Deriving the Diversity of Contrastive Topic Realizations

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Big Picture

- Cross-linguistically, information structure has wide range of effects on shape and pronunciation of sentences.

- How should we understand this variation?

- <u>Big Questions</u>:

○ How is the structure of discourse represented in mind and in grammar?

○ What kinds of discourse-sensitive meanings do languages express?
  Are there common structural mechanisms underlying these expressions?

○ Can the reflexes of information structure tell us something about the architecture of grammar?

  How are prosody and meaning related?
  What S-side material is accessible to the phonology?

Today

- Looking at contrastive topic (CT) constructions

(1) Only a few words account for the overwhelming bulk of words used in a language. [...] This is, of course, a welcome situation for getting one's feet wet in a language. But **the *second* consequence of Zipf's law is troubling** for those who would master the reading of languages.

— Ernest Blum, *American Scholar* 77(4)

- We find CT marked by word order, intonation, and/or particles

- **Goal**: A unified theory of CT that...
  - captures its meaning
  - can derive all these realizations

Methodology

- Typologically driven:
  - Analysis of one language informs analysis of another
  - e.g. discourse particles in one language can inform possible analyses of intonation contours in another

- Cross-subfield, with emphasis on interfaces:
  - Semantic account informs phonological account and vice versa

Roadmap

1. What is contrastive topic?
2. Büring's theory of CT
3. Topic Abstraction theory of CT
4. Reflexes of CT structure

What is Contrastive Topic?

Contrastive Topic and Exhaustive Focus

(2) A: What about Persephone and Antonio?
   What did *they* bring?

   B: [*Persephone*]$_{CT}$ … brought [the *gazpacho*]$_{Exh}$.
      L+H* L-H%   H* L-L%

- Exhaustive Focus (Exh) answers a question

- Contrastive Topic (CT) is what current question is about, implies other question(s) about different topic(s)

CT+Exh, Exh+CT and Lone CT

(2) A: What about Persephone and Antonio?
   What did *they* bring?

   B: [*Persephone*]$_{CT}$ … brought [the *gazpacho*]$_{Exh}$.　　**CT+Exh**
   　　L+H* L-H%　　　　　　　　　　　H* L-L%

(3) A: What about the gazpacho and the salad?
   Who brought *those*?

   B: [*Persephone*]$_{Exh}$ brought [the *gazpacho*]$_{CT}$ …　　**Exh+CT**
   　　H*　　L-　　　　　　　　　L+H* L-H%

(4) A: What about Persephone and Antonio?
   Did *they* bring anything?

   B: [*Persephone*]$_{CT}$ brought something …　　　　　　**Lone CT**
   　　L+H*　　　　　　　　　　　L-H%

Lone CT

- Can "Lone CT" be covered under a general theory of CT?

- Yes? (Jackendoff 1972, Büring 2003, Constant in prep.)

- No? (Wagner 2012, Constant 2012a)
- Treat these examples separately as "Rise-Fall-Rise"

- Answer for today: Yes

CT Realizations

- **Prosody**
  - English   (Jackendoff 1972)
  - German   (Büring 1997)

- **Discourse Particle**
  - Japanese   (Tomioka 2010b)
  - Korean   (Lee 2003)
  - Mandarin   (Constant 2011)
  - Paraguayan Guaraní   (Tonhauser 2012)
  - Russian   (Lee 2003)
  - Dholuo   (Constant 2009)

- **Word Order**
  - Hungarian   (Gyuris 2002)
  - Czech   (Sturgeon 2006)
  - Italian   (Frascarelli and Hinterhölzl 2007)

German Bridge Contour

- Rise on CT (L* H)
- Fall on Exh (H* L)
- High plateau in between

(5) (And *Fred*? What did *he* eat?)   (Wagner 2012)

    /*Fred* hat die *bohnen*\ gegessen.   **CT+Exh**
     Fred has the beans   eaten
    '[Fred]$_{CT}$ ate [the beans]$_{Exh}$.'

(6) (And the *beans*? Who ate *those*?)   (Wagner 2012)

    a. #*Fred* hat die *bohnen* gegessen.   **#Exh+CT**
       Fred has the beans   eaten

    b. Die /*bohnen* hat *Fred*\ gegessen.   **CT+Exh**
       the beans   has Fred   eaten
       '[The beans]$_{CT}$, [Fred]$_{Exh}$ ate.'

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Mandarin CT *-ne*

- Positions of CT *-ne*
  - Directly following topicalized CT phrases
  - Sentence-final when CT remains in situ (Constant 2011)

(7) 妈妈　 每天　　 晚上　　 很　 晚　 才　　　 回家。
    Māma měi-tiān wǎnshàng hěn wǎn cái　　 huí-jiā.
    mom every-day night　　 very late only.then return-home

　　 爸爸　 呢，干脆　 就　 不　 回来。
　　 Bàba **ne**, gāncuì jiù bù huí-lái.
　　 dad CT simply just not return-come

'Every day mom doesn't come home until late.　　　 (Shao 1989: 174)
[Dad]$_{CT}$ **NE**, [doesn't even come back at all]$_{Exh}$.'

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Czech CT Position

- CT moves to fixed position in left periphery (Sturgeon 2006)

(8) Svůj sešit   jsem   ztratil,
    self's notebook.ACC AUX.1SG.CL lost
       ale svou učebnici   ještě mám.
       but self's textbook.ACC still   have

    '[My notebook]$_{CT}$, I [lost]$_{Exh}$, but [my textbook]$_{CT}$, I [still have]$_{Exh}$.'

- Below aboutness topic, above focus
- Optionally resumed by a pronoun
- CT or resumptive usually receives rising intonation

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Büring 2003

CT- and F- Marks

- $[\cdot]_{CT}$ and $[\cdot]_F$ marks in the syntax

(9) $[Fred]_{CT}$ ... ate $[$the $beans]_F$.
    L+H* L-H%   H* L-L%

- <u>Realization</u>

    $[\cdot]_F \rightarrow$ H*   L- L%
    $[\cdot]_{CT} \rightarrow$ L+H* L- H%

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Discourse Trees

- Roberts' (1996) question under discussion (QUD) stack model of discourse

(10)

"The Big Question"

What do you like? Wanna go for coffee?
|
Sure!

What foods do you like? Do you like rainy days?

You like beets? You like goat? Cold rainy days? Warm rainy days?
| | | |
No, yuck!   Never had it.   No!   Yes!
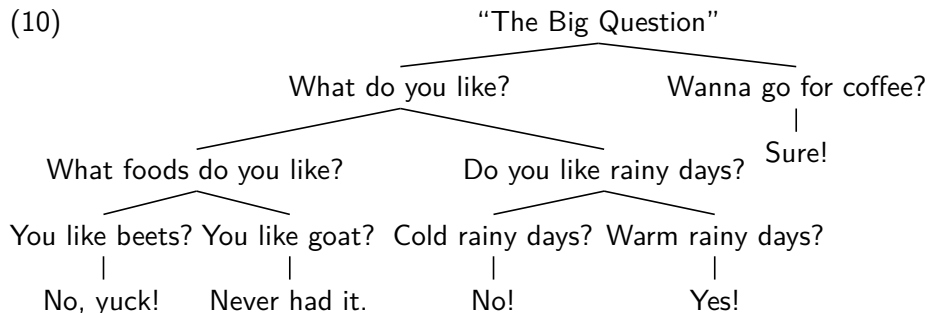
- "Strategy": a set of sub-questions addressing a common larger question

CT Meaning

- CT Congruence (informal):
  1. Replace F-marked phrases with variables $\quad\rightarrow$ a question
  2. Replace CT-marked phrases with variables $\quad\rightarrow$ a set of questions
  3. Discourse contains strategy of ≥ 2 questions from this set
  4. We're answering one question from this strategy, but others are salient

(11) a. $[\,\text{Fred}\,]_{CT}$ ate $[\,\text{the beans}\,]_F$.

 b. $[\,\text{Fred}\,]_{CT}$ ate x. $\quad\rightarrow$ What did Fred eat?

 c. What did x eat? $\quad\rightarrow$ {What did Ann eat? What did Bob eat? …}

(12) Who ate what?

What did Fred eat? What did Mary eat?

Fred ate beans. Mary ate pasta.
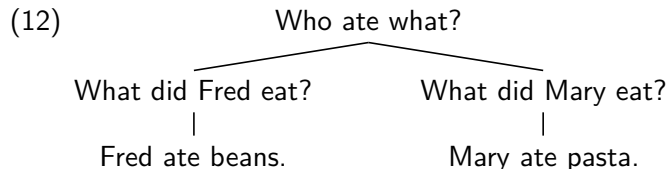
Semantic Problems (1/2)

- Predicts no CT in questions

- But CT is attested in questions in…
    - Czech   (Sturgeon 2006)
    - Japanese   (Tomioka 2010a)
    - Mandarin   (Constant 2012b)
    - Turkish   (Kamali and Büring 2011)

(13) 去   德国   怕   受   瓜田之嫌,
      Qù Déguó   pà shòu   guātiánzhīxián,
      go Germany fear receive suspicion

         那么   别的   国家   行不行   呢?
         nàme *biéde* guójiā   xíng-bù-xíng   **ne**?
         then   other country okay-not-okay CT

      'If going to Germany would arouse suspicion,
       would [*other* countries]$_{CT}$ be okay **NE**?'

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Semantic Problems (2/2)

- Requires a new dimension of meaning $[\![\cdot]\!]^{ct}$ with an independent set of composition rules

- Since CT is interpreted in-situ, doesn't capture the limited island-sensitivity of CT

(14) (What about *Mary*? Which of *her* drawings was the best?)
     ??The drawing that $[\,Mary\,]_{\text{CT}}$ ... did of $[\,Fred\,]_{\text{Exh}}$ was the best.

- Makes the wrong predictions about sentences containing multiple CT's

(15) $[\,\text{On } Sundays\,]_{\text{CT}}$ ... $[\,Fred\,]_{\text{CT}}$ ... $[\,\text{stays } home\,]_{\text{Exh}}$.

Interface Problems (1/2)

- Realization

  $[\, \cdot \,]_\mathsf{F} \quad \to \quad$ H*   L- L%
  $[\, \cdot \,]_\mathsf{CT} \to$ L+H* L- H%

- Stipulative mapping, bypasses standard views of syntax-phonology interface

- What determines position of rising CT boundary tone (L-H%)?
- CT-marking "realized by a boundary tone <u>on the constituents so marked</u>".

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Interface Problems (2/2)

- But the L-H% boundary *doesn't* track the CT:

(16) (What about the Fred and Mary? Did *they* bring anything?)

    [*Mary*]$_{CT}$ brought something …
     L+H*   **L-H%**

(17) (What about Fred and Mary? Did *they* bring anything tasty?)

    a.   The dish that [*Mary*]$_{CT}$ brought … was [*superb*]$_{Exh}$.
                     L+H*   **L-H%**   H* L-L%

    b. * The dish that [*Mary*]$_{CT}$ … brought was [*superb*]$_{Exh}$.
                     L+H* **L-H%**   H* L-L%

- Similarly, CT particles don't always track or robustly identify CT phrase:
  - Japanese   (Davis 2010)
  - Mandarin   (Constant 2011)
  - Paraguayan Guaraní   (Tonhauser 2012)

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The Topic Abstraction Account

Configurational Theories (1/3)

- Recent theories of CT aim to do without $[\cdot]_{CT}$ marks
- **Idea**: CTs are just F-marked phrases in specific configurations

- $[\cdot]_F$ marks alternative-generating focus (Rooth 1985)
- Focus-sensitive operators can use alternatives to different effects

(18) a. David only wears a bow-tie when [*teaching*]$_F$.   (Beaver & Clark '08)

   b. David only wears [a *bow-tie*]$_F$ when teaching.

(19) David even wears [a *bow-tie*]$_F$ when teaching.

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Configurational Theories (2/3)

- F-marking has general reflexes in phonology (Selkirk 1984 et seq.;
  Truckenbrodt 1995, 1999; Schwarzschild 1999, many others…)

- Focus Interpretation (Rooth 1996)
  - Compute focus values $[\![\cdot]\!]^f$ by substituting in F-marked positions
  - Squiggle ($\sim$) operator relates focus values to discourse antecedents

(20) $[\![[\text{Ede}]_\text{F} \text{ wants coffee.}]\!]^f$
   $= \{\text{Ann wants coffee, Bob wants coffee, …}\}$
   $=$ "Who wants coffee?"

- Squiggle will require the context contain a question "Who wants coffee?"

Configurational Theories (3/3)

(21)   Tomioka 2010b

$CT_{1,2}$

Assert

Exh_3

$[Fred]_{F_1}$ ate $[the\ beans]_{F_{2,3}}$

(22)   Wagner 2012

FOCUS

λ_1

FOCUS

λ_2

$[Fred]_F$ ate $[the\ beans]_F$

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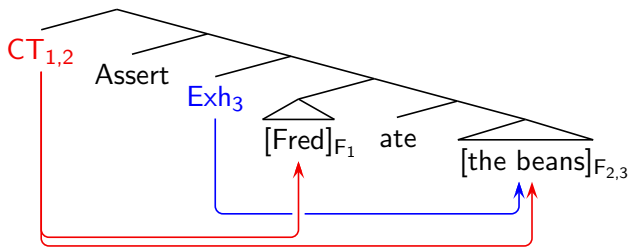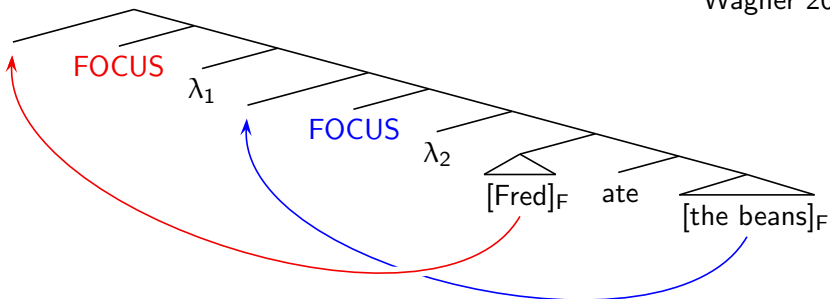
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But how do these structures get mapped onto CT realizations?

Topic Abstraction

- CT phrase interpreted at CT operator position

- CT operator creates "set of question" meanings

- e.g. $[\![\text{Fred}_F \text{ CT}_3 \ t_3 \text{ ate the beans}_F]\!]^f = \left\{ \begin{array}{c} \text{What did Ann eat?} \\ \text{What did Bob eat,} \\ \cdots \end{array} \right\}$

- Rooth's squiggle ($\sim$) relates these meanings to discourse anaphors

Advantages of Topic Abstraction Semantics

- Conceptual
  - Capitalizes on existing models of focus
  - Does without CT-marks and CT congruence condition

- Empirical
  - Extends to CT marking in questions
  - Captures asymmetries in multiple CT
  - Predicts limited island sensitivity of CT

- But how does this structure get spelled out?

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Reflexes of CT Structure

CT Movement

- If movement to CT operator is overt, we predict languages with fixed CT position

- Czech, Italian, Hungarian are "CT movement" languages
- English and German allow "CT in-situ"

The Challenge

(23) a. ↰ CT I gave [Fred]_F [the beans]_F   CT+Exh

    b. ↰ CT I gave [Fred]_F [the beans]_F   Exh+CT

$$\Downarrow$$

(24) a. I gave $[\textit{Fred}]_{\text{CT}}$ ... $[\text{the } \textit{beans}]_{\text{Exh}}$.
           L+H* L-H%   H* L-L%

    b. I gave $[\textit{Fred}]_{\text{Exh}}$ $[\text{the } \textit{beans}]_{\text{CT}}$ ...
           H*   L-   L+H* L-H%

• Phrase associating with CT → L+H* L-H% ??

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Pronouncing the CT Operator

- **Idea**: CT operator lexicalized as particle (e.g. Mandarin -*ne*)

- If CT movement is overt…

(25) [Fred]$_F$ CT t_1 ate [the beans]$_F$ CT+Exh

- Sentence-final CT via clause-movement:

(26) [[Fred]$_F$ ate the beans]$_{IP}$ CT t_1 Lone CT

- Known approach to deriving sentence-final particles
  (see e.g. Sybesma 1999, Li 2006)

- Topic abstraction semantics are insensitive to pied-piping extra material

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Dissociating CT Operator from CT Phrase

- If CT movement is covert…

- Paraguayan Guaraní =*katu* (Tonhauser 2012)
  - Second position clitic =*katu* marks utterance containing CT
  - Word order does not determine which phrase is CT

(27) A: Juana was born in Argentina. Where was Bob born?

   B: *Bob*=**katu** o-nasẽ *Estado Unido*-pe.
      Bob=CT   A3-born America-in

      '[**Bob**]$_{\textbf{CT}}$ was born in [the US]$_{\text{Exh}}$.'

(28) A: Juana was born in Argentina. Who was born in the US?

   B: *Bob*=**katu** o-nasẽ *Estado Unido*-pe.
      Bob=CT   A3-born America-in

      '[Bob]$_{\text{Exh}}$ was born in **[the US]$_{\textbf{CT}}$**.'

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English CT as IntP Clitic

- Edge Tones $\approx$ Discourse Particles (Hyman 1990, Selkirk 1995, Yip 2002)

- **Claim**: English CT operator = L-H%

- Clitics subcategorize for specific prosodic domain (Inkelas 1991)
  e.g. mora, syllable, foot, word, phonological phrase, intonational phrase

- Clitics to PhonP: Hausa, Kivunjo Chaga (Inkelas 1991)
- Clitics to IntP: Tzotzil (Aissen 1992), Kinande, Gokana (Hyman 1990)

- English L-H% selects to encliticize to IntP
- But what controls the location of the IntP edge?

Positioning the CT Boundary

- **Option #1**: L-H% induces IntP break locally

(29) a. [the beans]$_F$ CT [Fred]$_F$ ate t_4 Overt CT-Movement

     b. [The *beans*]$_{CT}$ ... [*Fred*]$_{Exh}$ ate.   ✓
         L+H* L-H%   H*   L-L%

(30) a.   CT I gave [Fred]$_F$ [the beans]$_F$ Covert CT-Movement

     b. I gave [*Fred*]$_{CT}$ ... [the *beans*]$_{Exh}$.   ✗
         L+H* L-H%   H* L-L%

- **Conclusion**: Other factors control location of IntP breaks

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Other Factors on Boundary Position (1/2)

- **Option #2**: Derive phrasing from syntax-prosody interface constraints

- Syntax-Phonology Interface (Selkirk 2011)
    - Correspondence: MATCH-CLAUSE, MATCH-XP, MATCH-WORD
    - Markedness: e.g. *INTP, *RECURSIVITY, MINBIN, …

(31) MATCH-CLAUSE   Selkirk 2011

   A clause in syntax is matched by a corresponding IntP in phonology.

(32) *INTP   Féry 2007

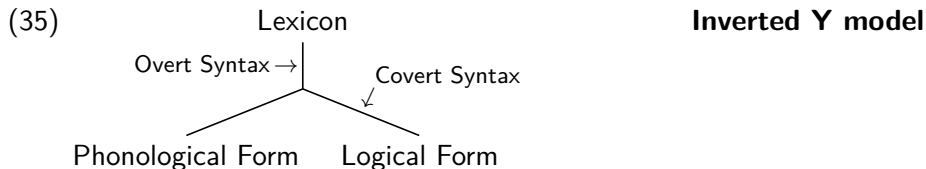   No intonational phrase. (Each incurs a penalty)

- Constraints on Focus Phrasing

(33) FOCUS-PROMINENCE (FP)   Truckenbrodt 1995

   A focus (XP_F) contains the maximal prominence within its domain.

Other Factors on Boundary Position (2/2)

- But none of these constraints distinguish (34a) from (34b)!

(34) a. ↑ CT I gave [Fred]$_F$ [the beans]$_F$ CT+Exh

    b. ↑ CT I gave [Fred]$_F$ [the beans]$_F$ Exh+CT

(35)   Lexicon   **Inverted Y model**

      Overt Syntax → | ↘ Covert Syntax

    Phonological Form   Logical Form

(36) **Copy Theory** (e.g. Bobaljik 2002)
    a. ~~[Fred]$_F$~~   CT I gave [Fred]$_F$ [the beans]$_F$
    b. ~~[the beans]$_F$~~ CT I gave [Fred]$_F$ [the beans]$_F$

Scope-Prosody Correspondence (1/3)

- **Option #3**

- **Observation**: CT operator and associate occur within one IntP

(37) **Scope-Prosody Correspondence** (SPC)

   CT operator and phrase it associates with are realized in one IntP.

- Hirotani 2005: Japanese SPC effects (wh-, quantifiers, NPIs, reflexives)

- Richards 2010: SPC could help explain typology of wh- movement and wh- prosody

Scope-Prosody Correspondence (2/3)

(38)

CT I gave **[Fred]$_{CT}$** [the beans]$_{Exh}$			SPC	FP	*INTP
a.	(x)(x)$_{PhonP}$			*!	*
	(x)$_{IntP}$				
☞ b.	(x)(x)$_{PhonP}$				**
	(x)(x)$_{IntP}$				

(39)

CT I gave [Fred]$_{Exh}$ **[the beans]$_{CT}$**			SPC	FP	*INTP
a.	(x)(x)$_{PhonP}$		*!		**
	(x)(x)$_{IntP}$				
☞ b.	(x)(x)$_{PhonP}$			*	*
	(x)$_{IntP}$				

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Scope-Prosody Correspondence (3/3)

- Moving CT over Exh satisfies FOCUS-PROMINENCE:

(40)

	[The beans]$_{CT}$ CT I gave [Fred]$_{Exh}$			SPC	FP	*INTP
a.	(x)(	x)PhonP			*!	*
	(	x)IntP				
☞ b.	(x)(	x)PhonP				**
	(x)(	x)IntP				

- Exh+CT dispreferred when topicalization available?

- Natural examples of Exh+CT often can't topicalize:

(41) [*Nobody*]$_{Exh}$ said you [*had*]$_{CT}$ to do it…

Phrasing Asymmetry?

- SPC-based account predicts more than where CT boundary goes
- It predicts interactions of CT-marking and phrasing

- **Prediction:** CT+Exh phrased separately, Exh+CT phrased together

- Transcriptions in the theoretical literature vary

- Quick Test:

(A) **NOBODY**$_{\text{Exh}}$ … got **ALL**$_{\text{CT}}$ the answers right!

(B) **SOMEBODY**$_{\text{CT}}$ … got **ALL**$_{\text{Exh}}$ the answers right!

Conclusions

- Topic abstraction account:
  - provides an attractive semantics for CT
  - has potential to derive diverse realizations from unified structure

- The account can accommodate:
  - dedicated CT positions
  - CT particles at a distance from CT phrase

- English CT intonation and phrasing derived using:
  - standard syntax-phonology interface mechanics
  - … plus a scope-prosody correspondence constraint

- Comparing languages that realize a common meaning in vastly different ways can lead to a better understanding of the linguistic structure underlying that meaning

Remaining Questions around CT

- To what degree do CT constructions convey a unitary meaning cross-linguistically?

- What are the interactions of CT marking and scope?

- Why does CT so often affect prosody cross-linguistically?

Larger Questions

- We didn't say a lot about Exh today
- How should we analyze Exh when it occurs by itself?

- What other language processes are sensitive to discourse structuring?
- And what discourse models are sufficient to explain these sensitivities?

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Appendix

Topic Abstraction Semantics

(42) **CT Operator Semantics**

    a. $[\![\mathsf{CT}_i \, \alpha]\!]^o_g = \lambda x. [\![\alpha]\!]^o_{g[i \to x]}$ Ordinary Semantic Value

    b. $[\![\mathsf{CT}_i \, \alpha]\!]^f_g = \{ \lambda x. [\![\alpha]\!]^f_{g[i \to x]} \}$ Focus Semantic Value

(43)

"[Fred]$_{\mathsf{CT}}$ ate [the beans]$_{\mathsf{Exh}}$."
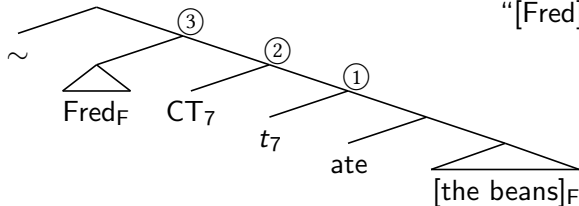
(44) $[\![①]\!]^f_g = \{\, g(7) \text{ ate the beans}, \; g(7) \text{ ate the pasta}, \; \dots \}$

    $[\![②]\!]^f = \{\, \lambda x. \{\, x \text{ ate the beans}, \; x \text{ ate the pasta}, \; \dots \} \}$

    $[\![③]\!]^f = \left\{ \begin{array}{l} \{\, \text{Fred ate beans}, \; \text{Fred ate pasta}, \; \dots \}, \\ \{\, \text{Mary ate beans}, \; \text{Mary ate pasta}, \; \dots \}, \\ \qquad \qquad \cdots \end{array} \right\}$

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Island Effects (1/2)

- CT occurs within islands:

(45) a. [*Fred*]$_{CT}$ and Mary … would be [*good*]$_{Exh}$ teammates.

   b. The drawing that [*Mary*]$_{CT}$ drew of Fred … was [*spectacular*]$_{Exh}$.

- Topic abstraction is insensitive to whether *more* than CT raises…
  … as long as the moving phrase doesn't contain an Exh focus!

- Analyze (45) as pied-piping the whole island to the CT operator position

- Japanese CT -*wa* marks *edges* of islands containing CT (Davis 2010)

Island Effects (2/2)

- **Prediction**: CT and Exh can't co-occur in an island

(46) (What about *Mary*? Which of *her* drawings was the best?)
    a. ?? The drawing that $[\textit{Mary}]_{\text{CT}}$ … did of $[\textit{Fred}]_{\text{Exh}}$ was the best.
    b. The best drawing $[\textit{Mary}]_{\text{CT}}$ did … was the one of $[\textit{Fred}]_{\text{Exh}}$.

(47) (What about *Mary*? Who should we pair *her* with?)
    a. ?? $[\textit{Mary}]_{\text{CT}}$ … and $[\textit{Fred}]_{\text{Exh}}$ would be good teammates.
    b. $[\textit{Mary}]_{\text{CT}}$ … would be a good teammate for $[\textit{Fred}]_{\text{Exh}}$.

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Multiple CT (1/3)

- Multiple CT sentences can give rise to richly structured strategies

(48) a. For each day of the week, tell me what everyone does on that day.

    b. For each person, tell me what they do on each day of the week.

(49) a. On [*Sundays*]$_{CT}$ ...   [*Fred*]$_{CT}$ ...   [*rests*]$_{Exh}$.
       L+H* L-H%   L+H* L-H%   H* L-L%

$$\left\{ \begin{array}{l} \text{But } \textit{Mary works} \text{ (on Sundays).} \\ ??\text{But on } \textit{Mondays}, \text{ he } \textit{works}. \end{array} \right\}$$

    b. [*Fred*]$_{CT}$ ...   on [*Sundays*]$_{CT}$ ...   he [*rests*]$_{Exh}$.
       L+H* L-H%   L+H* L-H%   H* L-L%

$$\left\{ \begin{array}{l} \text{But on } \textit{Mondays}, \text{ he } \textit{works}. \\ ??\text{But } \textit{Mary works} \text{ (on Sundays).} \end{array} \right\}$$

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Multiple CT (2/3)

- Büring 2003 collapses all CTs to a single level of structure:

(50) $[\![$ on [Sundays]$_{CT}$ [Fred]$_{CT}$ [rests]$_F$ $]\!]^{ct} =$

$[\![$ [Fred]$_{CT}$ on [Sundays]$_{CT}$ [rests]$_F$ $]\!]^{ct} =$

$$\left\{ \begin{array}{l} \{\text{Fred rests on Sundays, Fred works on Sundays, } \dots\}, \\ \{\text{Mary rests on Fridays, Mary works on Fridays, } \dots\}, \\ \quad\quad\quad\quad\quad\quad\quad \dots \end{array} \right\}$$

$=$ 'For each day/person pair, what does that person do on that day?'

- Topic abstraction can create arbitrarily nested focus values:

(51) a. $[$ On *Sundays* $]_{CT}$ … $[$ *Fred* $]_{CT}$ … $[$ *rests* $]_{\text{Exh}}$.

b. $[\![$ on Sundays$_F$ CT$_2$ Fred$_F$ CT$_1$ [t$_1$ rests$_F$ t$_2$] $]\!]^f$

$=$ 'For each day… [For each person, what do they do?]'

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Multiple CT (3/3)

- Multiple CT particles attested in Japanese (Yabushita 2008), Dholuo

- Position of multiple CTs in Dholuo appears to reflect their relative scope:

(52) A: Which seller's vegetables do you like the best?   Constant 2009

   B: Buth   Ochieng mit ahinya, to apodhe   to ok mit.
      pumpkin.POSS Ochieng tasty very   but okra.POSS CT not tasty
      Awiti **to** odiende   **to** a-hero, to omboke   to ok
      Awiti CT cactus.POSS CT 1SG-like but amaranth.POSS CT not
      a-hero.
      1SG-like

      'Ochieng's *pumpkin* is delicious, but his *okra* is not good.
      [*Awiti*]$_{CT}$, [her *cactus*]$_{CT}$, I like, but her *amaranth* I don't.'

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