B}_A\varphi$ and (b) $\mathcal{B}_A\neg\varphi > \neg I_A C_A\varphi$.
  Normally, you believe what you commit to; and you do not intend to commit to what you do not believe.
- **Intention Transfer.** $C_A\varphi > C_A I_A C_B\varphi$.
  Normally, you intend to make your commitments shared.
- **Cooperativity.** $C_A I_A\varphi > I_B\varphi$.
  Normally, intentions are kept aligned.
- **Sincere Questions.**
  (a) $\mathit{interrogative}(\varphi) \to (C_A\varphi > \neg\mathcal{B}_A\mathit{resolved}(\varphi))$.
  (b) $\mathit{interrogative}(\varphi) \to (\mathcal{B}_A\mathit{resolved}(\varphi) > \neg I_A C_A\varphi)$.
  Normally, questions sincerely ask for unknown information.

Back to the Construction of Logical Form

- This “cognitive model” information affects logical form.
- Suppose that it is common ground that *A* believes that *everybody loves chocolate*.

(14) a. A: Seriously, who doesn’t like chocolate?

- The “usual” defaults would give this question semantics.
- But by **Sincere Questions**, this is overriden.
- Thus, this gets a rhetorical question interpretation.

Transfer Principle

– Now, whenever SDRT-update happens to add the *last* label π prompted by an utterance of speaker S, add an operator $[say_S(\pi)]$ to the modal logic.

Commitment Transfer

Let $\pi_1 \ldots \pi_n$ be elementary discourse units spoken by $S_1 \ldots S_n$, and Γ be the context after π_n (i.e. their ULFs plus salient facts and axioms).

Let $\vdash_G$, $\mid\sim_G$ be the monotonic and nonmonotonic proof theories of the glue logic.

Let $\vdash_C$ and $\mid\sim_C$ be the ones for the cognitive modelling logic.

– If $\Gamma \vdash_G \varphi$, then $\Gamma \vdash_C [say_{S_1}(\pi_1)] \ldots [say_{S_n}(\pi_n)] C_{S_n} \varphi$.

– If $\Gamma \mid\sim_G \varphi$, then $\Gamma \mid\sim_C [say_{S_1}(\pi_1)] \ldots [say_{S_n}(\pi_n)] C_{S_n} \varphi$.

Hindsight

- So the Glue logic supports belief/commitment revision in the modal logic.
- Alex Lascarides and I use this logic to model that that sometimes speakers comment on their belief revision.

(15) a. A: Who is coming for dinner?
b. B: John and Mary. I thought you knew.

(16) a. A: Trump is actually doing a good job.
b. B: I did not think you'd say that.

(17) a. A: It's raining.
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- So add duals to the update operators, $[say_S(\pi)]^{-1}$, to formalise things "before S said π".

Hindsight Axioms

– The following principles govern what can be inferred from current beliefs about earlier beliefs (that may not be held anymore).

Persistence. If $\Gamma \mid\!\sim_C C_A\varphi$ and $A \neq S$, then $\Gamma \mid\!\sim_C [s_S(\pi)]C_A\varphi$.
A person's public commitments are unaffected by other speakers.

Conservativity. $([s_S(\pi)]\mathcal{B}_{S'}\varphi) \rightarrow (\mathcal{B}_{S'}\varphi \vee \mathcal{B}_{S'}((C_S K_\pi) > \varphi))$.
Beliefs after an utterance are either carried over from before, or are inferred from that utterance.

Hindsight. If $\Gamma \mid\!\sim_C [s_{S_1}(\pi_1)] \ldots [s_{S_n}(\pi_n)]\mathcal{B}_S[s_{S_i}(\pi_i)]^{-1}\varphi$,
then $\Gamma \mid\!\sim_C [s_{S_1}(\pi_1)] \ldots [s_{S_{i-1}}(\pi_{i-1})]\mathcal{B}_S\varphi$
Beliefs about 'before'-operators cancel up to a corresponding 'after'-operator.

Foresight. $(\mathcal{B}_{S'}[s_S(\pi)]\varphi) > ([s_S(\pi)]\mathcal{B}_{S'}\varphi)$.
If a speaker believes that after the act π, the proposition φ holds, they normally have that belief in foresight.

Hindsight is static

- Hindsight logic is not dynamic epistemic logic.

Hindsight. If $\Gamma \mid\!\sim_C [s_{S_1}(\pi_1)] \dots [s_{S_n}(\pi_n)] \mathcal{B}_S [s_{S_i}(\pi_i)]^{-1} \varphi$,
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- It means that from the information after utterance n, we can derive that it must have been the case.

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- So, **Hindsight** can fire in a context Γ_n but $\Gamma_{i-1} \not\mid\!\sim [s_{S_1}(\pi_1)] \dots [s_{S_{i-1}}(\pi_{i-1})] \mathcal{B}_S \varphi$.

Example: Surprise

– We can give a logical form for the cognitive attitude of surprise:

$[s_H(\alpha)]^{-1}\mathcal{B}_S\neg I_H C_H \mathcal{K}_\alpha$.
$\approx$ before **H**earer said α, **S**peaker believed that Hearer would not want to commit to the content of α.

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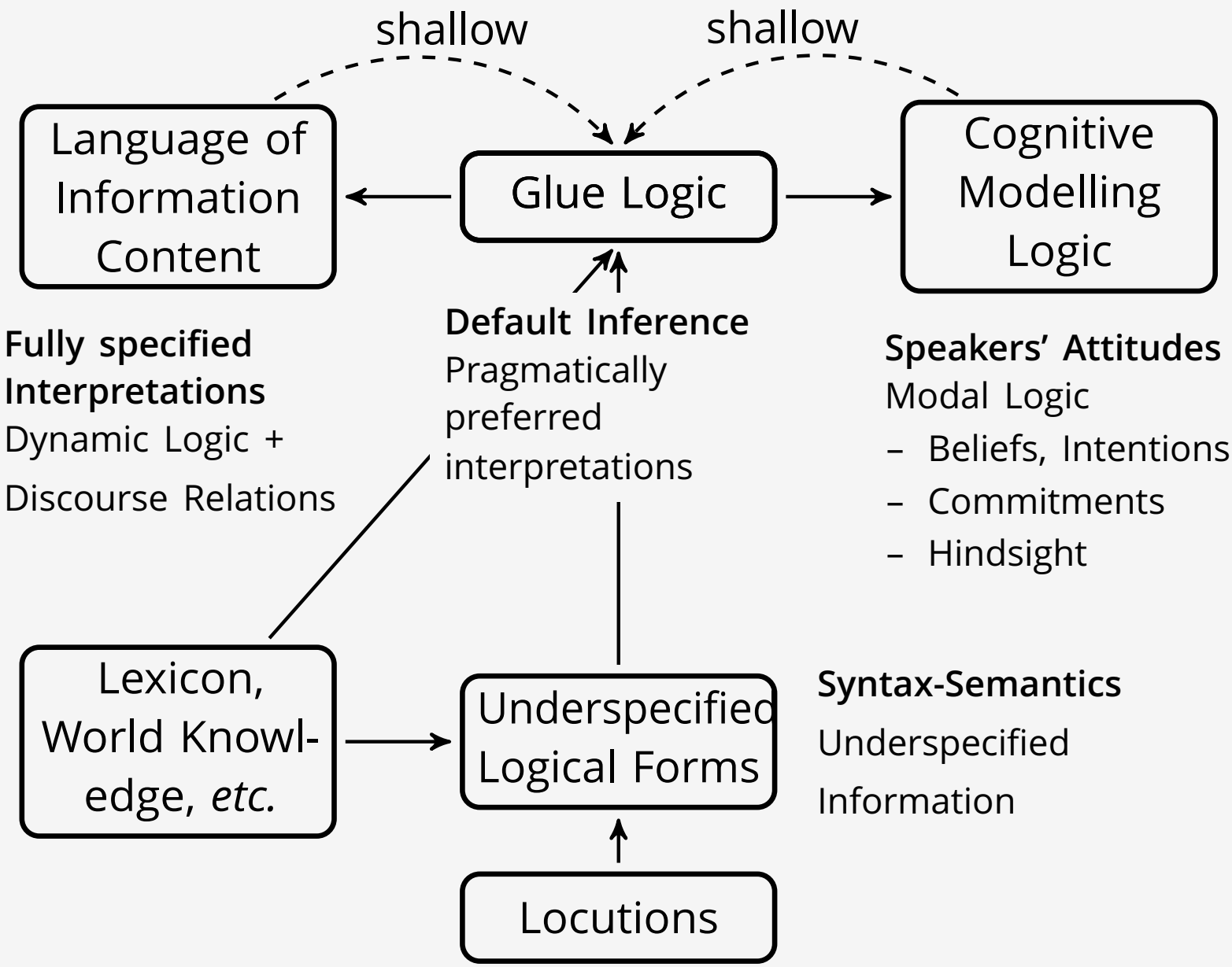
(18) α: A: It's raining.
π: B: Really?!

$[s_A(\alpha)][s_B(\pi)]C_B[s_A(\alpha)]^{-1}\mathcal{B}_B\neg I_A C_A \mathcal{K}_\alpha$.
$\mid\sim$ $[s_A(\alpha)][s_B(\pi)]\mathcal{B}_B[s_A(\alpha)]^{-1}\mathcal{B}_B\neg I_A C_A \mathcal{K}_\alpha$ (Sincerity a).
$\mid\sim$ $\mathcal{B}_B\mathcal{B}_B\neg I_A C_A \mathcal{K}_\alpha$ (Hindsight).
$\mid\sim$ $\mathcal{B}_B\neg I_A C_A \mathcal{K}_\alpha$ (Belief modal iterates).
$\rightsquigarrow$ "At the beginning of the dialogue, B thought that A wouldn't say that!"

SDRT: The Big Picture



Dialogue

Focus and Intonation

Focus and Intonation

Leftover Problem

(19) a. A: Who likes Michael?

#b. A: Nobody likes $^{\text{MI}}{}^{\text{CHA}}{}_{\text{E}}{}_{\text{L}}$.

b.′ A: Nobody likes $_{\text{MI}}{}^{\text{CHA}}{}_{\text{E}}{}^{\text{L}}$.

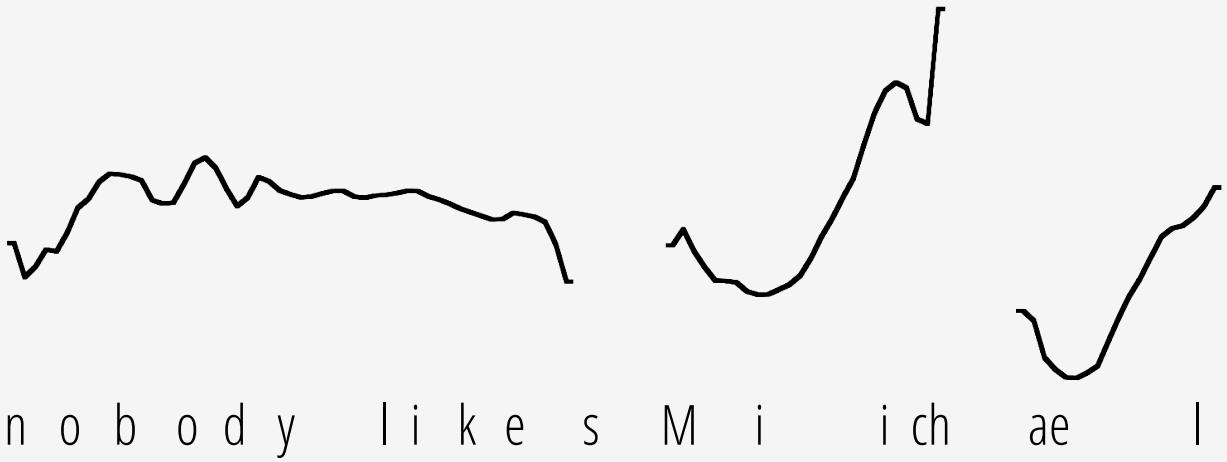
– Simplified notation: H is a high pitch, L is a low pitch, L+H is a low-rise pitch and % is the end of an utterance.

(20) a. A: Who likes Michael?

#b. A: Nobody likes $\underline{\text{Michael}}_{\text{H}\cdot\text{LL\%}}$

b. A: Nobody likes $\underline{\text{Michael}}_{\text{L+H}\cdot\text{LH\%}}$

This is what it actually looks like



More Trouble with Tune

(21) Paula does not live in Paris.

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More Trouble with Tune

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- According to the literature, this focal placements entails that *someone else does live in Paris*.

- But the tune matters.

(22) a. A: Does Paula live in Paris?
b. B: Paula$_{\text{L+H}}$ does not live in Paris.$_{\text{LH\%}}$
$\rightsquigarrow$ *someone (else) does live in Paris*
#b.′ B: Paula$_{\text{H}}$ does not live in Paris.$_{\text{LL\%}}$

(23) a. A: Who does not live in Paris?
b. B: Paula$_{\text{H}}$ does not live in Paris.$_{\text{LL\%}}$
$\not\rightsquigarrow$ *someone (else) does live in Paris*

In search of a model

- We have a counterexample to Question-Answer Congruence.
- Other popular accounts have it that focal information is *new* and non-focal information is *old*.

  → For varying formal senses of “new” and “old”.

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- An old suggestion by Bolinger: focus marks what is *interesting*.

(24) a. A: Who likes Michael?

b. A: Rachel$_{H}$ likes Michael.$_{LL\%}$

#b.′ A: Rachel likes Michael$_{H\cdot LL\%}$

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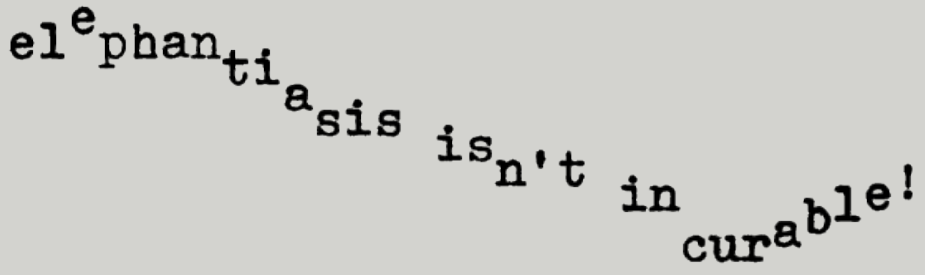
- But Bolinger’s entire point is that “interest” is paralinguistic and not amenable to such formal treatment.

Bolinger, D. (1972). *Accent is predictable (if you’re a mind reader)*. Language.

A Tangent

- It has been claimed that the so-called “contradiction contour” (a kind of utterance-wide fall-rise) does not embed.

(25) # It’s been demonstrated by medical science that



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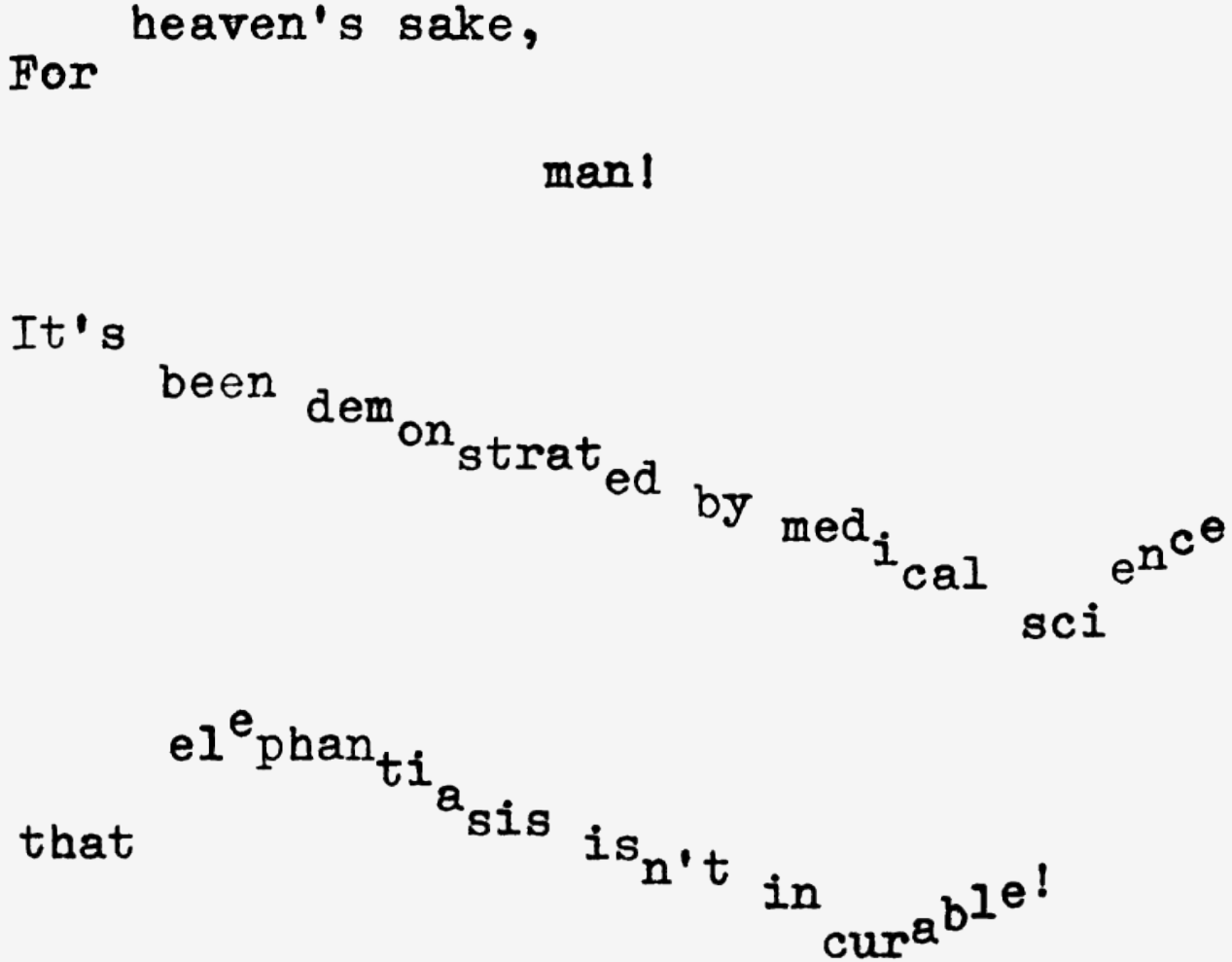

Interest is (partially) predictable

- Alex Lascarides and I: but there are *necessary requirements* on what is interesting.
- Some of these are predictable.
- One of them: what is presupposed is not interesting.

Focus and Interest

- A typical assumption: what is focal (accented) is *foreground* and what is not, is *background*.
- Let's presuppose the background.
- And then check whether the foreground is still interesting.

Focus and Interest

- A typical assumption: what is focal (accented) is *foreground* and what is not, is *background*.
- Let's presuppose the background.
- And then check whether the foreground is still interesting.
- Executing this needs some care:

(26) a. Harvey: Who likes Michael?
b. Jessica: $\underline{\text{Rachel}}_{\text{H}}$ likes Michael.$_{\text{LL\%}}$

⋮

y. Harvey: Who likes Michael again?
z. Jessica: $\underline{\text{Rachel}}_{\text{L+H}}$ likes Michael.$_{\text{LH\%}}$
$\rightsquigarrow$*you should know that*

Focus Semantics (falling tune)

Focal placement separates an utterance into a *foreground* f and a *background* φ, where a variable x of the same type as f occurs freely in φ. Updating a discourse with an utterance that has a falling tune with nuclear accent on f proceeds as follows:

- Update with the *presupposition* φ; that is, its free variable x must be resolved anaphorically (it is either bound or accommodated as $\exists x.\varphi$).
- Update the result with the *proffered* content $(\lambda x.\varphi)(f)$ (and all its presuppositions), such that the proffered content and φ are coherently connected to form a common topic, i.e. *Continuation* or *Elaboration*.

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(27) a. Harvey: Who likes Michael?
b. Jessica: Rachel$_{\text{H}}$ likes Michael.$_{\text{LL\%}}$
someone likes Michael. It is Rachel.

Relevant Segment

The *relevant segment* for a foreground–background pair $\langle \varphi, f \rangle$ is the segment of the prior discourse that the proffered content most coherently relates to.

Givenness

The given information is the content that results from (coherently) updating the relevant segment of the prior discourse with the (presupposed) background of the current utterance.

Necessary Condition for Interest

A foreground–background pair $\langle \varphi, f \rangle$ is *not interesting* if the proffered content $\varphi(f)$ is given. This means, if

– for the falling tune, which presupposes φ with free variable x, it is given that $x = f$.

The idea

(28) a. A: Who likes Michael?

#b. A: Rachel likes <u>Michael</u>$_{\text{H}\cdot\text{LL\%}}$

b. presupp: *Rachel likes x*

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– Typically, questions have one true answer.

(29) a. A: Who likes Michael?
Someone likes Michael.]-Background

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– Most coherent binding:

(30) a. A: Who likes Michael?
Someone likes Michael.]-Background]-IQAP

b. presupp: *Rachel likes Michael*]-Elab

– So the foreground is not interesting.

The idea

(31) a. A: Does Paula live in Paris?
#b.′ B: Paula$_{H}$ does not live in Paris.$_{LL\%}$
b. presupp: *x does not live in Paris*

- Most coherent binding:

(32) a. A: Does Paula live in Paris?
b. presupp: *Paula does not live in Paris*]-IQAP

- So the foreground is not interesting.

Coherent cases

(33) a. A: Who likes Michael?
b. A: Rachel$_{H}$ likes Michael.$_{LL\%}$

(34) a. A: Who likes Michael?
presupp: *someone likes Michael*]-Background

- Does not resolve foreground.

Coherent cases

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b. A: Rachel$_{H}$ likes Michael.$_{LL\%}$

(34) a. A: Who likes Michael?
presupp: *someone likes Michael*]-Background

- Does not resolve foreground.

(35) a. A: Does Paula live in Paris?
b.′ B: Paula does not$_{H}$ live in Paris.$_{LL\%}$
presupp: $Paula\ lives\ in\ Paris$ *is true or false*

- Is a tautology (called “polarity focus” in the literature).

Sidenote

- Can presuppositions be answers?
- Yes of course.

(36) a. A: Did Michael ever smoke?
b. B: He stopped a year ago.

(37) a. A: Did Michael ever smoke?
Michael smoked]-QAP
b. B: He stopped a year ago.]-Continuation

Doing it formally: relevant segment

- Let $\mathcal{K}_f$ be the ULF of the proffered content.
- Let $\mathcal{K}_b$ be the ULF of the presupposed content.
- Let *max-coherent*$(\Gamma, \pi^f : \mathcal{K}_f) \subseteq$ *update*$(\Gamma, \pi^f : \mathcal{K}_f)$ be the maximally coherent SDRSs for updating with the proffered content only.
- Relevant segment:
  α^r is the segment where π^f attaches in all
  $K \in$ *max-coherent*$(\Gamma, \pi^f : \mathcal{K}_f)$.

  If there are multiple such segments let α^r be the outscoping-minimal segment that outscopes all most coherent attachment points.

Doing it formally: given & interesting

- Write $\Gamma \upharpoonright \alpha^r$ for the subset of Γ that contains α^r and all segments outscoped by α^r (i.e. the sub-ULFs of Γ whose root is α^r).

- Then, ϕ is *given* iff for every maximally coherent SDRS $K \in \textit{max-coherent}(\Gamma \upharpoonright \alpha^r, \pi^b : \mathcal{K}_b)$, $K \models \phi$.

- I.e. the proffered content $\mathcal{K}_f$ (i.e. $\varphi(f)$) is *interesting* only if it is not given. That is, only if there is a maximally coherent $K \in \textit{max-coherent}(\Gamma \upharpoonright \alpha^r, \pi^b : \mathcal{K}_b)$ such that $K \not\models \mathcal{K}_f$.

The fall–rise tune

- It seems to do something with negation.

(38) a. A: Does Paula live in Paris?
b. B: Paula$_{\text{L+H}}$ does not live in Paris.$_{\text{LH\%}}$
$\rightsquigarrow$ *someone (else) does live in Paris*

(39) a. A: Does Paula live in Paris?
b. B: Paula$_{\text{L+H}}$ lives in Paris.$_{\text{LH\%}}$
$\rightsquigarrow$ *someone (else) does not live in Paris*

(40) a. Louis: Is Harvey going to fire me?
b. Donna: Harvey$_{\text{L+H}}$ is not going to fire you.$_{\text{LH\%}}$
$\rightsquigarrow$ *but someone else is*

The fall–rise tune

- But not always: *Uncertainty readings*

- Uncertainty about facts:

(41) a. A: Does Paula like opera?
b. B: She likes <u>Wagner</u>$_{\text{L+H·LH\%}}$
$\rightsquigarrow$ *maybe Paula likes opera*.

- Uncertainty about speech act:

(42) a. A: Who does not live in Paris?
b. B: <u>Paula</u>$_{\text{L+H}}$ does not live in Paris.$_{\text{LH\%}}$
$\rightsquigarrow$ *But is this what you wanted to know?*

- Make all three readings *available* and let MDC figure it out.
- Help Glue/MDC by giving a discourse relation.

Focus Semantics (fall–rise tune)

As before, the focus placement separates an utterance into a *foreground* f and a *background* $\varphi(x)$. Updating a discourse with an utterance that has a fall–rise tune with nuclear accent on f proceeds as follows:

- Update with the *presupposition* $y(\varphi)$ where y is an underspecified variable of type *modality*; i.e. $y \in \{\top, \Diamond, \neg\}$.
- Update with the *proffered* content $(\lambda x.\varphi)(f)$ (and all its presuppositions) such that the proffered content attaches with *Contrast* to the presupposition.
- *Not interesting* then means that f and $y = \top$ are given.

Application: Negation

- Usually, *Contrast* favors $y = \neg$.

(43) a. Louis: Is Harvey going to fire me?
b. Donna: Harvey$_{\text{L+H}}$ is not going to fire you.$_{\text{LH\%}}$

Application: Negation

- Usually, *Contrast* favors $y = \neg$.

(43) a. Louis: Is Harvey going to fire me?
b. Donna: Harvey$_{\text{L+H}}$ is not going to fire you.$_{\text{LH\%}}$

- Presupposition passes interest:

(44) a. Louis: Is Harvey going to fire me?
presupp: *y(x is not going to fire you)*

Application: Negation

- Usually, *Contrast* favors $y = \neg$.

(43) a. Louis: Is Harvey going to fire me?
b. Donna: Harvey$_{\text{L+H}}$ is not going to fire you.$_{\text{LH\%}}$

- Presupposition passes interest:

(44) a. Louis: Is Harvey going to fire me?
presupp: *y(x is not going to fire you)*

- The final most coherent interpretation:

(45) a. Louis: Is Harvey going to fire me?
presupp: $\exists x.\neg$*(x is not going to fire you)*]-Contrast]-QAP
b. Donna: Harvey$_{\text{L+H}}$ is not going to fire you.$_{\text{LH\%}}$

Application: Uncertainty 1

(46) a. A: Does Paula like opera?
b. B: She likes <u>Wagner</u>$_{\text{L+H·LH\%}}$

Application: Uncertainty 1

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presupp: *y(Paula likes x)*

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(46) a. A: Does Paula like opera?
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– Presupposition passes interest:

(47) a. A: Does Paula like opera?
presupp: *y(Paula likes x)*

– resolving *x* is easy:

(48) a. A: Does Paula like opera?
presupp: *y(Paula likes opera)*]-Background]-Contrast]-PQAP
b. B: She likes <u>Wagner</u>$_{\text{L+H·LH\%}}$

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(47) a. A: Does Paula like opera?
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(48) a. A: Does Paula like opera?
presupp: *y(Paula likes opera)*]-Background]-Contrast]-PQAP
b. B: She likes Wagner$_{\text{L+H·LH\%}}$

- Three options for *y*:

(49) $y = \neg$ Paula does not like opera, but she likes Wagner.
$y = \top$ Paula likes opera, but she likes Wagner.
$y = \Diamond$ Paula might like opera, but she (definitely) likes Wagner.

Application: Uncertainty 1

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$y = \top$ Paula likes opera, but she likes Wagner.
$y = \Diamond$ Paula might like opera, but she (definitely) likes Wagner.

– $\neg$ clashes, $\top$ is just plain bad.

Application: Uncertainty 2

(50) a. A: Who does not live in Paris?
b. B: Paula$_{\text{L+H}}$ does not live in Paris.$_{\text{LH\%}}$

Application: Uncertainty 2

(50) a. A: Who does not live in Paris?
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– Presupposition passes interest:

(51) a. A: Who does not live in Paris?
presupp: *y(x does not live in Paris*

Application: Uncertainty 2

(50) a. A: Who does not live in Paris?
b. B: $\underline{\text{Paula}}_{\text{L+H}}$ does not live in Paris.$_{\text{LH\%}}$

– Presupposition passes interest:

(51) a. A: Who does not live in Paris?
presupp: *y(x does not live in Paris*

– Questions typically have a non-empty answer.

(52) a. A: Who does not live in Paris?
some e does not live in Paris]-Background

Application: Uncertainty 2

(50) a. A: Who does not live in Paris?
b. B: Paula$_{L+H}$ does not live in Paris.$_{LH\%}$

– Presupposition passes interest:

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– Questions typically have a non-empty answer.

(52) a. A: Who does not live in Paris?
some e does not live in Paris]-Background

– Discourse structure: *x* cannot possibly be *Paula*

(53) a. A: Who does not live in Paris?]-Background]-QAP
some e does not live in Paris
presupp: *y(x does not live in Paris)*]-Contrast]-QAP
b. B: Paula$_{L+H}$ does not live in Paris.$_{LH\%}$

Application: Uncertainty 2 (contd.)

– Discourse structure: *x* cannot possibly be *Paula*

(54) a. A: Who does not live in Paris?]-Background]-QAP
some e does not live in Paris
presupp: *y(x does not live in Paris)*]-Contrast]-QAP
b. B: Paula$_{L+H}$ does not live in Paris.$_{LH\%}$]-Contrast]-QAP

Application: Uncertainty 2 (contd.)

– Discourse structure: *x* cannot possibly be *Paula*

(54) a. A: Who does not live in Paris?
some e does not live in Paris
presupp: *y(x does not live in Paris)*
b. B: Paula$_{L+H}$ does not live in Paris.$_{LH\%}$
]-Background,]-Contrast,]-QAP

– Binding is preferred over accommodation. Thus

(55) a. A: Who does not live in Paris?
some e does not live in Paris
presupp: ⊤*(e does not live in Paris)*
b. B: Paula$_{L+H}$ does not live in Paris.$_{LH\%}$
]-Background,]-Consequence,]-Contrast,]-QAP

Application: Uncertainty 2 (contd.)

- Discourse structure: *x* cannot possibly be *Paula*

(54) a. A: Who does not live in Paris?]-Background]]-QAP
some e does not live in Paris
presupp: *y(x does not live in Paris)*]-Contrast]
b. B: Paula$_{L+H}$ does not live in Paris.$_{LH\%}$

- Binding is preferred over accommodation. Thus

(55) a. A: Who does not live in Paris?]-Background]]-QAP
some e does not live in Paris]-Consequence
presupp: ⊤*(e does not live in Paris)*]-Contrast]
b. B: Paula$_{L+H}$ does not live in Paris.$_{LH\%}$

- Leading to the implicature *Paula does not live in Paris, but this is not the entity (I assume) your question is about*.

Application: Infelicity

(56) a. A: Who likes Michael?
#b. A: Rachel likes <u>Michael</u>$_{\text{L+H•LH\%}}$
b. presupp: *y(Rachel likes x)*

Application: Infelicity

(56) a. A: Who likes Michael?
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– Typically, questions have one true answer.

(57) a. A: Who likes Michael?
Someone likes Michael.]-Background
b. presupp: *y(Rachel likes x)*

Application: Infelicity

(56) a. A: Who likes Michael?
#b. A: Rachel likes Michael$_{\text{L+H·LH\%}}$
b. presupp: *y(Rachel likes x)*

– Typically, questions have one true answer.

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Someone likes Michael.]-Background
b. presupp: *y(Rachel likes x)*

– Complete answers are preferred over partial ones:
Rachel likes Michael is a more coherent answer than *Rachel does not like Michael*.

(58) a. A: Who likes Michael?
Someone likes Michael.]-Background
b. presupp: ⊤*(Rachel likes Michael)*]-Elab]-IQAP

Application: Infelicity

(56) a. A: Who likes Michael?
#b. A: Rachel likes <u>Michael</u>$_{\text{L+H·LH\%}}$
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(58) a. A: Who likes Michael?
Someone likes Michael.]-Background
b. presupp: ⊤*(Rachel likes Michael)*]-Elab]-IQAP

- So the foreground is not interesting.

One more thing

- (With thanks to Bob Ladd)

(59) a. Amy: Did you read the first chapter?
b. Bob: I read the entire <u>dissertation</u>$_{\text{H·LL\%}}$
b.′ Bob: I read the entire <u>dissertation</u>$_{\text{L+H·LH\%}}$
$\rightsquigarrow$ *I expected you to know/assume that.*

- This looks like Hindsight logic.

Cognitive Contributions of the Tunes

Tune Semantics

- The falling tune marks a proposition as *informative*.
- The fall–rise tune makes a contribution that can be glossed as: what you just said (i.e. the content of the relevant segment) leads me to believe that you do not know what I'm saying now, but I thought you did know what I'm saying now.

Formalisation

- fall: $C^{tune} = \mathcal{B}_S \neg \, \mathrm{cg}(K_f)$.
- fall–rise: $C^{tune} = C_S\big(([say_H(\alpha^r)]^{-1} \neg \mathcal{B}_S \neg \mathcal{B}_H \mathcal{K}_f) \wedge (\mathcal{B}_S \neg \mathcal{B}_H \mathcal{K}_f)\big)$.

Application

(60) a. Amy: Did you read the first chapter?
b.′ Bob: I read the entire dissertation$_{\text{L+H·LH\%}}$

$$C^{fallrise} = C_S\Big(([say_H(\alpha^r)]^{-1}\neg\mathcal{B}_S\neg\mathcal{B}_H\mathcal{K}_f) \wedge (\mathcal{B}_S\neg\mathcal{B}_H\mathcal{K}_f)\Big).$$

– First conjunct:

$\vdash$ $[s_A(\alpha^r)][s_B(\pi)]C_B[s_A(\alpha^r)]^{-1}\neg\mathcal{B}_B\neg\mathcal{B}_A\mathcal{K}_\pi$. ($C^{fallrise}$).
$\mid\sim$ $[s_A(\alpha^r)][s_B(\pi)]\mathcal{B}_B[s_A(\alpha^r)]^{-1}\neg\mathcal{B}_B\neg\mathcal{B}_A\mathcal{K}_\pi$. (Sincerity a).
$\mid\sim$ $\mathcal{B}_B\neg\mathcal{B}_B\neg\mathcal{B}_A\mathcal{K}_\pi$. (Hindsight).
$\mid\sim$ $\neg\mathcal{B}_B\neg\mathcal{B}_A\mathcal{K}_\pi$. ($\mathcal{B}_B$ is KD45).

Application (contd.)

- We have: $\neg\mathcal{B}_B\neg\mathcal{B}_A\mathcal{K}_\pi$.
- Then, the second conjunct:

$\vdash$ $[s_A(\alpha^r)][s_B(\pi)](\mathcal{B}_B\neg\mathcal{B}_A\mathcal{K}_\pi)$.

$\mid\!\sim$ $[s_A(\alpha^r)]\big((\mathcal{B}_B\neg\mathcal{B}_A\mathcal{K}_\pi \vee \mathcal{B}_B(C_B\mathcal{K}_\pi > \neg\mathcal{B}_A\mathcal{K}_\pi)\big)$. (Conservativity). The second disjunct is (normally) false, as $C_B\mathcal{K}_\pi \mid\!\sim I_A C_A\mathcal{K}_\pi$ and so $C_B\mathcal{K}_\pi > \neg\mathcal{B}_A\mathcal{K}_\pi$ clashes with Sincerity b. So:

$\mid\!\sim$ $[s_A(\alpha^r)](\mathcal{B}_B\neg\mathcal{B}_A\mathcal{K}_\pi)$. ($\vee$-Elimination).

$\mid\!\sim$ $(\mathcal{B}_B\neg\mathcal{B}_A\mathcal{K}_\pi \vee \mathcal{B}_B(C_A\mathcal{K}_{\alpha^r} > \neg\mathcal{B}_A\mathcal{K}_\pi)\big)$. (Conservativity).

$\mid\!\sim$ $\mathcal{B}_B(C_A\mathcal{K}_{\alpha^r} > \neg\mathcal{B}_A\mathcal{K}_\pi)$ ($\vee$-Elimination, given the above derivation).

$\approx$ "That you told me α^r tells me that you do not think that π."

Focus and Intonation

Irony

Irony

“Ironic Intonation”

- There is no *inherently intonational* component to irony.
- Not all ironic utterances require particular intonation.
- Not all tunes used in ironic utterances must appear only in ironic utterances.

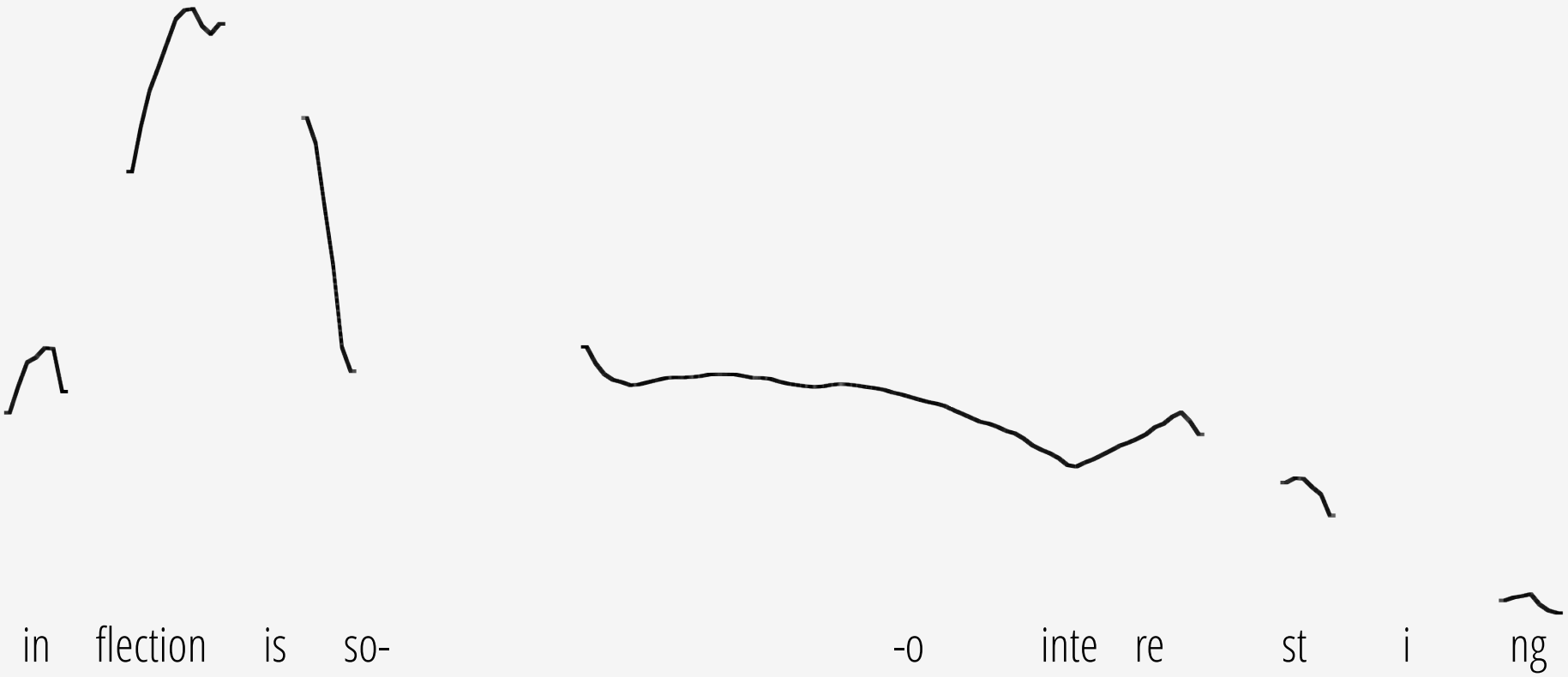
“Ironic Intonation”

- There is no *inherently intonational* component to irony.
- Not all ironic utterances require particular intonation.
- Not all tunes used in ironic utterances must appear only in ironic utterances.
- On a broad dataset of utterances, there is no particular tune that is discriminative for irony. [Bryant & Fox Tree, 2005]
- All kinds of cues are used to signal irony.

  → Gesture, facial expression, hyperbole, ...
- It seems that one only needs to somehow get the point across that one is speaking ironically.

An ironic tune

- One way to get the point across is exaggerated intonation.



- `https://www.youtube.com/watch?v=zIavvxoqxvs`

And sometimes it's *only* prosody

- However, there are cases where only intonation makes the difference.

(61) a. A: Are you going to Mike's show tonight?
b. B: I'll definitely$_{H}$ go to that.
⇝ *will go*
b.′ B: I'll ↓de-efinitely go to that.
⇝ *won't go*

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⇝ *won't go*

- It seems that an exaggerated tune with a steep fall, followed by a sustained low pitched stretch is discriminatory and seems to robustly lead to ironic readings.

- I propose to develop a formal model for irony based on data about this specific contour.

Irony

Irony and Negation

Irony and Negation

“The opposite”

- On most (all?) accounts, speaking ironically amounts to saying the opposite of what you mean.

- Joint pretense account: invite the addressee to see how absurd the utterance is. [Clark]

- Echoic account: an ironic utterance is mentioned to indicate dissent from it. [Sperber & Wilson]

- Gricean: flouting the Maxim of Quality.

“The opposite”

- On most (all?) accounts, speaking ironically amounts to saying the opposite of what you mean.

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- Gricean: flouting the Maxim of Quality.

- Implicit negation: irony is something like a negation operator.

Implicit negation

– Simple implicit negation is too weak.

(62) a. A: Are you going to Mike's show tonight?
b. B: I'll ↓de-efinitely go to that.
✗ It is **not** the case that **B will definitely go to that**.
✓ It is the case that B will **definitely not go to that**.

Implicit negation

- Simple implicit negation is too weak.

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- A general preference for contrary over contradictory negation

→ 'Not definitely' and 'definitely' are contradictory.

→ 'definitely not' and 'definitely' are contrary.

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- A general preference for contrary over contradictory negation

→ 'Not definitely' and 'definitely' are contradictory.

→ 'definitely not' and 'definitely' are contrary.

- ...is ambiguous.

(63) a. A: Are you going to Mike's show tonight?
b. B: I'll ↓de-efinitely go to that.
✓ B will **definitely not** go to that.
✗ B will definitely go somewhere **that is not that** .

It’s the position of the fall

(64) a. A: Are you going to Mike’s show tonight?
b. B: I’ll ↓de-efinitely go to that.
✓ B will **definitely not** go to that.
✗ B will definitely go somewhere **that is not that**.

(65) a. A: Are you going to Mike’s show tonight?
b. B: I’ll definitely go to ↓tha-at.
✗ B will **definitely not** go to that.
✓ B will definitely go somewhere **that is not that** .

Irony and Negation

Irony and Focus

Irony and Focus

Irony in the SDRT model for focus

Contrary Negation

Define a meta-operator for contrary negation $\sim$ as follows:

- if f is a modal or quantifier, $\sim f$ is $f\ \sim$.
- if f is on a scale, $\sim f$ is an item from the opposite end of the scale;
- if f is a bivalent predicate, then $\sim f$ is $\neg f$;
- if f is an entity, then $\sim f$ is a meta-variable such that for any predicate P, $P(\sim f) = \sim P(f)$.

Irony Rule

If an utterance is intonated with the ironic tune, and the fall is immediately preceding the constituent f and φ is the corresponding background, then presuppose $\varphi(f)$ and proffer $\varphi(\sim f)$ as an Elaboration.

Application

(66) a. A: Are you going to Mike's show tonight?
presupp: $\exists s.\texttt{of}(m,s) \wedge \texttt{show}(s)$
proffers: $?\texttt{go}(b,s)$

b.′ B: Yeah, I'll $\downarrow$de-efinitely go to that.
presupp: $\exists x_{mod}.x(\texttt{go}(b,s))$
proffers: $\sim\Box\texttt{go}(b,s) \equiv \Box\neg\texttt{go}(b,s)$

(67) a. A: Are you going to Mike's show tonight?
presupp: $\exists s.\texttt{of}(m,s) \wedge \texttt{show}(s)$
proffers: $?\texttt{go}(b,s)$

b.″ B: Yeah, I'll definitely go to $\downarrow$tha-at.
presupp: $\exists x_{entity}.\Box\texttt{go}(b,x)$
proffers: $\Box\texttt{go}(b,\sim s) \equiv \Box\neg\texttt{go}(b,s)$

(Generalised) quantifier case

(68) a. A: I'm going to flunk this course.

b. B: Just like you flunk ↓e-every course you take.

presupp: $\exists x_{GQ^{\text{course taken by A}}}.(x)y : \texttt{flunk}(A, y)$.

proffers: $\sim \forall^{\text{course taken by A}} y : \texttt{flunk}(A, y)$.

$\forall^{\text{course taken by A}} y :\sim \texttt{flunk}(A, y)$.

$\forall^{\text{course taken by A}} y : \texttt{pass}(A, y)$.

Irony and Focus

Beyond Intonation

Beyond Intonation

Irony without Prosody

(69) *Upon entering a restaurant devoid of custom.*
   a. A: Looks like a really popular place. [Cutler 1977]

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a.″ A: Looks like a ↓really popular place.

$\rightsquigarrow$ *looks like a really unpopular place*.

Irony without Prosody

(69) *Upon entering a restaurant devoid of custom.*
  a. A: Looks like a really popular place. [Cutler 1977]
  a.′ A: Looks like a ↗really popular place.
  a.″ A: Looks like a ↓really popular place.
  ⇝ *looks like a really unpopular place*.

– So why not apply the Irony Rule (i.e. implicit contrary negation scoped on the prosodic focus) to any ironic utterance?

→ where irony is cued differently.

(70) This remarkable piece of 'art' consists of a large canvas covered in mud. [Predelli 2003]

Some more interesting Counterexamples

(71) *To a driver who is driving well below the speed limit.*
a. A: I ↓re-eally appreciate cautious drivers. [Wilson 2006]

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(72) a. C: Does anybody know a good tailor?
b. J: You want to get your clothes altered?
c. C: No no no, I really want someone to draw on me with chalk. [*Friends*]

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(73) *To someone who just let a door go into A's face.*
a. A: Thanks for holding the ↗door! [anon. reviewer]

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(73) *To someone who just let a door go into A's face.*
a. A: Thanks for holding the ↗door! [anon. reviewer]

– Irony on a speech act level?

→ not-praise, not-negative-answer, not-thanking

- Readings:

- Asher, N & Lascarides, A (2013). *Strategic Conversation*. Semantics & Pragmatics. (semprag.org)

- Clark, HH & Gerrig, RJ (1984). *On the pretense theory of irony*. Journal of Experimental Psychology.