

# What sentences do

*Act 4: Intonation & rising declaratives*

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# Recap from yesterday

Our goal was to try to *derive* (some) kinds of non-canonical inferences from:

- ✦ A basic discourse effect for sentence types
- ✦ A basic semantics for sentence types
- ✦ Assumptions about what cooperativity means with respect to commitment and projection

However, we have neglected one important aspect of form:

## **intonation**

Today: intonation as a context update modifier

# Sentence-level intonation

Some sentence pairs distinguished purely by intonation:

- (1) a. Tomatoes are a fruit.
- b. Tomatoes are a fruit?

And intonation obviously can affect interpretation:

- (2) I won the lottery.  
     *High pitch excursion:* Conveys excitement  
     *Low pitch excursion:* Conveys neutrality/lack of emotivity

What do we mean by "intonation"?

- ✦ Stress?
- ✦ Pitch?
- ✦ Prosodic phrasing?

# Intonational tunes

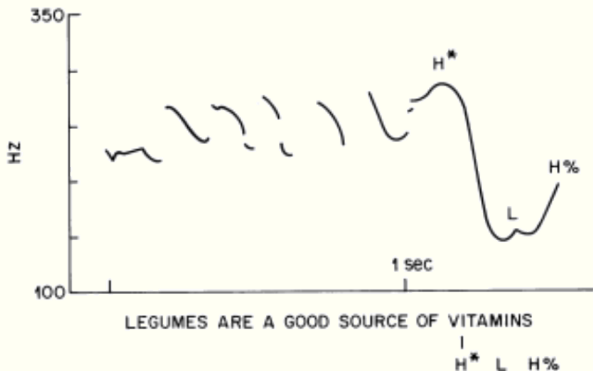
Sentence level intonation seems to matter a lot. Pierrehumbert's notation:

- ✦ Sentences associated with an abstract intonational pattern, consisting of a sequence of tones
  - ✦ Two levels: **H**igh and **L**ow
  - ✦ One tone in the tune has **nuclear stress** \*
  - ✦ One tone in the tune marks the **end of an intonational phrase** %
  - ✦ Other tones: pitch accents, which may consist of a short two-tone sequence (H, L, H-H, H-L, L-L, L-H)

Simplifying assumption for our purposes: the entire tune of a sentence is independently meaningful (rather than compositional)

# Examples

From Pierrehumbert & Hirschberg (1990):

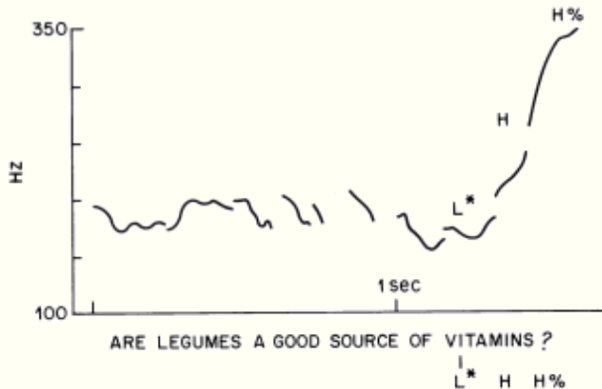


**Figure 14.1**

Falling-rising pattern on *vitamins*. Reprinted from Pierrehumbert 1980.

# Examples

From Pierrehumbert & Hirschberg (1990):



**Figure 14.2**

Rising pattern on *vitamins*. Reprinted from Pierrehumbert 1980.

# Typical intonational tunes

Falling declaratives: H\* L-L%

(3) Genevieve is lost at sea.

⇒ Typically assumed to be the unmarked intonational tune

Polar interrogatives: L\* H-H%

(4) Are you sure she was on the *Titanic*?

# Is there one ‘rising declarative’?

Jeong (2018): There are actually two different tunes associated with RDs with distinct meanings

**‘Inquisitive RDs’:** L\* H-H% (same as polar interrogatives!)

(5) A: Deniz’s rendition of ‘Wuthering Heights’ at karaoke was beautiful.

B: He can sing?

≈ A biased question about whether he can sing

**‘Assertive RDs’:** H\* H-H%

(6) A: Does Deniz have any hidden talents?

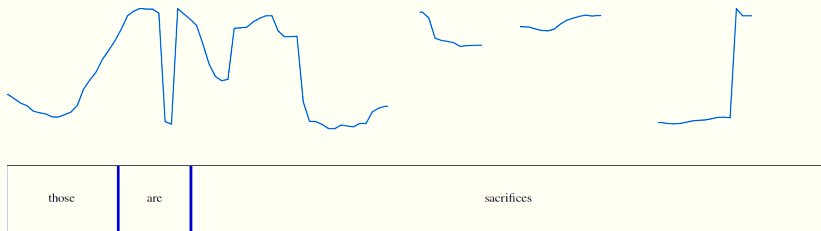
B: He can sing?

≈ An assertion which B is not sure is relevant/appropriate

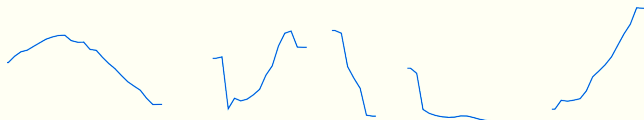
(Some debate about whether this is accurate.)



# Inquisitive RD depicted



# Assertive RD depicted



those

are

sacrifices

# For today

**Goal:** See whether we can account for properties of RDs in our Table model + pragmatics framework.

We'll focus more on inquisitive RDs for a few reasons:

- ✦ They occur more frequently
- ✦ Their meaning is less obviously declarative-like, so they are more of a problem for our theory
- ✦ There is some debate whether the two contours are representationally distinct (see Goodhue 2021)

# Properties of Rising Declaratives

# Non-assertiveness

RDs don't seem to be trying to convince the addressee of  $p$ :

- (7)     a.    (*A sees Carrie's Instagram story where she talks about being out of work.*)  
              A: Carrie got fired↓.  
              B: Thanks for letting me know.
- b.    A: Carrie got fired↑?  
              B: #Thanks for letting me know.
- c.    A: Did Carrie get fired?  
              B: #Thanks for letting me know.

# Addressee solicitation

Like canonical polar interrogatives, RDs can be followed up by positive/negative responses, but not by raising related issues.

- (8) A: Did Laura Palmer die in mysterious circumstances?  
B: Yes she did/No she didn't.  
B': #Did you know that other high schoolers in the area have gone missing?
- (9) A: Laura Palmer died in mysterious circumstances?  
B: Yes she did/No she didn't.  
B': #Did you know that other high schoolers in the area have gone missing?
- (10) A: Laura Palmer died in mysterious circumstances.  
B: Yes she did/No she didn't.  
B': Did you know that other high schoolers in the area have gone missing?

# Speaker bias

Speaker often seems to display some expectation that  $p$  is true, bias often hard-coded into RD meaning e.g. Krifka (2015); Malamud & Stephenson (2015):

- (11) [*Sp's normally shaggy coworker comes in with a shaved head.*]  
You got a haircut? (Gunlogson 2001)
- (12) [*Double-checking dinner plans*]  
We're meeting at Bikers Beer Bar at 7?

But RDs are also compatible with negative speaker bias:

- (13) [*Ad is showing Sp the cheap white tube socks she got her girlfriend for Christmas.*]  
That's a Christmas present?
- (14) [*Student drawing a syntax tree labels "cat" as a preposition.*]  
Teacher: "Cat" is a preposition?

# Addressee bias

On the other hand, RDs seem to require *Sp* to require *Ad* bias for *p*:

- (15) [*Sp is talking with his normally shaggy coworker on the phone about grooming habits.*]  
#You got a haircut?
- (16) [*Ad is showing Sp the cheap white tube socks she just bought.*]  
#That's a Christmas present?



# RDs: Empirical summary

(English) Rising declaratives:

- ✦ Are non-assertive
- ✦ Are compatible with a range of speaker biases, up to just short of full commitment
- ✦ Require addressee bias for  $p$
- ✦ Solicit a response from  $Ad$

# Approaches to RDs

# Contribution of rising intonation

**Option A:** Rising intonation signals lack of speaker commitment (in some way)  
(Westera 2018; Goodhue 2021; Rudin 2022, a.o.)

- ❖ Rudin: No commitment at all
- ❖ Goodhue: No commitment to some  $q$  (by default sentence radical)
- ❖ Westera: Suspension of adherence to Quality

**Option B:** RDs have special discourse effects, but not compositionally (Gunlogson 2008; Malamud & Stephenson 2015; Farkas & Roelofsen 2017; Jeong 2018, a.o.)

- ❖ Malamud & Stephenson: Rising declaratives put some metalinguistic issue on the Table
- ❖ Gunlogson/Jeong: RDs attribute (projected) commitment to  $Ad$ , not  $Sp$
- ❖ Farkas & Roelofsen: RDs conventionally signal  $Sp$ 's low credence in  $p$

# The road less traveled

Option B is plausible but does not help us much with investigating the form-meaning mapping:

- ✦ Hard-coding construction-level update effects into RDs is in opposition with deriving those effects

Option A provides reasoning with more broad-ranging predictive power.

- ✦ If intonation contributes something *per se* to RDs, perhaps it also does elsewhere

Can we reconcile RD effects with Rudin's maxims, given Option A?

## Reminder: Rudin's maxims

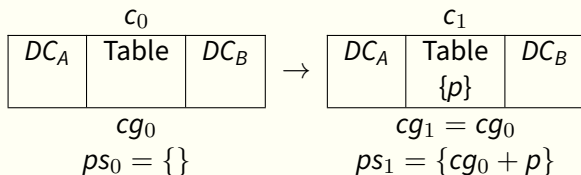
1. SINCERITY: Don't commit to propositions you don't believe
2. PUBLICITY: If you add something to the Table that you believe, commit to it
3. VIABILITY: Don't project future common grounds incompatible with any conversational participant's beliefs/commitments
4. COMPREHENSIVENESS: Don't project future common grounds that rule out extra plausible worlds from the context set

# Option A and Rudin's maxims

## Commitmentless declarative update

When is this utterance cooperative?

- (17) **Abernathy**, to **Bogart**: *That's a Christmas present?* ( $p = \text{that's a Christmas present}$ ).



# RD cooperativity

$p \uparrow$	SIN	PUB	VIA	COMP
$\langle sp(p), ad(p) \rangle$		*		
$\langle sp(p), \neg ad(p) \rangle$		*		
$\langle sp(p), ad(\neg p) \rangle$		*	*	
$\triangleright \langle \neg sp(p), ad(p) \rangle$				
$\langle \neg sp(p), \neg ad(p) \rangle$				*
$\langle \neg sp(p), ad(\neg p) \rangle$			*	*
$\langle sp(\neg p), ad(p) \rangle$			*	
$\langle sp(\neg p), \neg ad(p) \rangle$			*	*
$\langle sp(\neg p), ad(\neg p) \rangle$			*	*

- ★ RDs are felicitously uttered iff  $Sp$  has the right beliefs about  $p$  and the right beliefs about  $Ad$ 's beliefs about  $p$
- ❖ PUBLICITY violated if speaker believes  $p$ , since they fail to commit to  $p$
- ❖ VIABILITY violated if either  $Sp$  or  $Ad$  believes  $\neg p$ , since  $cg + p$  is not a viable future
- ❖ COMPREHENSIVENESS violated unless at least one of  $Sp$  and  $Ad$  believes  $p$
- ❖ Only remaining option: speaker not sure whether  $p$ ,  $Ad$  believes  $p$

Intuition that rising intonation ‘calls off’ commitment. Does this help us make sense of other cases?

- (18) A: Where should I go on vacation next month?
- a. Go to Des Moines. #Go to Enschede. #Go to Zagreb.
  - b. Go to Des Moines? Go to Enschede? Go to Zagreb?



# Conclusion/open questions

Our emergent framework for utterance interpretation provides a clear slot for intonation as an **update modifier**

- ✦ RDs have a **compositional** discourse effect: what we expect from rising intonation + declarative syntax

Some open problems:

- (19)      a. #Who is coming to the party↑?  
            b. #How do you change a bike tire↑?

Languages where RDs are ‘neutral’ (no required bias)?

**Tomorrow:** Cross-linguistic issues in sentential semantics/pragmatics & areas of current research

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