

# Topics in Minimalist syntax and the interfaces

## Day 1: How abstract is our syntax?

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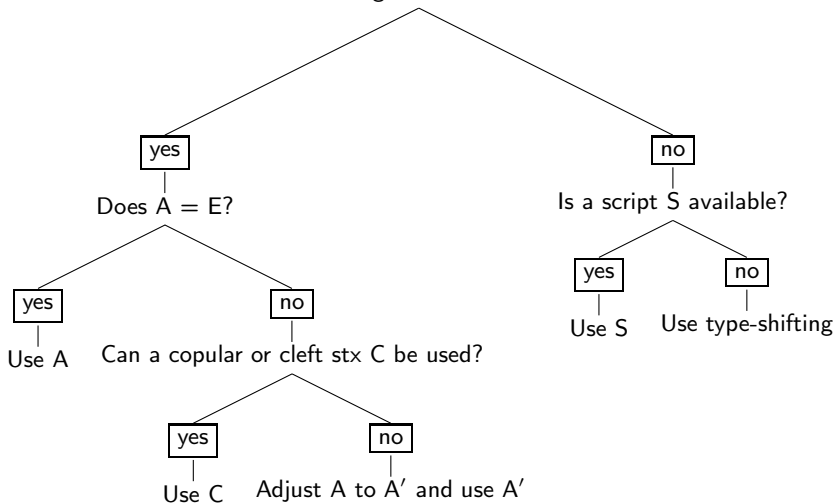
# A new algorithmic resolution approach to ellipsis

To resolve an ellipsis E:

- (1)
  - a. If there is a linguistic antecedent A available for the ellipsis, and if A has the right form,
    - i. then use A (e-givenness plus some syntactic identity)
    - ii. else if a copular or cleft structure C can be inferred, use C
    - iii. else adjust A to A' and use A' (accommodation)
  - b. Else (if there no linguistic antecedent)
    - i. if a script is available, use its modes
    - ii. else, use slot-filling (type-shifting)
- (2) Maximize the conventional aspects of a context, where 'conventional' includes linguistic antecedents.
- (3) Cf. "Interpretive Economy": Maximize the contribution of the conventional meanings of the elements of a sentence to the computation of its truth conditions.

# A new algorithmic resolution approach to ellipsis

Stochastic ranked decision tree for resolving a putative ellipsis E:  
Is there a linguistic antecedent A?



# Syntactic ontology: A battle for the soul of syntax

= What's in our syntax?

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## Null hypothesis: **Surfacism:**

- 1 Words and their parts
- 2 Phrase markers (groups of words)
- 3 Constrained relations among these (a system to regulate the combinatorics)

# Syntactic ontology: A battle for the soul of syntax

= What's in our syntax?

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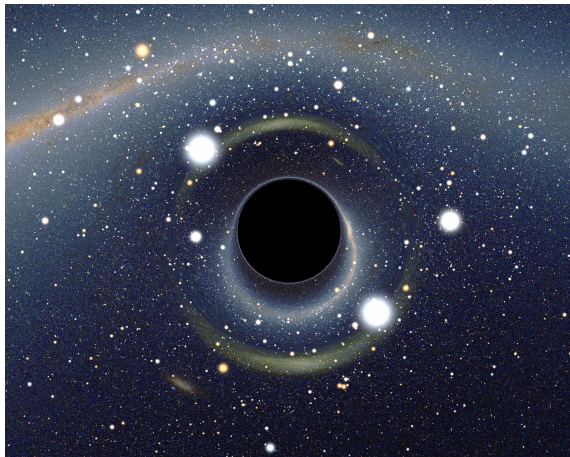
## Non-null hypothesis: **'Abstract' syntax**

- Phonologically inactive ('abstract') versions of 1 and 2

What's the evidence for the latter, and how secure are these conclusions?

# The **structure** question

- (4) In elliptical constructions, is there syntactic structure that is unpronounced?



studying ellipsis ~ studying black holes

# The battlefield: Ellipsis

Strings of words that appear not to be sentences can have sentential meaning:

(5) Bill should collect butterflies. Jill should, too.

=

(6) Bill should collect butterflies. Jill should **collect butterflies**, too.

How can *Jill should* mean *Jill should collect butterflies*?



# The **identity** question

- (7) What is the relationship between the understood material in ellipsis and its antecedent?

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- ① The antecedent VP is identical to the elliptical structure.

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- (9) What is the relationship between the understood material in ellipsis and its antecedent?
- 1 The antecedent VP is identical to the elliptical structure.
  - 2 The 'missing VP' is 'recovered' or 'resolved' under *identity* (or under 'parallelism') to an (actual or inferred) antecedent

- (10) What is the relationship between the understood material in ellipsis and its antecedent?
- 1 The antecedent VP is identical to the elliptical structure.
  - 2 The 'missing VP' is 'recovered' or 'resolved' under *identity* (or under 'parallelism') to an (actual or inferred) antecedent
  - 3  $VP_A = VP_E$  or  $\llbracket VP_A \rrbracket = \llbracket VP_E \rrbracket$  or  $VP_A^d = VP_E^d$  or  $\mu(VP_E) \subset \mu(VP_A)$ , or some combination or refinement?

# The battlefield: Ellipsis

Question: Is identity *perfect*?

# The battlefield: Ellipsis

Question: Is identity *perfect*?

Answer: Apparently not....

## 40 years of mixed results

<i>Imperfect matches</i>	<i>Perfect matches</i>
voice in English VP-ellipsis	voice in sluicing
ellipsis in code-switching?	ellipsis in code-switching
tense morphology in VPE	Warner's facts about <i>be</i>
gerunds=nonfinites etc.	scope facts, Dahl puzzles
copular/cleft/spading analyses (cuál <es con la que habló>, wou da <was da Jef gezien eit>)	structural facts ( <i>Abby hates visiting relatives, and Ben does too</i> : 2- not 4-ways ambig)
Malagasy voice switches	
category switches (robber vs thief, refusal > refuse)	
implicit arguments in sluicing	
polarity <i>no/any/some</i> etc.	
'vehicle change'	
missing expressives	
island repair, extractions	
$\phi$ -feature agrmt (& sloppy id) (Juan es alto, y Maria también)	
disjunctive sluices	
Pom-Pom answers (Lipták 2017)	

# The upshot

If the identity (or 'recoverability') condition on ellipsis includes at least some syntactic identity component (in addition to or instead of a semantic component), then



# The upshot

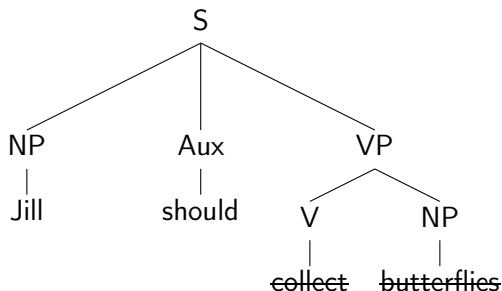
If the identity (or 'recoverability') condition on ellipsis includes at least some syntactic identity component (in addition to or instead of a semantic component), then

*abstract* syntactic structures exist

## Some hypotheses

### Hypothesis A: Deletion

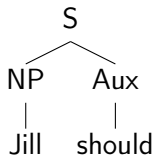
Full sentence structure, but part of the sentence is unpronounced.



The missing words are not really missing.

If the deletion/copying analysis is correct, elliptical material has abstract structure, but no pronunciation.

Hypothesis B: WYSIWYG (or better, WYHIWYG) structure  
The missing words are really missing.



Context fills in the missing parts of the meaning.

		Is there syntax in the ellipsis site?	
		Yes	No
Is identity syntactic or semantic?	Syntactic	Sag 1976, Williams 1977, Fiengo & May 1994, Chung et al. 1995, Fox 2000, etc.	N/A (incoherent)
	Semantic	Sag and Hankamer 1984, Merchant 2001, van Craenenbroeck 2010, Griffiths 2017, Lipták 2017, etc.	Keenan 1971, Hardt 1993, Dalrymple et al. 1991, Ginzburg & Sag 2000, Culicover & Jackendoff 2005, etc.
	Both/hybrid	Kehler 2002, Chung 2013, Merchant 2013, etc.	N/A (incoherent)

Table: Some previous research on the two ellipsis questions

## In search of structure: Domains of evidence

- (11) a. Lower origin effects
- b. Locality effects
- c. Distribution of complementizers
- d. Distribution of infinitivals
- e. Distribution of predicate answers
- f. Agreement
- g. Case (also under code-switching)
- h. Voice mismatches
- i. Preposition-stranding
- j. Syntactic priming
- k. Binding theoretic effects (Ott 2014, Ott and de Vries 2015)
- l. Intermediate reconstruction effects in sluicing (Agüero-Bautista 2007)
- m. 'spading' (evidence for an underlying cleft, as van Craenenbroeck 2010 argues)
- n. the licensing of parasitic gaps inside ellipses (Yoshida et al. 2015)

## Lower origin effects

(12) **Null Complement Anaphora:**

We asked Anna to review these five films, and she agreed. (sc. to review them)

- (13) \*We need to know which films Anna refused to review, and which ones she agreed.

## Lower origin effects

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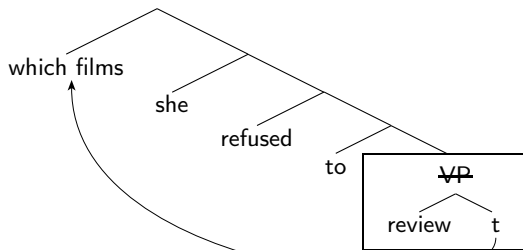
(17) \*We need to know which films Anna refused to review, and which ones she agreed.

(18) **VP-ellipsis:**

a. We need to know which films Anna refused to review, and which ones she agreed to.

b. We need to know which films Anna agreed to review, and which ones she refused to.

(19)



## Lower origin effects

- (20) Everyone<sub>1</sub> remembered that they<sub>1</sub> loved their<sub>1</sub> parents.  
No-one<sub>2</sub> forgot. (that they<sub>2</sub> loved their<sub>2</sub> parents)
- (21) But [*De Amicitia*]<sub>3</sub> I could make a stab at *t*<sub>3</sub>, and could have ~~made~~  
~~a stab at *t*<sub>3</sub>~~ at any time in the last thirty-four years.  
(Wallace Stegner, 1987, *Crossing to Safety*))
- (22) Dúirt mé go gceannóinn é agus cheannaigh<sub>V</sub> [~~VP mé *t*<sub>V</sub> é~~].  
said I that buy.Condit.1s it and bought

'I said that I would buy it and I did.' (McCloskey 1991:273)



- (23)
- a. \*I read every book you introduced me to a guy who did.
  - b. \*Abby wants to hire someone who speaks a Balkan language, but I don't remember which (Balkan language) Ben does.  
<want to hire someone who speaks *t* >
  - c. \*Abby knows five people who have dogs, but cats, she doesn't  
<know five people who have>.
  - d. \*Which film did you refuse to see because Roger was so revolted when he did after renting?

## Locality effects: Contrast sluicing

- (24) She knows a guy who has *five dogs*, but I don't know how many *cats*.
- a. = <he [=the guy who has the five dogs] has *t*>
  - b. ≠ <she knows a guy who has *t* ]>

## Locality effects: Fragment answers

- (25) a. Will each candidate talk *about taxes*?  
b. No, *about foreign policy*.  
c. No, each candidate will talk *about foreign policy*.
- (26) a. Did each candidate<sub>2</sub> agree on who will ask her<sub>2</sub> *about taxes* (at tonight's debate)?  
b. \*No, *about foreign policy*.  
c. No, each candidate<sub>2</sub> agreed on who will ask her<sub>2</sub> *about foreign policy* (at tonight's debate).

# Complementizer deletion

- (27) What does no-one believe?  
#(That) I'm taller than I really am.  
a. No-one believes (that) I'm taller than I really am.  
b. \*(That) I'm taller than I really am, no-one believes.
- (28) What are you ashamed of?  
\*(That) I ignored you.  
a. \*I'm ashamed of that I ignored you.  
b. That I ignored you, I'm ashamed of.

## Infinitivals: Raising vs. control

- (29) a. \*It's [to get jobs in Europe] that the migrants tend.  
b. Q: What do the migrants tend to do?  
A: \*To get jobs in Europe.
- (30) a. It's [to get jobs in Europe] that the migrants want.  
b. Q: What do the migrants want to do?  
A: To get jobs in Europe.

This is expected if the control CP can be fronted, but the raising TP cannot be; see Landau 2013.

- (31) a. A: What did he do for his sister?  
B: Funded \*(her).
- b. He did [fund(ed) her] for his sister.

## Inheritance of content

Ginzburg and Sag 2000:304: “the constraint coindexes the head daughter [the fragment/remnant, JM] with the SAL-UTT [the correlate, JM]. This has the effect of ‘unifying in’ the content of the former into a contextually provided content.”

- (32) A: Who left?  
B: Jo.

There is a restriction on “Jo” that Jo be a person, inherited from the restriction in *who*.

Likewise:

- (33) A: Which musician left?  
B: Jo. (#but she’s not a musician)

Requires that Jo be a musician.

- (34) A: Which musician left?  
B: Jo left, but she’s not a musician.

# Inheritance of content

Jacobson 2016 builds a special construction for Q/A pairs:



The A is the argument of the Q. This derives the inheritance of content effect.



# Inheritance of content

But Thoms 2016 shows why this attempt fails.

- (35) Cò an t-ollamh a tha thu a' smaointinn a dh'fhastaidheas iad?  
who the professor C.REL be.PRES you PRT think.VN C.REL hire.FUT.REL they  
'Which professor do you think they will hire?'
- (36) a. Tha mi a' smaointinn gum fasdaidh iad Iain.... ach chan eil mi  
PRES I PRT think.VN C.REL hire.FUT.DEP they Iain... but C.NEG be.PRES.DEP I  
a' smaointinn gur e ollamh a th'ann  
PRT think.VN C.REL EX professor C PRES.in.him  
'I think that they will hire Iain... but I don't think that he's a professor'
- b. Iain... # ach chan eil mi a' smaointinn gur e ollamh a  
Iain... but C.NEG be.PRES.DEP I PRT think.VN C.REL EX professor C.REL  
th'ann  
PRES.in.him  
'Iain... #but I don't think that he's a professor'
- c. Tha Iain.... # ach chan eil mi a' smaointinn gur e ollamh a  
PRES Iain... but C.NEG be.PRES.DEP I PRT think.VN C.REL EX professor C.REL  
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# Agreement

Subject-verb agreement is a syntactic phenomenon;  
agreement is not (always) about meaning:

- (37) Beth's wedding was in Bond Chapel, and  
Rachel's wedding was in Rockefeller Chapel.
- (38) Beth's nuptials were in Bond Chapel, and  
Rachel's nuptials were in Rockefeller Chapel.

# Agreement

Subject-verb agreement is a syntactic phenomenon;  
agreement is not (always) about meaning:

- (41) Beth's wedding was in Bond Chapel, and Rachel's wedding was in Rockefeller Chapel.
- (42) Beth's nuptials were in Bond Chapel, and Rachel's nuptials were in Rockefeller Chapel.
- (43) \*Beth's wedding was in Bond Chapel, and Rachel's wedding were in Rockefeller Chapel.
- (44) \*Beth's nuptials were in Bond Chapel, and Rachel's nuptials was in Rockefeller Chapel.

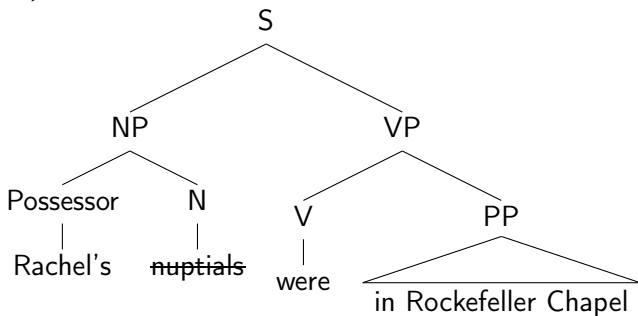
Nominal ellipsis preserves the syntactic properties of agreement:

- (45) Beth's wedding was in Bond Chapel, and Rachel's was in Rockefeller Chapel.
- (46) Beth's nuptials were in Bond Chapel, and Rachel's were in Rockefeller Chapel.

Nominal ellipsis preserves the syntactic properties of agreement:

- (49) Beth's wedding was in Bond Chapel, and Rachel's was in Rockefeller Chapel.
- (50) Beth's nuptials were in Bond Chapel, and Rachel's were in Rockefeller Chapel.
- (51) \*Beth's wedding was in Bond Chapel, and Rachel's were in Rockefeller Chapel.
- (52) \*Beth's nuptials were in Bond Chapel, and Rachel's was in Rockefeller Chapel.

Agreement is sensitive to abstract structure (the unpronounced head N, =*nuptials*):



## Case in German:

- (53) Anke hat jemandem gedroht, aber ich weiss nicht,  
Anke has someone.dat threatened but I know not  
{wem / \*wen} sie gedroht hat.  
who.dat who.acc she threatened has  
'Anke threatened someone, but I don't know who she threatened.'
- (54) Anke hat jemanden gelobt, aber ich weiss nicht, {\*wem /  
Anke has someone.acc praised but I know not who.dat  
wen} sie gelobt hat.  
who.acc she praised has  
'Anke praised someone, but I don't know who she praised.'

## Sluicing in German:

- (55) Anke hat **jemandem** gedroht, aber ich weiss nicht,  
Anke has someone.dat threatened but I know not  
{**wem** / **\*wen**}.  
who.dat who.acc

'Anke threatened someone, but I don't know who.'

- (56) Anke hat **jemanden** gelobt, aber ich weiss nicht, {**\*wem** /  
Anke has someone.acc praised but I know not who.dat  
**wen**}.  
who.acc

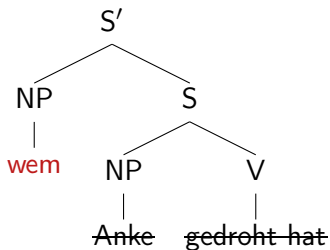
'Anke praised someone, but I don't know who.'

See Barros 2014 for important discussion

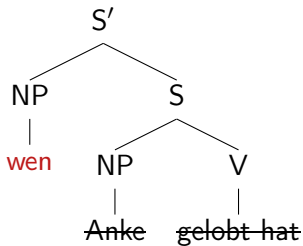


The case of the object is determined by the deleted verb:

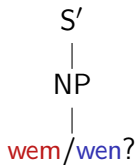
*wem*: dative



*wen*: accusative

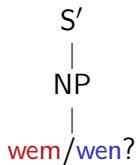


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- The verb is not part of the structure, so there's no obvious way to assign the right case to the NP.

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- The verb is not part of the structure, so there's no obvious way to assign the right case to the NP.
- A non-obvious way: Introduce a special constructional feature for sluicing, put in on the NP<sub>1</sub>, call it 'SAL(ient)-UTT(erance)' and let it range over correlate NPs and their features, then impose a requirement for the sluicing-construction that there be a correlate NP<sub>2</sub> and that the feature value of CASE(SAL-UTT(NP<sub>2</sub>))=CASE(NP<sub>1</sub>) (Ginzburg and Sag 2000; cf. Barros 2014)

Important point: Other anaphoric devices (e.g., pronouns) do not agree in case with their antecedents:

- (57) Anke hat jemandem<sub>1</sub> gedroht, aber ich weiss nicht, ob  
Anke has someone.dat threatened but I know not whether  
er<sub>1</sub> reagiert hat.  
he.nom reacted has  
'Anke threatened someone, but I don't know whether he reacted.'
- (58) Anke hat jemanden<sub>1</sub> gelobt, aber ich weiss nicht, ob  
Anke has someone.acc praised but I know not whether  
er<sub>1</sub> reagiert hat.  
he.nom reacted has  
'Anke praised someone, but I don't know whether he reacted.'

## Preposition-stranding:

Some languages allow for prepositions to be 'stranded': separated from their objects when those objects must appear somewhere other than adjacent to the preposition:

- (59)
- a. English: Who was he talking with?
  - b. Swedish: Vem har Peter talat med?
  - c. Norwegian: Hvem har Per snakket med?
  - d. Danish: Hvem har Peter snakket med?
  - e. Icelandic: Hvern hefur Pétur talað við?

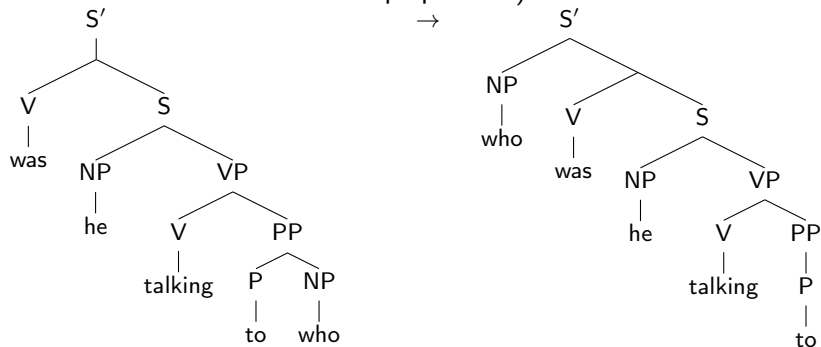
# Preposition-stranding:

Others (most others) don't:

- (60) a. Greek: \* Pjon milise me?
- b. Russian: \* Kem ona govorila s?
- c. Slovene: \* Kom je govorila Anna s?
- d. Bulgarian: \* Koj e govorila Anna s?
- e. Persian: \* Ki ali ba harf mi-zad?
- f. German: \* Wem hat sie mit gesprochen?
- g. Yiddish \* Vemen hot zi mit geredt?
- h. Hebrew: \* Mi Dani katav le?

## Preposition-stranding:

Preposition-stranding is a constraint on the application of the rule that maps one phrase marker to another (or on the association of an question phrase with a surface intransitive preposition):



## Preposition-stranding:

- (61)
- a. Peter was talking with someone, but I don't know (with) who.
  - b. Peter har talat med någon; jag vet inte (med) vem.  
Peter has talked with someone I know not with who
  - c. Per har snakket med noen, men jeg vet ikke (med) hvem.  
Per has talked with someone but I know not with who
  - d. Peter har snakket med en eller anden, men jeg ved ikke (med) hvem.  
Peter has talked with one or another but I know not with  
who
  - e. Pétur hefur talað við einhvern en ég veit ekki (við) hvern.  
Peter has spoken with someone but I know not with who



## Preposition-stranding:

- (62) a. I Anna milise me kapjon, alla dhe ksero \*(me) pjon.  
the Anna spoke with someone but not I.know with who
- b. Anna e govorila s njakoj, no ne znam \*(s) koj.  
Anna AUX spoken with someone but not I.know with who
- c. Anna je govorila z nekom, ampak ne vem \*(s) kom.  
Anna aux spoken with someone but not I.know with who
- d. Anja govorila s kem-to, no ne znaju \*(s) kem.  
Anja spoke with someone, but not I.know with who
- e. Ali ba kasi hard mi-zad, ama ne-mi-dan-am \*(ba) ki.  
Ali with someone talk PROG-hit.3sg but not-PROG-know-I with who
- f. Anna hat mit jemandem gesprochen, aber ich weiss nicht, \*(mit) wem.  
Anna has with someone spoken but I know not with who
- g. Zi hot mit emetsn geredt, ober ikh veys nit \*(mit) vemen.  
she has with someone spoken but I know not with who
- h. Dani katav le-mishehu, aval ani lo yode'a \*(le-)mi.  
Dani wrote to-someone, but I not know to-who

# Code-switching

Code-switching: switching from one language system to another, typically within a single sentence or utterance:

- (63) Juan amenazó a alguien, aber ich weiss nicht, wem  
Juan threatened someone.acc but I know not who.dat  
Juan gedroht hat.  
he threatened has
- (64) Juan amenazó a alguien, aber ich weiss nicht, wen  
Juan threatened someone.acc but I know not who.acc  
Juan amenazó.  
Juan threatened  
'Juan threatened someone, but I don't know who Juan threatened.'

Gonzalez and Ramos (2012): Tested speakers' ratings for sluiced, Spanish, and German continuations:

Test sentences:

- (65) Juan amenazó a alguien, aber ich weiss nicht, wem.  
Juan threatened someone.acc but I know not who.dat
- (66) Juan amenazó a alguien, aber ich weiss nicht, wen.  
Juan threatened someone.acc but I know not who.acc  
'Juan threatened someone, but I don't know who.'

## Results:

Table 1. Verbs that assign accusative in Spanish (ratings on a 1-5 Likert scale, M=mean, SD=standard deviation)

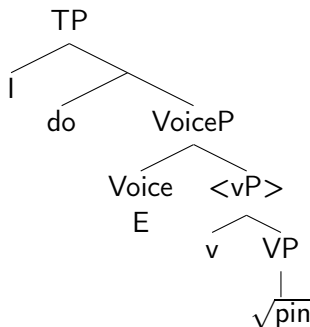
	NOM		ACC		DAT	
	M	SD	M	SD	M	SD
Sluiced	1.38	0.58	4.00	1.29	2.08	1.21
Spanish	1.21	0.66	4.00	1.25	2.17	1.43
German	1.13	0.34	1.71	0.81	5.00	0.00

- (67) \*Juan amenazó a alguien, aber ich weiss nicht, wem  
Juan threatened someone.acc but I know not who.dat  
~~Juan gedroht hat.~~  
Juan threatened has
- (68) Juan amenazó a alguien, aber ich weiss nicht, wen  
Juan threatened someone.acc but I know not who.acc  
~~Juan amenazó.~~  
Juan threatened  
'Juan threatened someone, but I don't know who.'

- (69) **Hypothesis:** All cross-language ellipses involve code-switching at the ellipsis site (into the language of the antecedent).

- (70) Greek-English bilinguals
- a. *Mother*: Pinás?  
                  hunger.2s.pres  
                  ‘Are you hungry?’
  - b. *Daughter*: Yes, I do.
- (71) \* Yes, I do *pináo*.  
                  hunger.1s.pres

(72)



(73) a.  $\sqrt{\text{pin}} \leftrightarrow \text{pin} / \_ T[+\text{past}]$

b. No elsewhere Vocabulary Item such as:  $\sqrt{\text{pin}} \leftrightarrow \text{pin}$



(74) [A son attempts to turn on the air-conditioning one morning]

- a. *Mother:* To prói      ðe xriázete  
*the morning neg need.nonact.imperf.pres.3sg*  
klimatizmó.  
*air-conditioning.acc*  
'In the morning there's no need for air-conditioning.'
- b. *Son:* Yes, it does!
- c. *Mother:* Éxi                      ðrosúla.  
*have.act.imperf.pres.3sg coolness.dim*  
'It's a little cool.'
- d. *Son:* No, it doesn't.

(75) A: Éxi                                  ðrosúla.  
            have.nonpast.imperf.act.3s coolness.dim  
            ‘It’s a little cool.’

N: No, it doesn’t.

- a. \*No, it doesn’t be a little cool.
- b. #No, it doesn’t have a little coolness.
- c. \*No, there doesn’t be a little coolness.
- d. #No, there isn’t a little coolness.
- e. \*No, it doesn’t éxi                          ðrosúla.  
  have.pres.3sg coolness.dim
- f. #No, there isn’t.
- g. #No, it isn’t. (*viz.* kind of cool)
- h. No, it isn’t kind of cool.





## Root identity, not morphological identity

In general, English verbs in  $VP_A \sim VP_E$  pairs (both regular and irregular) don't require morphological identity

- (80)
- a. Emily played beautifully at the recital and her sister will, too.  
<play beautifully at the recital>
  - b. Emily took a break from her studies, and her sister will, too.  
<take a break from her studies>
  - c. Emily sang the song {because|the way} she wanted to. <sing the song>
  - d. Emily underwent the procedure because she wanted to.  
<undergo the procedure>.

# \*I'm America, and so can you!

- (81)
- a. Maria will be at the party, and her sister will, too. <be at the recital>
  - b. \*Maria was at the party and her sister will, too.
  - c. Maria was at the party, and her sister will be, too.
  - d. Maria was at the party, and her sister was, too.

## \*I'm America, and so can you!

- (82) In cases of ellipsis of a VP headed by an auxiliary verb, the auxiliary must have the exact same morphological form as its antecedent. (Warner 1985:63)
- (83) Forms of *be* are inserted into the derivation fully inflected; other verbs get their inflection later (at PF). Ellipsis requires full syntactic matching, ruling out mismatches of *be* (Lasnik 1995)

## \*I'm America, and so can you!

- (84) a. [Snoopy talking to Woodstock, Peanuts cartoon] You and I are a lot alike ... Just a common bird and a common dog. Of course, if we had wanted to ~~be great~~, we could have been great ... But we didn't need to ~~be great~~. (Potsdam 1997)
- b. "Don't be coy," says the Tenured One, but I'm not ~~being coy~~. David Mitchell, *The Bone Clocks*, Random House: NY, 2014, p. 390
- c. He might be rude to the guests; I know he has ~~been rude to the guests~~ in the past! (Thoms 2015:181)
- d. John is being examined but Jack really should ~~be examined~~ also.
- (85) Forms of auxiliary verbs in English must be identical under ellipsis to their antecedents if those antecedents are finite.



# \*I'm America, and so can you!

- (86) Potsdam's hypothesis: "A trace of verb movement cannot serve as part of a VPE antecedent" (Potsdam 1997:362)
- (87) Thoms 2015:187: "A variable cannot provide an antecedent for ellipsis of a non-variable". (Supposed to follow from 'Parallelism')

## 'Variables' can antecede nonvariables in ellipsis

- (88) [<sub>CP</sub> Nu gaat [<sub>IP</sub> zij  $t_{nu}$   $t_{gaat}$ ]], maar ik weet niet waarom.  
now goes she but I know not why  
'She's going now, but I don't know why.' (Merchant 2001:21)
- a.  $\neq$  \*... waarom ~~zij~~.  
b. = ... waarom ~~zij nu gaat~~.
- (89) a. The FBI knows which truck<sub>4</sub> they rented  $t_4$ , but figuring out from where ~~they rented it<sub>4</sub>~~ has proven difficult. (Merchant 2001:206)
- b. This is Washington, where everyone keeps track of who<sub>1</sub>  $t_1$  crossed whom<sub>2</sub> and when ~~they<sub>1</sub> crossed them<sub>2</sub>~~. (Merchant 2001:202)
- (90) These facts should be carefully studied, but it's clear you haven't ~~carefully studied these facts~~. (Merchant 2013)

- (91) a. I Maria tha agapai to spiti, and her  
the Maria fut love.imperf.nonpast.3s the house  
sister will, too.

‘Maria will love the house...’

- b. I Maria agapai to spiti, and her sister  
the Maria love.imperf.nonpast.3s the house  
will, too.

‘Maria loves the house...’

- c. I Maria agapuse to spiti, and her sister will,  
the Maria love.imperf.past.3s the house  
too.

‘Maria loved the house...’

## \*Ich bin Amerika, and so can you!

- (92) a. I Maria tha ine sto spiti, and her  
the Maria fut be.imperf.nonpast.3s in.the house  
sister will (be), too.

‘Maria will be at home...’

- b. I Maria ine sto spiti, and her sister  
the Maria be.imperf.nonpast.3s in.the house  
will \*(be), too.

‘Maria is at home...’

- c. I Maria itan sto spiti, and her sister will  
the Maria be.imperf.past.3s in.the house  
\*(be), too.

‘Maria was at home...’

# A valuation/binding solution

Dahl's Puzzle (Dahl 1973) *Slogan*: From the bottom-up, once you go sloppy, you stay sloppy.

(93) John said he loved his mom, and Bill did, too.

a. ... and Bill said Bill loved Bill's mom.

\_\_\_\_\_

b. ... and Bill said Bill loved John's mom.

\_\_\_\_\_

c. ... and Bill said John loved John's mom.

d. ... \*and Bill said John loved Bill's mom.

\_\_\_\_\_

(94) Parallelism constraints on binding relations (Fiengo and May 1994, Hardt 2005, Merchant 2008, Takahashi and Fox 2006):

Binding and scope relations must be the same in antecedent and elliptical clause

(95) Fiengo & May, Fox: The problem is creating the right kind of antecedent—in order to generate (93d), given Parallelism, we'd need the following, and this is banned by Economy ('Don't Overlook Anaphoric Possibilities'; Williams 1997)

a. \*John said he<sub>John</sub> loved his's mom.

\_\_\_\_\_

## An aside: Why Parallelism isn't enough

- We still need something like MaxElide (as Merchant 2008:152, Fox and Lasnik 2003:153 fn 10 point out, *pace* Messick and Thoms 2016; see esp. Griffiths and Lipták 2014, Griffiths 2017):

- (96) Abby met most applicants, but I can't remember exactly which ones (\*she did).
- (97) "Sluicing with indefinite correlates repairs islands, but Sluicing with focused correlates does not." (Merchant 2008:148)
- a. \*The radio played a song that RINGO wrote, but I don't know who else. (~~the radio played a song that t wrote~~)
  - b. I only played a song that RINGO wrote because you did (~~play a song that t wrote~~)

## An aside: Why Parallelism isn't enough

### An analysis

- “island-escaping focus movement cannot target the highest IP ... [this] will prevent the correlate from attaining the necessary scopal parallelism with the *wh*-phrase (clause-external), and hence these clauses can never satisfy the identity requirement needed to license deletion” (Merchant 2008:151)

(98) I only RINGO<sub>F</sub>  $\lambda x$  [<sub>VP</sub> [<sub>VP</sub> played a song that *x* wrote ] because you did ~~play a song that *x* wrote~~ ]

A better analysis: covert focus-associate pied-piping (Erlewine and Kotek 2016):

- (99) a. I only [<sub>DP</sub> a song that RINGO<sub>F</sub> wrote ]<sub>1</sub> played *t*<sub>1</sub> because you did ~~play it~~<sub>T</sub>.
- b. \*[<sub>DP</sub> a song that RINGO<sub>F</sub> wrote ]<sub>1</sub> the radio played *t*<sub>1</sub>, but I don't know who else ~~the radio played it~~<sub>T</sub>.

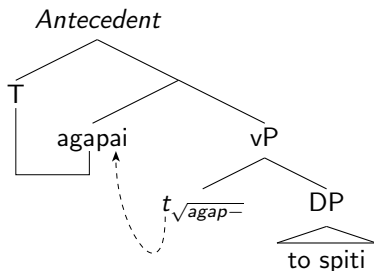
# Three ingredients to the solution

- 1 There is a **grammatical dependency** between the head of the clause (T? Fin? C? Pol/ $\Sigma$ /X?) and the highest 'clause-typing' or syntactically active head
- 2 English  $\sqrt{be}$  and Greek  $\sqrt{i-}$  are not participants in this dependency (e.g., because  $\sqrt{be}$  isn't a real tense bindee/finiteness valuator or event marker: the head of the nonverbal predicate is)
- 3 Head movement can change the position of the bindee/valuator: it makes the binding/valuation relation more local (feeds higher binding/closer valuation/feature satisfaction), and this derived dependency must satisfy Parallelism

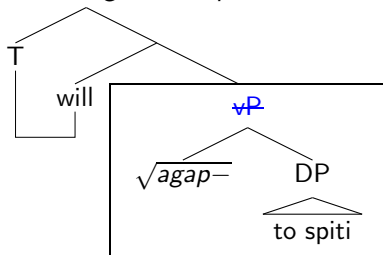


# \*Ich bin Amerika, and so can you!

(100)

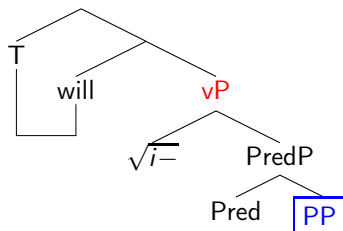
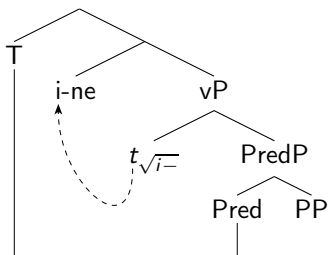


*Box=possible target for ellipsis*



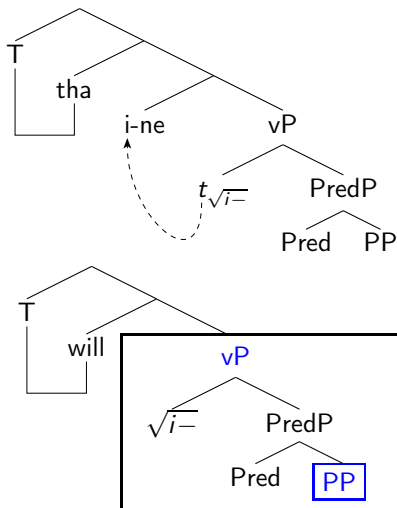
# \*Ich bin Amerika, and so can you!

(101)



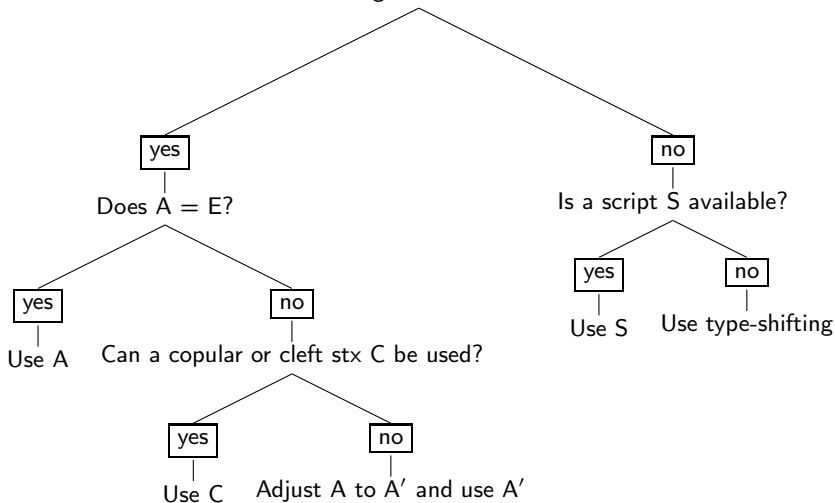
# \*Ich bin Amerika, and so can you!

(102)



# A new algorithmic resolution approach to ellipsis

Stochastic ranked decision tree for resolving a putative ellipsis E:  
Is there a linguistic antecedent A?



## Accommodation: Rebinding

- (103) a. I met with every suspect<sub>1</sub>, though most<sub>2</sub> later claimed I hadn't.  
b. Everyone<sub>1</sub> helped, though most<sub>2</sub> weren't sure why.

## Accommodation: Rebinding

- (105) a. I met with every suspect<sub>1</sub>, though most<sub>2</sub> later claimed I hadn't.  
b. Everyone<sub>1</sub> helped, though most<sub>2</sub> weren't sure why.

The trace of QR in the antecedent is 'rebound' by the new QP in the clause containing the ellipsis:

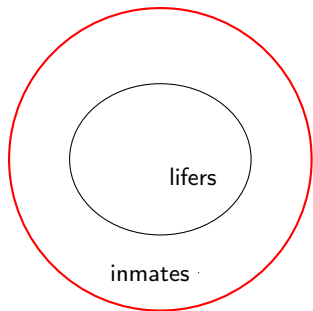
- (106) a. ... most<sub>2</sub> claimed I hadn't [~~met with them<sub>2</sub>~~].  
b. ... most<sub>2</sub> weren't sure why [~~they<sub>2</sub> helped~~].

## Accommodation: Rebinding

Rebinding is possible only if the restriction of new binder is a subset of the restriction of the original binder:

- (107) I met with every suspect<sub>1</sub>, though most cops<sub>2</sub> claimed I hadn't.
- a. = [met with {every suspect/them<sub>1</sub>}]
  - b. ≠ [met with x<sub>2</sub>]

## Rebinding: *lifer* $\subset$ *inmate*



- (108) I met with every *inmate*<sub>1</sub>, though {many/most} *lifers*<sub>2</sub> said I hadn't.  
a. = [met with *them*<sub>1</sub>], or  
b. = [met with *them*<sub>2</sub>]
- (109) VP<sub>A</sub> = [meet with [[the 1] *inmate*]]
- (110) most *lifers*  $\lambda_2$  said I hadn't <met with [[the 2] *inmate*]>

Accommodation: *lifer*  $\rightarrow$  *inmate*, so the projected presupposition of the definite article is satisfied



## Rebinding: *lifer* $\subset$ *inmate*

- (111) I met with every *lifer*<sub>2</sub>, though {many/most} *inmates*<sub>1</sub> said I hadn't.  
a. = [met with *them*<sub>2</sub>]  
b.  $\neq$  [met with *them*<sub>1</sub>]
- (112)  $VP_A =$  [meet with [[the 2] *lifer*]]
- (113) most *inmates*  $\lambda_1$  said I hadn't <met with [[the 1] *lifer*]>

$\rightsquigarrow$  Accommodation fails

- (114) **Generalization:** When the restriction of the second quantifier is a subset of that of the first, rebinding is possible; otherwise, rebinding is not possible.

## Analysis: ‘Vehicle change’

- Pronouns have to be complex, like definites.

Pronouns are themselves minimal spell-outs of such definite descriptions (as in the traditional analysis of E-type pronouns; see Elbourne 2005)—the same interpretive restrictions are found with overt pronouns in the equivalent deaccented counterparts:

- (115) I met with every suspect<sub>1</sub>, though most cops<sub>2</sub> claimed I hadn't *met with them*<sub>{1/\*2}</sub>.

Claim: Pronouns are ('minimally' spelled out) definites (Dyscolos 125 (approx.), Postal 1966, Evans 1977, Elbourne 2005, Kratzer 2006)

Apollonios Dyscolos's (fl. 2nd c. AD) 'On the pronoun' (Περὶ ἀντωνυμίας):

- (116) καὶ Ἀπολλόδωρος ὁ Ἀθηναῖος καὶ ὁ Θραῦξ Διονύσιος καὶ ἄρθρα δεικτικὰ τὰς ἀντωνυμίας ἐκάλεσαν.  
'both Apollodoros the Athenian and Dionysios Thrax also called the pronouns deictic articles'

“pronominalization” (spelling out [the [R pro]] or [the <NP>] as *it*, *his*, etc.

- (117) Heim and Kratzer (1998: 290–93)  
[ **the** [ $R_{\langle 7, \langle e, et \rangle} \rangle$ ] **pro** $_{\langle 1, e \rangle}$  ]]

## Analysis: 'Vehicle change'

- ① Traces of QRed DPs have to be complex, in particular like definites (Copy theory of A'-movement: the restriction in situ is [*x suspect*], interpreted as a definite description (see Sauerland 1998, Fox 2000))

Traces of QR show 'vehicle change' effects as well:

- (118)
- a. Since you are allergic to bis disulfide, you should drink no wine if its label says you shouldn't.
  - b. [no wine][ $\lambda_1$ [you should drink [[the 1] wine]]]
  - c. if its label says you shouldn't <drink [[the 1] wine]]>

# Rebinding

- (119) I met with every inmate<sub>1</sub>, though {many/most} lifers<sub>2</sub> said I hadn't.  
a. = [met with them<sub>1</sub>], or  
b. = [met with them<sub>2</sub>]
- (120) VP<sub>A</sub> = [meet with [[the 1] inmate]]
- (121) most lifers λ<sub>2</sub> said I hadn't <met with [[the 2] inmate]>
- (122) a. {x|x said I hadn't met with x} defined only if x ∈ inmate  
b. #My son<sub>2</sub> forgot her<sub>2</sub> book.  
λx : x is female[x forgot x's book ]  
{x|x forgot x's book } defined only if x ∈ female  
c. Det<sub>x</sub>(P<sub>x</sub>)(Q<sub>x</sub>) is defined only if P ⊆ Presup(Q<sub>x</sub>)  
d. son ⊄ female, inmate ⊄ lifer  
e. My child<sub>2</sub> forgot her<sub>2</sub> book.  
f. But child ⊄ female !

Crucial observation: bound definites behave the same way:

(123) [Almost every math teacher]<sub>1</sub> pointed out that we parents had failed to object to [the teacher]<sub>1</sub>'s assignments when they were given.

(124) \*[Almost every teacher]<sub>2</sub> pointed out that we parents had failed to object to [the math teacher]<sub>2</sub>'s assignments when they were given.

(125) **No bait and switch:**

A bound variable (whether pronominal or definite) cannot entail that the set quantified over is a proper subset of the restriction on the quantifier.

(Cf. Maximize Presupposition, Maximize Informativity)

# Rebinding

Accommodation:  $lifer' \subset inmate'$ ,  $math.teacher' \subset teacher'$ , so the projected presupposition of the definite article is satisfied

(126) I met with every  $lifer_2$ , though {many/most}  $inmates_1$  said I hadn't.

a. = [met with  $them_2$ ]

b.  $\neq$  [met with  $them_1$ ]

(127)  $VP_A =$  [meet with [[the 2]  $lifer$ ]]

(128) most  $inmates \lambda_1$  said I hadn't  $\langle$ met with [[the 1]  $lifer$ ] $\rangle$

# Rebinding

Accommodation:  $lifer' \subset inmate'$ ,  $math.teacher' \subset teacher'$ , so the projected presupposition of the definite article is satisfied

(129) I met with every  $lifer_2$ , though {many/most}  $inmates_1$  said I hadn't.

a. = [met with  $them_2$ ]

b.  $\neq$  [met with  $them_1$ ]

(130)  $VP_A =$  [meet with [[the 2]  $lifer$ ]]

(131) most  $inmates \lambda_1$  said I hadn't <met with [[the 1]  $lifer$ ]>

- Here, accommodation fails:  $lifer$  is a proper subset of  $inmate$ , so the constraint in (125) is violated

# Rebinding

Fox 1999 conceives of accommodation as a way of constructing a better antecedent for a mismatched  $A \sim E$  pair.  $E$  is licensed just in case there is an  $A = E$  or an  $A'$  minimally different from  $A$  (formed by replacing words or phrases as necessary, such that  $A' \in \llbracket E \rrbracket^f$  and there is 'accommodation-seeking material' external to  $E$ )

- Designed to block accommodation in the famous Rooth 1992 pair:

(132) 7 is greater than or equal to itself, and 5 is, too.

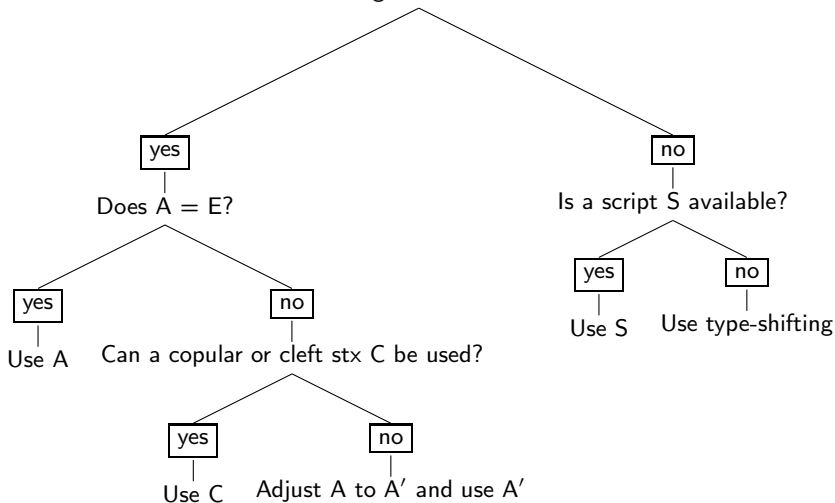
(133) # 7 is greater than or equal to 7, and 5 is, too.

- But how do we *allow* such antecedent-accommodation in many other cases?  
...while not letting in voice mismatches in sluicing (which Fox's condition does).



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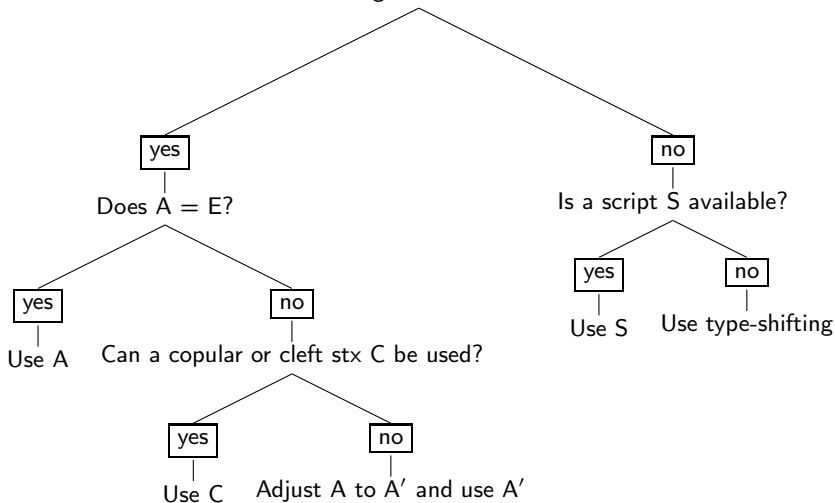
- (134) a. Ferte mu (enan) kafe (parakalo)! (Greek)  
bring.imp me a coffee.acc please  
'Bring me (a) coffee (please)!'  
b. Dajte mne vody (požalujsta)! (Russian)  
give.imp me water.gen please  
'Give me (some) water (please)!'
- (135) a. (Enan) kafe (parakalo)! (Greek)  
a coffee.acc please  
'(A) coffee (please)!'  
b. Vody (požalujsta)! (Russian)  
water.gen please  
'(Some) water (please)!'

## Scripts, special registers, domain-specific constructions, etc.

- (136) Short directives: Left! Higher! Scalpel!
- (137) Exclamations: Wonderful! Nonsense! Fate! For Pete?s sake!
- (138) Greetings: Hello. Good-bye. Roger. Over. Out.
- (139) Utterance idioms: Up yours. 'Gewitter im Mai— April vorbei' (lit. 'storms in May ? April over'; from Klein 1985)
- (140) Labels/titles: Campbell Soup. Starbucks. And now: the first act of the night: The Rolling Stones! To kill a mockingbird. Der Zauberberg. The dancer from the dance. The last report on the miracles at Little No Horse. Thief! Thief! Fire!
- (141) telegrams, headlines, weather reports, recipes, diary reports, and instructions

# A new algorithmic resolution approach to ellipsis

Stochastic ranked decision tree for resolving a putative ellipsis E:  
Is there a linguistic antecedent A?



## Three kinds of bare fragments

- (142) Properties applied to a manifest object
- Sanjay and Silvia are loading up a van. Silvia is looking for a missing table leg. Sanjay says, 'On the stoop.'
  - Jack holds up a letter and says, 'From Spain!'
  - A car dealer points at a car and says, 'Driven exactly 10,000km.'
  - On a bottle of cold medicine: 'Recommended for ages 6 and older.'
  - She looked up at Nok Lek, who watched the forest nervously. "I told you, one of Anthony Carroll's best men." (Daniel Mason, *The piano tuner*, Vintage: New York, 2002, p. 159)

## Three kinds of bare fragments

- (143) Individuals as arguments of a manifest property
- a. A woman is coming through a door, and a linguist turns to her friend and identifies the new arrival by saying, ‘Barbara Partee.’
  - b. After some weeks one summer of unusually cold weather in Manitoba (a part of Canada where the summers are usually warm), Alice, looking at the sky, says to Bruce (who has just returned from a trip to Spain), ‘Nova Scotia.’
  - c. Edgar didn’t have time to ask what this was, for at that instant, from behind the stage rose a plaintive wail. He caught his breath. It was the same tune he had heard that night when the steamer had stopped on the river. He had forgotten it until now. “The *ngo-gyin*, the song of mourning,” said Nash-Burnham at his side. (Daniel Mason, *The piano tuner*, Vintage: New York, 2002, p. 140)

## Three kinds of bare fragments

- (144) Quantifiers as arguments of a manifest property
- a. I'm at a linguistics meeting, talking with Andy. There are some empty seats around a table. I point at one and say, 'An editor of *NLLT*'. (modified from p. 209)
  - b. At a bar: 'Three pints of lager.'
  - c. He continued to walk, the children following at a distance. ... At the side of the road, a pair of men [who are Shan, and know no English, –JM] sat... One of the men pointed to the group of children and said something, and Edgar answered, "Yes, quite a lot of children," and they both laughed although neither understood a word the other had said. (Daniel Mason, *The piano tuner*, Vintage: New York, 2002, p. 235)

(145) Definition [Typed  $\lambda$ -terms]. Let  $\text{VAR}_a$  be a countably infinite set of variables of type  $a$  and  $\text{CON}_a$  a collection of *constants* of type  $a$ . The set  $\text{TERM}_a$  of  $\lambda$ -terms of type  $a$  is defined by mutual recursion as the smallest set such that the following holds:

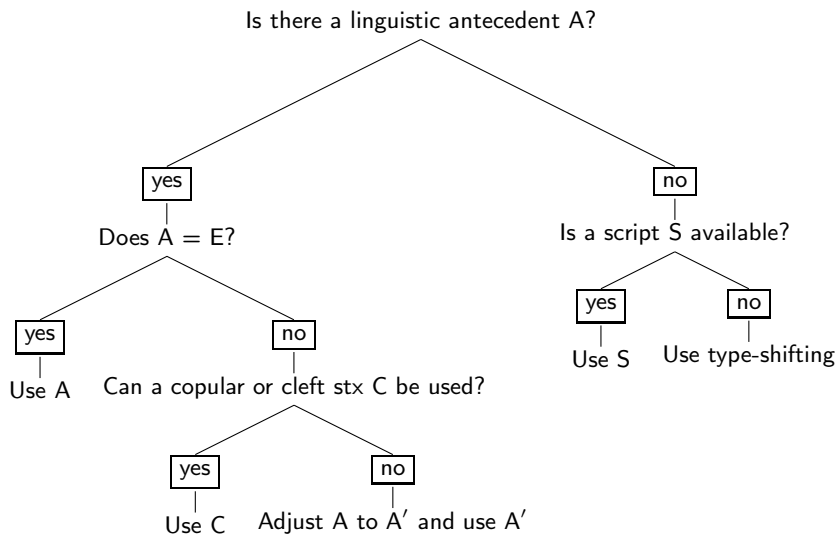
- i.  $\text{VAR}_a \subseteq \text{TERM}_a$
- ii.  $\text{CON}_a \subseteq \text{TERM}_a$
- iii.  $(\alpha(\beta)) \in \text{TERM}_a$  if  $\alpha \in \text{TERM}_{\langle a,b \rangle}$  and  $\beta \in \text{TERM}_b$ ,
- iv.  $\lambda x.\alpha \in \text{TERM}_{\langle a,b \rangle}$ , if  $x \in \text{VAR}_a$  and  $\alpha \in \text{TERM}_b$ .

- (146)
- a.  $\lambda x_2[\textit{on.the.stoop}(x_2)]$
  - b.  $\lambda P_{et}[P(\textit{partee})]$
  - c.  $\lambda Q_{et}[\exists z[\textit{quite.a.lot}_C^*(z) \wedge \textit{children}(z) \wedge Q(z)]]$

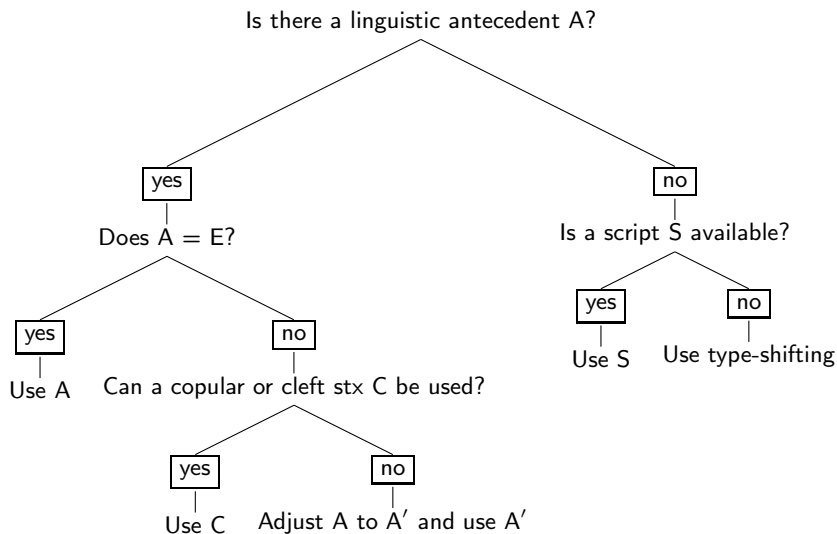


- (147) Type-shifting rule (Free variable introduction):  
 Let  $(\alpha(\beta)) \in \text{TERM}_a$  if  $\alpha \in \text{TERM}_{\langle a,b \rangle}$  and  $\beta \in \text{VAR}_b$
- (148) a.  $\lambda x_2[\text{on.the.stoop}(x_2)]$   
 b.  $\lambda x_2[\text{on.the.stoop}(x_2)](x_3) \rightsquigarrow$   
 c.  $\text{on.the.stoop}(x_3)$
- (149) a.  $\lambda P_{et}[P(\text{partee})]$   
 b.  $\lambda P_{et}[P(\text{partee})](Q_{et}) \rightsquigarrow$   
 c.  $Q(\text{partee})$
- (150) a.  $\exists z[\text{quite.a.lot}_C^*(z) \wedge \text{children}(z) \wedge P(z)]$

# Conclusions: One size doesn't fit all



# Conclusions: One size doesn't fit all



Thank you!

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