On the nature of ATB-movement*

Insights from reflexes of movement

Doreen Georgi
University of Potsdam
doreen.georgi@uni-potsdam.de

GLOW 41, Budapest

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ATB-construction

- Ross (1967): coordinations are islands (cf. (1-a)) unless movement applies in an across-the-board (ATB) fashion to all conjuncts (cf. (1-b)):

(1) a. *What$_1$ does [$_{\mathrm{TP}}$ John like t$_1$] and [$_{\mathrm{TP}}$ Mary hate the book] ?
b. What$_{1,2}$ does [$_{\mathrm{TP}}$ John like t$_1$] and [$_{\mathrm{TP}}$ Mary hate t$_2$] ?

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- ATB: has many interesting properties (e.g. Moltmann 1992; Munn 1993; Franks 1993; 1995; Nunes 2004; Citko 2005; Salzmann 2012*a*; de Vries to appear)
- today: **one-to-many relation between antecedent and gaps**

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- ATB: has many interesting properties (e.g. Moltmann 1992; Munn 1993; Franks 1993; 1995; Nunes 2004; Citko 2005; Salzmann 2012*a*; de Vries to appear)
- today: **one-to-many relation between antecedent and gaps**
- **two types of approaches** to this mismatch:
  - symmetric approaches: symmetric extraction from all conjuncts
  - asymmetric approaches: extraction takes place from only one of the conjuncts
- little / disputed empirical evidence for/against the approaches

Goals

- to provide a **new diagnostic tool** that can help us to distinguish between symmetric and asymmetric approaches to ATB-movement: **asymmetric reflexes of movement**
- to show that existing approaches to ATB make different **predictions about the distribution of these reflexes inside the conjuncts under long-distance ATB-movement**
- to present new **empirical evidence** from 4 Niger-Congo languages that argues **for asymmetric extraction from the first conjunct** and against symmetric approaches

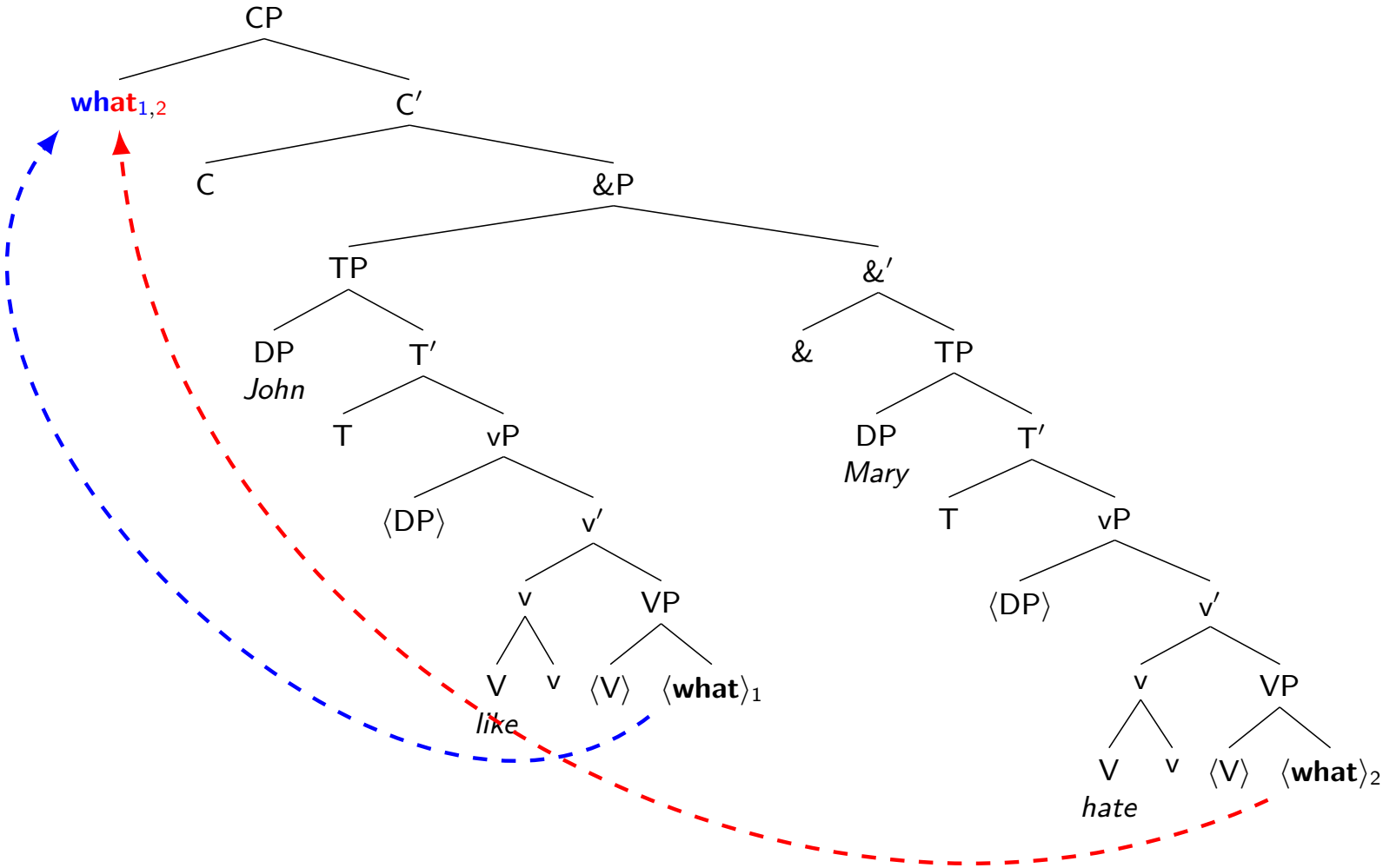
Outline

1. Approaches to ATB-movement
   - Symmetric approaches
   - Asymmetric approaches
2. Reflexes of movement
   - Background
   - Patterns of reflexes
3. Long ATB-movement + asymmetric reflexes
   - Test scenario and predictions
   - Results
4. Further discussion
   - Asymmetries between short and long ATB-movement
   - Pattern 2: a different explanation?

Outline

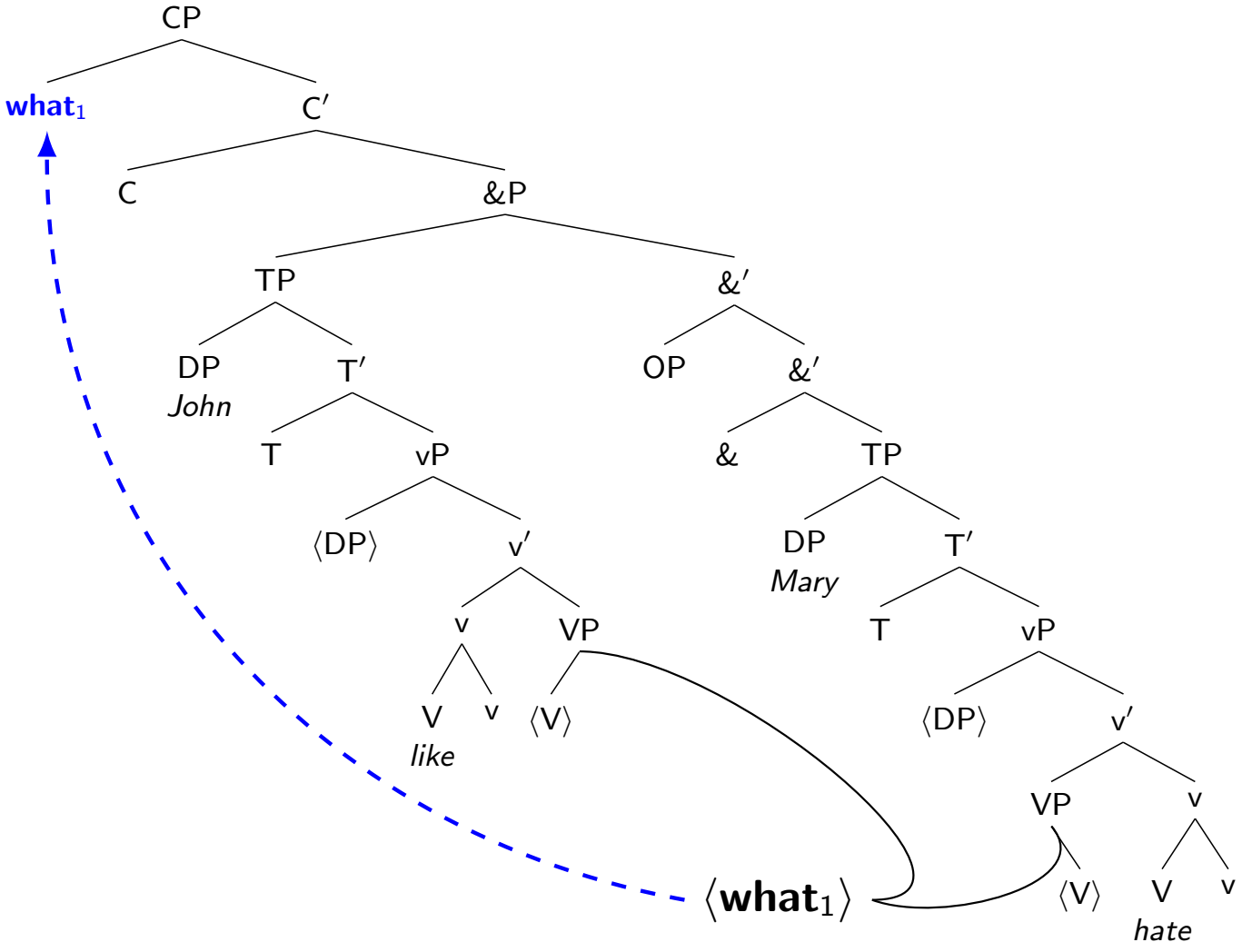
Symmetric approaches

1. **fusion approach**: one extractee per conjunct, fusion of extractees in the MC (i) by a construction-specific rule (Ross 1967; Williams 1978) or (ii) by feature intersection (Hein and Murphy 2016) (see also HPSG slash feature percolation from each conjunct, Pollard and Sag 1994; Levine et al. 2001)



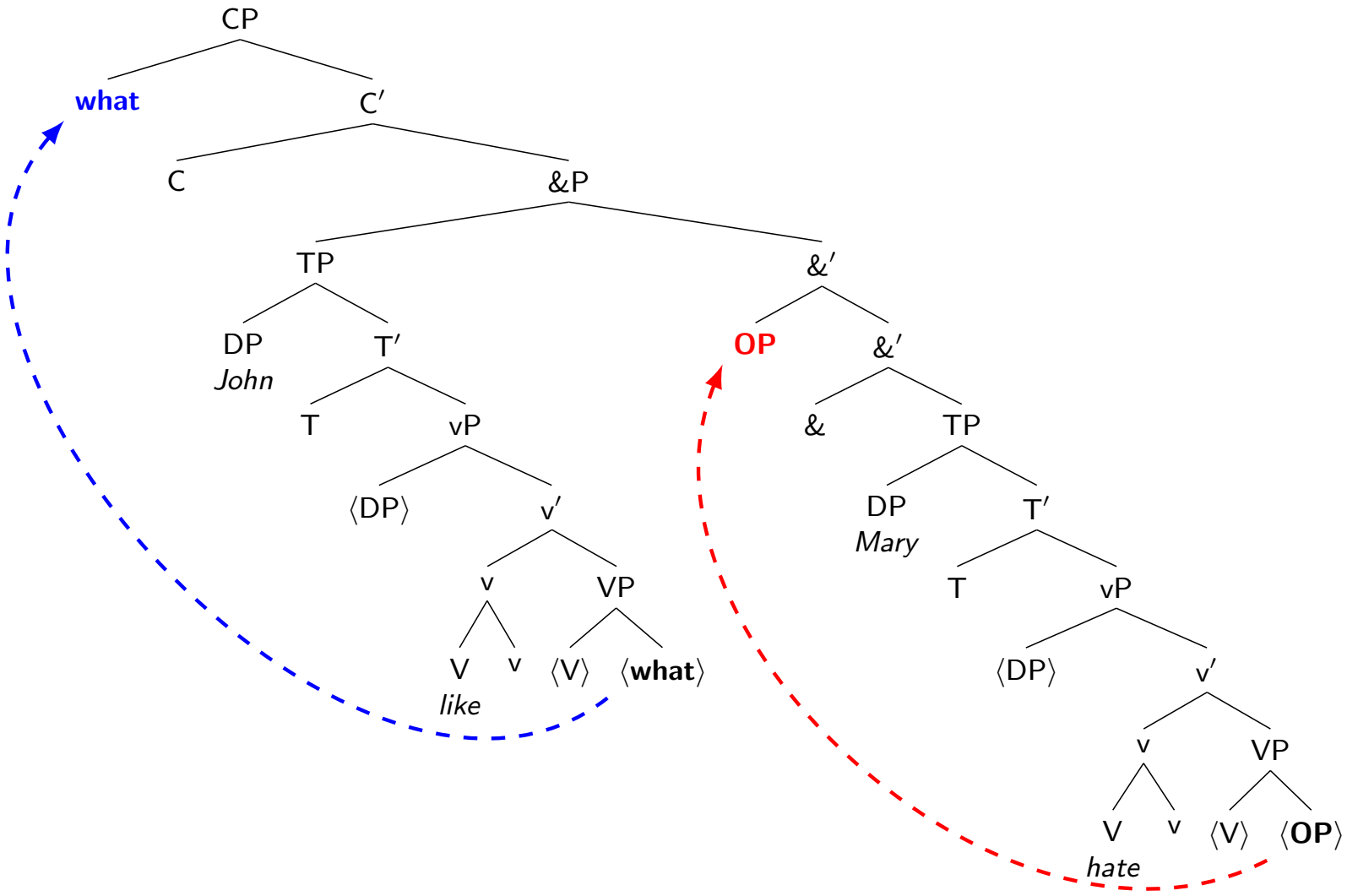
Symmetric approaches

2. **sharing approach** (Williams 1978; Goodall 1987; Moltmann 1992; Citko 2005; Gračanin-Yüksek 2007; 2013; Bachrach and Katzir 2009): a single wh-XP is shared by all conjuncts, this wh-XP is extracted from all conjuncts



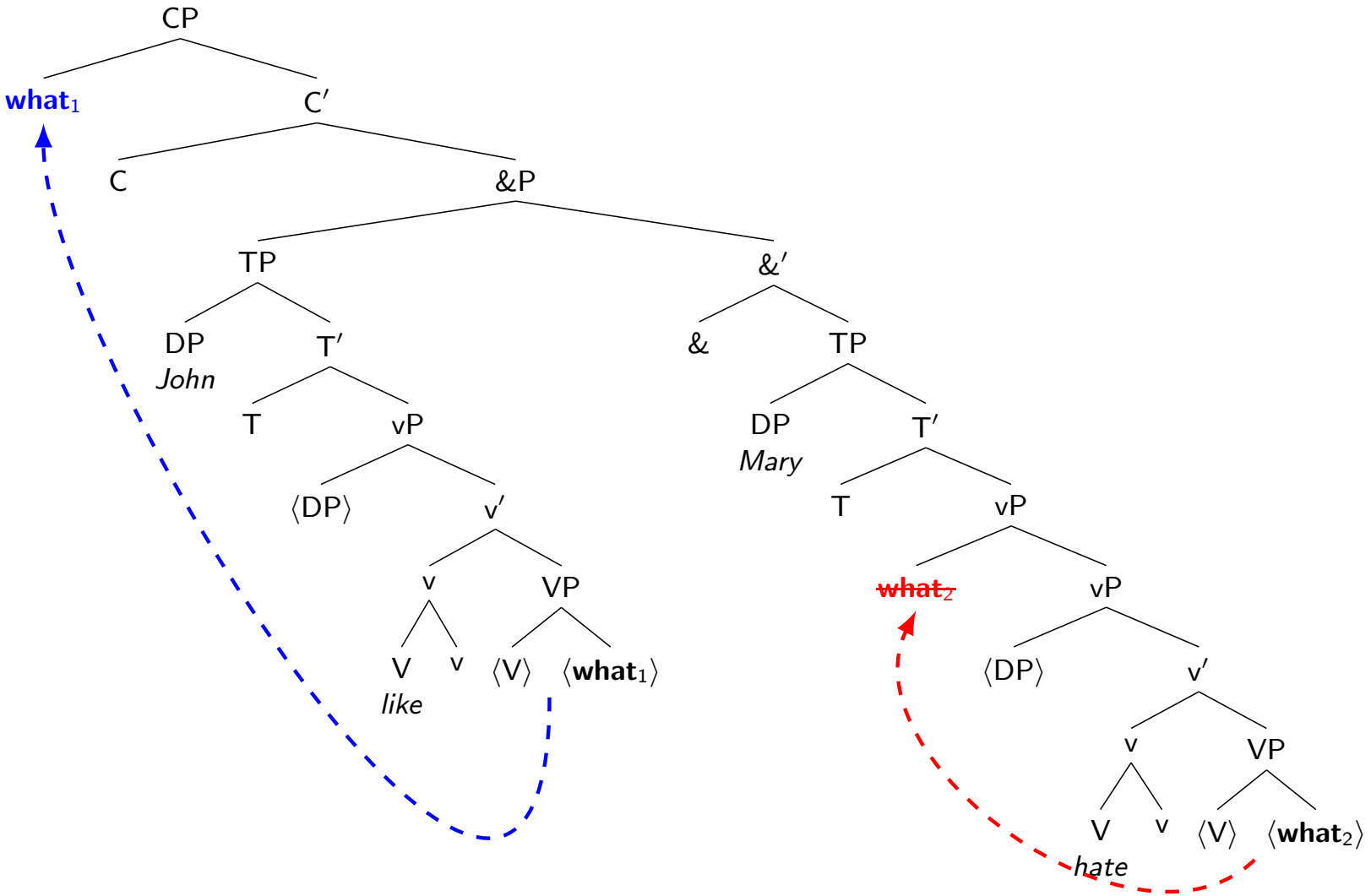
Asymmetric approaches

1. **parasitic gap** (pg) **approach** (Munn 1992; 1993; Franks 1992; 1995; Bošković and Franks 2000): asymmetric extraction of wh-XP form Conj1 + movement of an empty operator (OP) inside Conj2



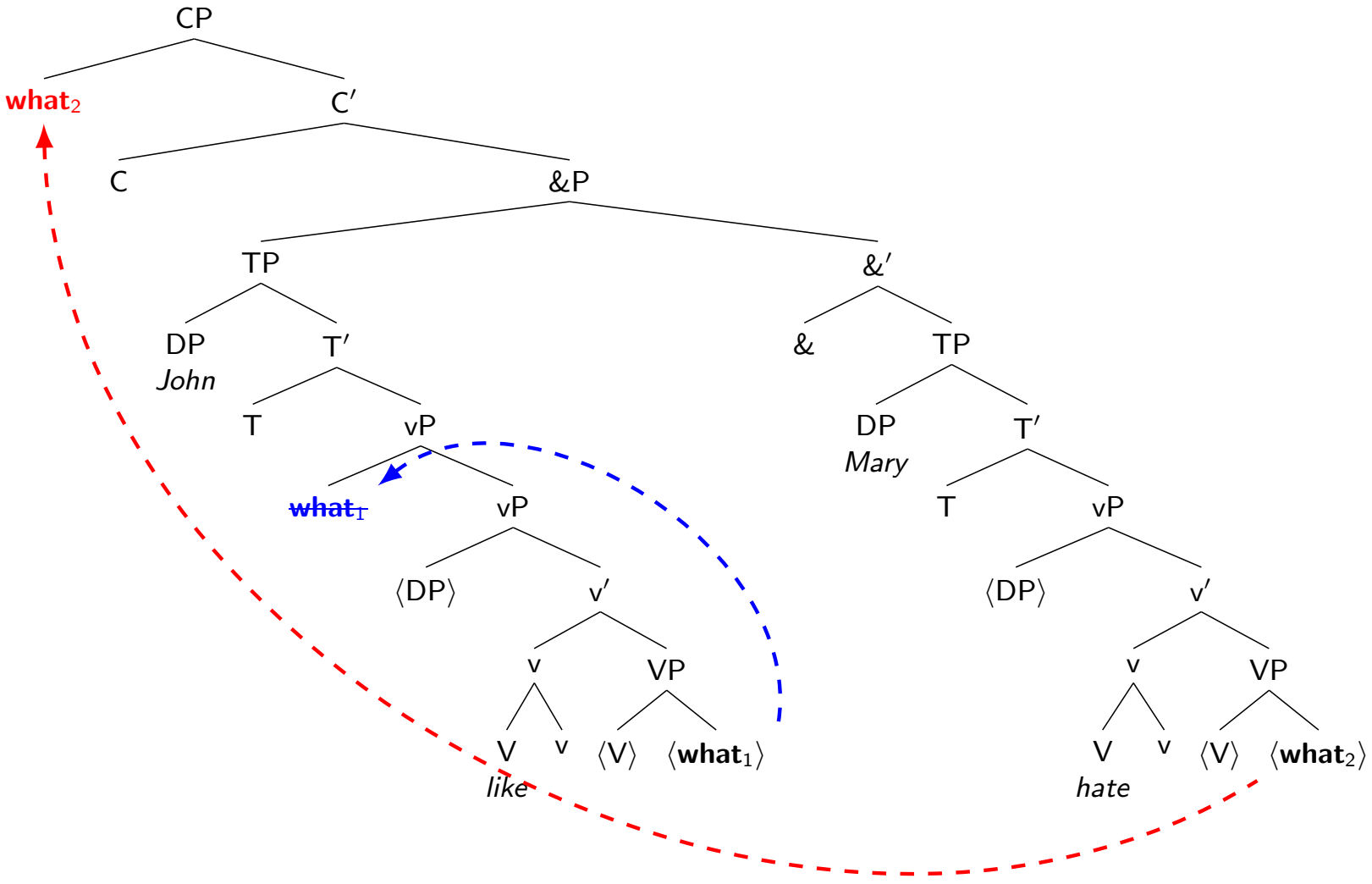
Asymmetric approaches

2. **ellipsis approach I** (Salzmann 2012*a*): asymmetric extraction of a wh-XP_1 form Conj1 + movement of a separate wh-XP_2 inside Conj2 + elision of wh-XP_2 under identity with wh-XP_1 at PF



Asymmetric approaches

2'. **ellipsis approach II** (Ha 2008): opposite of ellipsis I –asymmetric extraction of a wh-XP_2 form Conj2 + movement of a separate wh-XP_1 inside Conj1 + elision of wh-XP_1 under identity with wh-XP_2 at PF



Empirical evidence?

- evidence for asymm. approaches: asymm. reconstruction into Conj1 for weak crossover and Principles A+C in English, German (Moltmann 1992; Munn 1993; 2001; Fox 2000; Nissenbaum 2000; Citko 2005; Salzmann 2012*b*):

  (2) Asymmetric reconstruction for Principle A (Munn 1993: 52):

  a. [Which picture of himself$_i$] did [John$_i$ buy] and [Mary paint]?
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- more empirical evidence is needed (from different domains), here: inflection

Outline

Phenomenon

- change of the morphological shape of elements along the path of Ā-movement (addition or replacement of morphemes); see Boeckx (2008); Lahne (2008); Abels (2012); Zentz (2013*a*); Georgi (2014) for overviews
- example: Irish complementizer selection (McCloskey 2001); default form *go* changes to *aL* under Ā-movement:

(3) Irish complementizer selection (McCloskey 2001: 54,67):

a. Deir said **gu**-r ghoid na síogaí í
say they *go*-PST stole the fairies her
'They say that the fairies stole her away.' *declarative*

b. an ghirseach [$_{CP}$ OP$_k$ **a** ghoid na síogaí __$_k$]
the girl *aL* stole the fairies
'the girl that the fairies stole away' *DO-RC*

c. [Cá fhad]$_k$ **a** bhí siad fá Bhaile Átha Cliath __$_k$
Q length *aL* be.PST they around Dublin
'How long were they in Dublin?' *wh-ADJ*

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- only triggered on the path of overt movement (see among others Clements 1984; Haïk 1990; Cole and Hermon 2000; Muriungi 2005)
  - absent in declarative clauses or with wh-/foc-in-situ
  - partial movement: only occurs below the surface position of the moved operator (OP), but not on the (LF) path to the scope position
  - embedded questions: reflex surfaces only in the embedded clause, not in the matrix clause (because it is unaffected by Ā-movement)
  - Ā-movement of material from the matrix clause: reflex occurs only in the matrix clause, but not in embedded clauses

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  - Ā-movement of material from the matrix clause: reflex occurs only in the matrix clause, but not in embedded clauses
- the reflex is not triggered by A-movement (EPP-movement, raising)

Patterns of reflexes

OBSERVATION (cf. Georgi 2014; 2017 for discussion): languages differ in how the reflex is distributed over clauses under long Ā-movement

1. Irish pattern: the reflex occurs in every CP

(4) $[_{\mathrm{CP}_1}\ \mathrm{XP}_{\mathrm{wh}}\ [_{\mathrm{C}'_1}\ \mathbf{C}_1\text{-}\mathbf{R}\ \ldots\ [_{\mathrm{CP}_2}\ \ldots\ \mathbf{C}_2\text{-}\mathbf{R}\ \ldots\ [_{\mathrm{CP}_3}\ \ldots\ \mathbf{C}_3\text{-}\mathbf{R}\ \ldots\ \_\_\mathrm{XP}\ ]]]]$

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3. the reflex occurs only in the non-terminal clauses of the Ā-dependency

   (7) $[_{\mathrm{CP}_1}\ \mathrm{XP}_{\mathrm{wh}}\ [_{\mathrm{C}'_1}\ \mathrm{H}\ \ldots\ [_{\mathrm{CP}_2}\ \ldots\ \mathbf{C}_2\text{-}\mathbf{R}\ \ldots\ [_{\mathrm{CP}_3}\ \ldots\ \mathbf{C}_3\text{-}\mathbf{R}\ \ldots\ \_\_\mathrm{XP}\ ]]]]$

Patterns of reflexes: data

language	spoken in	reflex	pattern / where
Duala	Cameroon	post-verbal particle *nó-*	terminal CP
Bùlì	Ghana	form of C	terminal CP
Ewe	Ghana	form of the 3sg SU pronoun	terminal CP (oblig.)
Kiitharaka	Kenia	pre-verbal marker *n-*	non-terminal CPs

Patterns of reflexes: Duala

- sources: Epée (1975; 1976*b*;*a*); Biloa (1993); Kengne Cenny (2015; 2018)
- reflex: if a non-subject undergoes Ā-movement (wh-/foc-movement, relativization), the particle **no**- must occur after the finite verb, cf. (8-b)
- long Ā-movement: the particle surfaces only in the terminal clause, cf. (8-c)

(8) Focus movement in Duala (Epée 1976*b*: 194, 196):

a. Kuo a bodi nu moto kalati kiele
Kuo 3SG give that man book yesterday
"Kuo gave a book to that man yesterday." *declarative*

b. kalati$_k$ nde Kuo a bodi **no** nu moto __$_k$ kiele
book FOC Kuo 3SG give NO that man yesterday
"It's a book Kuo gave to that man yesterday." *DO mvt.*

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c. [$_{CP}$ ni kalati$_k$ nde na ta **no** na kwalane Kuo [$_{CP}$ na
that book FOC I PST NO I tell Kuo that
a-angamente **(*no)** wana __$_k$]]
3SG-must NO bring
"That's the book I told Kuo that he should bring." *long DO mvt.*

Patterns of reflexes: Bùlì

- sources: Ferreira and Ko (2003); Hiraiwa (2003; 2005*a*;*b*); Sulemana (2014)
- reflex: form of C changes under Ā-movement; default (decl. form) = **àyīn**, under Ā-movement = **ālì** (for subjects) and **àtì** (for non-subjects), cf. (9)

(9) C-form in Bùlì (Hiraiwa 2005*a*: 293, Sulemana 2014: 2,4):

a. bíːká dìg lāmmú
child.DEF cook.PST meat.DEF
"The child cooked the meat." *declarative*

b. Àtìm wēːnī **àyín** Àmˋɔak dà mángò-kú
Atim say.PST C Amoak buy.PST mango-DEF
"Atim said that Amoak bought the mango." *embedded decl.*

c. ká wānā **ālí** dìg lāmmúː
Q who C cook.PST meat.DEF
"Who cooked the meat?" *SU-question*

d. ká b^{w}a **ātí** bíːká dìgìː
Q what C child.DEF cook.PST
'What did the child cook?" *DO-question*

Patterns of reflexes: Bùlì

- long Ā-movement: special C-form occurs only in the terminal clause, non-terminal clauses take the default C-form
- note: long subject extraction triggers the non-subject form *àtì* in the main clause, cf. (11)

(10) Long extraction (Ferreira and Ko 2003: 39, Sulemana 2014: 21):

a. ká b^{w}a **àtì** fí wéːní **āyīn** bíːká dìgìː
Q what C 2SG say.PST C child.DEF cook.PST
"What did you say the child cooked ?" *long DO-question*

b. ká wànà **àtì** Àtìm wèːnì **āyīn** wà nàɤì Mary
Q who C Atim said that he hit Mary
"Who did Atim say (that) hit Mary?" *long SU-question*

Patterns of reflexes: Ewe

- sources: Collins (1993), informants: Princess Korsah, Elvis Yevudey
- reflex: 3sg subject pronoun = *é* in declaratives; changes to **wò** under Ā-movement (wh-/foc-movement, relativization)
- long Ā-movement: the change to *wò* is obligatory in the terminal clause, and optional in non-terminal clauses

(11) *3sg pro in Ewe (Collins 1993: 157, 177f., Georgi 2017: 604f.)*:

a. [**é**/*wò] fo Kɔsi
he hit Kɔsi
"He hit Kɔsi." *decl.*

b. [$_{CP}$ Kofi biɛ [$_{CP}$ be lamata$_k$ [*é/**wò**] fo Kɔsi $\_\__k$]]
Kofi asked C why he hit Kɔsi
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c. [$_{CP}$ Meka-e$_k$ **wò**/*é gblɔ [$_{CP}$ be **wò/é**-bu [$_{CP}$ be **wò/é**-fò __$_k$]]]
who-FOC he say that he-think that he-hit
"Who did he$_i$ say that he$_j$ thinks that he$_m$ hit?" *long DO-mvt.*

Patterns of reflexes: Kiitharaka

- sources: Harford (1997); Muriungi (2005; 2011); Abels and Muriungi (2008)
- reflex: pre-verbal marker **n-** surfaces, but only in non-terminal CPs

(12) *Short wh-movement (Abels and Muriungi 2008: 692, Muriungi 2005: 45)*:

a. Maria a-gur-ir-e i-buku
Maria SM-buy-PERF-FV 5-book
"Maria bought a book." *declarative*

b. I-mbi$_k$ Maria a-k-ir-e __$_k$
FOC-what Maria SM-build-PERF-FV
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(13) *Long wh-movement (Muriungi 2005: 47-48, 67-68)*:

[$_{CP}$ N-uu$_k$ u-ku-thugania [$_{CP}$ ati John **n**-a-ug-ir-e [$_{CP}$
FOC-who 2SG-PRES-think that John N-SM-say-PERF-FV
Lucy **n**-a-ring-ir-e __$_k$]]]
Lucy N-SM-beat-PERF-FV
"Who do you think that John said Lucy beat?" *long DO-question*

Patterns of reflexes: data summary

Terminology to be used:

- reflex form triggered by the terminal mvt. step = **terminal reflex (TR)**
- reflex form triggered by an intermediate step = **intermediate reflex (IR)**

(14) Overview of TR and IR in the four languages:

language	TR	IR
Duala	**no-**	Ø
Bùlì	**ali** (SU), **ati** (non-SU)	*ayin*
Ewe	**wò** (oblig)	*é* or *wò*
Kiitharaka	Ø	**n-**

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    - succ.-cyclic movement, but for some reason the reflexes do not surface in non-terminal clauses
  - view adopted here: all patterns are the result of successive-cyclic movement at least through every SpecC
  - analysis of the variation: irrelevant for what follows (see Georgi 2014; 2017 for a proposal and extensive discussion)

Outline

ATB + asymmetric reflexes

QUESTION: How can asymmetric reflexes help us to gain insights into the nature of ATB-movement?

▶ These languages make a **morphological distinction between terminal and non-terminal (intermediate) movement steps** of $\bar{A}$-movement.

▶ symmetric and asymmetric approaches differ in whether they postulate an intermediate or a terminal movement step in the 1st/2nd conjunct
↪ empirically testable prediction about the distribution of reflexes across conjuncts

Test scenario: long-distance ATB-movement

(15) [$_{\mathrm{CP}}$ What do you think [$_{\&\mathrm{P}}$ [$_{\mathrm{CP}}$ that Mary likes] & [$_{\mathrm{CP}}$ that John hates]]]

- assumption: long $\bar{\text{A}}$-movement applies succ.-cyclically through every SpecC (see Chomsky 1973 et seq., and Abels 2012; van Urk and Richards 2015 for recent arguments + references)

Test scenario: long-distance ATB-movement

(15) [$_{\text{CP}}$ What do you think [$_{\text{\&P}}$ [$_{\text{CP}}$ that Mary likes] & [$_{\text{CP}}$ that John hates]]]

- assumption: long $\bar{\text{A}}$-movement applies succ.-cyclically through every SpecC (see Chomsky 1973 et seq., and Abels 2012; van Urk and Richards 2015 for recent arguments + references)
- consequence: long ATB-movement targets SpecC of each CP conjunct:

  (16) [$_{\text{CP}}$ What do you think [$_{\text{\&P}}$ [$_{\text{CP}}$ $\square$ that Mary likes] & [$_{\text{CP}}$ $\square$ that John hates]]]

- The approaches to ATB differ in whether this movement step is a terminal or an intermediate step $\hookrightarrow$ we can make this visible with asymmetric reflexes

Long-distance ATB: predictions

Symmetric approach: extraction from both conjuncts

- Conj1+Conj2: SpecC = intermed. landing site for wh-XP_1 / wh-XP_2
- MC: SpecC = terminal landing site for wh-XP_1 + wh-XP_2
- **predictions**: MC – TR; Conj1 + Conj2 – IR $\hookrightarrow$ (Conj1 = Conj2) $\neq$ MC

(17) Symmetric approach:

$[_{\mathrm{CP}}$ **what**$_{1,2}$ $[_{\mathrm{C'}}$ C ... $[_{\mathrm{VP}}$ V $[_{\mathbf{\&P}}$ $[_{\mathrm{CP}}$ $\boxed{\mathbf{t'_1}}$ $[_{\mathrm{C'}}$ C $[_{\mathrm{TP}}$ ... $\mathbf{t_1}$ ...]]] $[_{\mathrm{\&'}}$ &

$[_{\mathrm{CP}}$ $\boxed{\mathbf{t'_2}}$ $[_{\mathrm{C'}}$ C $[_{\mathrm{TP}}$ ... $\mathbf{t_2}$ ...]]]]]]]]

Long-distance ATB: Predictions

Asymmetric approach I: wh-extraction from Conj1, OP-mvt. inside Conj2

- Conj1: SpecC = intermed. landing site for wh-XP
- Conj2: SpecC = terminal landing site for OP
- MC: SpecC = terminal landing site for wh-XP
- **predictions**: MC – TR; Conj1 – IR; Conj2 – TR $\hookrightarrow$ (MC = Conj2) $\neq$ Conj1

(18) Asymmetric approach I:

$[_{\mathrm{CP}}$ **what**$_1$ $[_{\mathrm{C'}}$ C ... $[_{\mathrm{VP}}$ V $[_{\mathbf{\&P}}$ $[_{\mathrm{CP}}$ $\boxed{\mathbf{t}'_1}$ $[_{\mathrm{C'}}$ C $[_{\mathrm{TP}}$ ... **t**$_1$ ...]]] $[_{\mathrm{\&'}}$ &

$[_{\mathrm{CP}}$ $\boxed{\textbf{OP}}$ $[_{\mathrm{C'}}$ C $[_{\mathrm{TP}}$ ... **t**$_{OP}$ ...]]]]]]]

Long-distance ATB: Predictions

Asymmetric approach II: wh-extraction from Conj2, OP-mvt. inside Conj1

- Conj1: SpecC = terminal landing site for OP
- Conj2: SpecC = intermed. landing site for wh-XP
- MC: SpecC = terminal landing site for wh-XP
- **predictions**: MC – TR; Conj1 – TR; Conj2 – IR $\hookrightarrow$ (MC = Conj1) $\neq$ Conj2

(19) Asymmetric approach II:
[$_{\mathrm{CP}}$ **what**$_2$ [$_{\mathrm{C'}}$ C ... [$_{\mathrm{VP}}$ V [$_{\mathbf{\&P}}$ [$_{\mathrm{CP}}$ **OP** [$_{\mathrm{C'}}$ C [$_{\mathrm{TP}}$ ... **t**$_{OP}$ ...]]] [$_{\mathrm{\&'}}$ &
[$_{\mathrm{CP}}$ **t'**$_2$ [$_{\mathrm{C'}}$ C [$_{\mathrm{TP}}$ ... **t**$_2$ ...]]]]]]]]

ATB in Duala

- **TR: no**, IR (default): ∅
- informants: Louise Soppi Ebonji, Anne Rosalie Same, Gaelle Linda Eke Belle

ATB in Duala

- **TR: no**, IR (default): Ø
- informants: Louise Soppi Ebonji, Anne Rosalie Same, Gaelle Linda Eke Belle

(20) **Short ATB: TR in both conjuncts**:

Njíkà múnà sáŋgó á tɔ́ndì-nɔ́ ndé nyàŋgó á síŋgɛ́ɛ̄-nɔ́?
which child father SM like-NO and mother SM hate-NO

"Which child does father like and mother hate?"

ATB in Duala

- **TR: no**, IR (default): Ø
- informants: Louise Soppi Ebonji, Anne Rosalie Same, Gaelle Linda Eke Belle

(20) **Short ATB: TR in both conjuncts**:

Njíkà múnà sáŋgó á tɔ́ndì-nɔ́ ndé nyàŋgó á síŋgɛ́ɛ̄-nɔ́?
which child father SM like-NO and mother SM hate-NO

"Which child does father like and mother hate?"

(21) **long ATB: TR in MC + Conj2, IR in Conj1**:

Njíkà múnà ó m-ɔ́ŋgɛ̀lɛ́-nɔ́ ná sáŋgò á tɔ̀ndi ndé nà nyàŋgó
which child 2SG PRES-think-NO that father SM like and that mother
á síŋgɛ́ɛ̄-nɔ́
SM hate-NO

"Which child do you think that father likes and that mother hates?"

▶ any other distribution of the particle across the verbs is ungrammatical!

result: (MC = Conj2)$_{TR}$ ≠ Conj1$_{IR}$ → asymmetric extraction from Conj1

ATB in Bùlì

- **TR: àtì (non-SU), àlı (SU)**, IR (default): *àyīn*
- informants: Abdul-Razak Sulemana (MIT)

ATB in Bùlì

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(22) **short ATB: TR in both conjuncts**:

a. ká bwà **àtì** Àmòak dà **àtì** Àtìm dɛ
Q what that Amoak bought and Atim ate
"What did Amoak buy and Atim eat?" *DO-Q*

b. ká wānā **àlı** à-yā꞉ Amary **àlı** a-kisi Ajohni꞉
Q who C ASP-like Mary C ASP-hate John
"Who likes Mary and dislikes John?" *SU-Q*

ATB in Bùlì

(23) **long ATB: TR in MC + Conj2, IR in Conj1**:

a. ká bwà **àtì** núrú-wú we:nɪ **àyīn** Àmòak dà **àtì** Àtìm dɛ
Q what that man-DEF said that Amoak bought that Atim ate
"What did the man say that Amoak bought and that Atim ate?" *DO-Q*

b. ká wānā **àtì** núrú-wú wè:ni **àyīn** wa à-yā: Amary **àlɪ** a-kisi Ajohni:
Q who C man-DEF said C 3SG A-like Mary C A-hate John
"Who did the man say likes Mary and dislikes John?" *SU-Q*

▶ any other distribution of C-forms is ungrammatical
→ **asymmetric extraction from Conj1**

ATB in Ewe

- **TR: wò (oblig)**, IR: *wò* or *é* (default)
- informants: Kofi Dorvlo (Univ. of Ghana), Ken Adevu (Dep. of Languages OLA Senior High School, Ho), Edem Dande (Senior High, Agbozume), Princess Korsah

ATB in Ewe

- **TR: wò (oblig)**, IR: *wò* or *é* (default)
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(24) **short ATB: TR preferred in both conjuncts**:

a. Nu-ká Yao tu eye Kofi fle
thing-Q Yao build and Kofi buy
"What did Kofi buy and John build?"

b. Nu-ká **??é/wò** tu eye Kofi fle
thing-Q 3SG.SU build and Kofi buy
"What did he buy and John build?" *3sg pron. in Conj1*

c. Nu-ká Yao tu eye **??é/wò** fle
thing-Q Yao build and 3SG.SU buy
"What did Kofi buy and he build?" *3sg pron. in Conj2*

ATB in Ewe

(25) **long ATB: TR in MC + Conj2, IR in Conj1**:

a. Nu-ká Kosi bu be Yao tú eye Kofi fle
thing-Q Kosi think that Yao build and Kofi buy
"What does Kosi think that Kofi built and Yao bought?"

ATB in Ewe

(25) **long ATB: TR in MC + Conj2, IR in Conj1**:

a. Nu-ká Kosi bu be Yao tú eye Kofi fle
thing-Q Kosi think that Yao build and Kofi buy
"What does Kosi think that Kofi built and Yao bought?"

b. Nu-ká ***é/wò**-bu be Yao tu eye Kofi fle
thing-Q 3SG.SU-think that Yao build and Kofi buy
"What does he think that Yao built and (that) Kofi bought?" *Conj1*

c. Nu-ká Kosi bu be **é/wò**-tú eye ne-fle
thing-Q Kosi think that 3SG.SU-build and 2SG.SU buy
"What does Kosi think that he built and (that) you bought?" *Conj2*

d. Nu-ká Kosi bu be Yao tu eye ***é/wò**-fle
thing-Q Kosi think that Yao build and 3SG.SU bought
"What does Kosi think that Yao built and that he bought?" *Conj3*

ATB in Ewe

(25) **long ATB: TR in MC + Conj2, IR in Conj1**:

a. Nu-ká Kosi bu be Yao tú eye Kofi fle
thing-Q Kosi think that Yao build and Kofi buy
"What does Kosi think that Kofi built and Yao bought?"

b. Nu-ká ***é/wò**-bu be Yao tu eye Kofi fle
thing-Q 3SG.SU-think that Yao build and Kofi buy
"What does he think that Yao built and (that) Kofi bought?" *Conj1*

c. Nu-ká Kosi bu be **é/wò**-tú eye ne-fle
thing-Q Kosi think that 3SG.SU-build and 2SG.SU buy
"What does Kosi think that he built and (that) you bought?" *Conj2*

d. Nu-ká Kosi bu be Yao tu eye ***é/wò**-fle
thing-Q Kosi think that Yao build and 3SG.SU bought
"What does Kosi think that Yao built and that he bought?" *Conj3*

result: (MC = Conj2)$_{TR}$ $\neq$ Conj1$_{IR}$ $\rightarrow$ asymmetric extraction from Conj1

ATB in Kiitharaka

- TR: Ø (default), **IR: pre-verbal n-**
- informants: Lydia Ruguru (Kenyatta University, Kenya), Purity Isumbi, Rufo Kiria, Doreen Muthoni, Martin Gwatia, Eric Mutumiria (University of Embu, Kenya)

ATB in Kiitharaka

- TR: Ø (default), **IR: pre-verbal n-**
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(26) **short ATB: TR in both conjuncts**:

i-mbi Maria **Ø**-a-gur-a noe John **Ø**-a-rebur-a
FOC-what Maria Ø-SM-buy-FV and John Ø-SM-break-FV
"What did Maria buy and John break?"

ATB in Kiitharaka

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- informants: Lydia Ruguru (Kenyatta University, Kenya), Purity Isumbi, Rufo Kiria, Doreen Muthoni, Martin Gwatia, Eric Mutumiria (University of Embu, Kenya)

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"What did Maria buy and John break?"

(27) **long ATB: TR in MC + Conj2, IR in Conj1**:

i-mbi mfana **Ø**-a-thugani-a ati Maria **n**-a-gur-ir-e noe
FOC-what Mfana Ø-SM-think-FV that Maria N-SM-buy-PERF-FV and
John **Ø**-a-rebur-a
John Ø-SM-broke-FV
"What does Mfana think that Maria bought and that John broke?"

result: (MC = Conj2)$_{TR}$ $\neq$ Conj1$_{IR}$ $\rightarrow$ asymmetric extraction from Conj1

Results

In each of the 4 languages....

- short ATB: terminal reflex in both conjuncts
- long ATB: $(\text{MC} = \text{Conj2})_{TR} \neq \text{Conj1}_{IR}$

$\Rightarrow$ evidence for asymmetric extraction from Conj1

Results

In each of the 4 languages....

- short ATB: terminal reflex in both conjuncts
- long ATB: $(\text{MC} = \text{Conj2})_{TR} \neq \text{Conj1}_{IR}$

$\Rightarrow$ evidence for asymmetric extraction from Conj1

▶ same result from another inflection test:

ATB-V-movement in Germanic: ATB-moved finite verb must agree with the subject of Conj1 (cf. An 2006 on English, Salzmann 2012*a* on German)

(28) V2-ATB-movement in German:

$\text{Was}_{1,2}$	$\text{hast}_{3,4}$/*hat	[du	t_1	gekauft	t_3]	und [Peter	t_2	verkauft	t_4]?
what	have.2SG/have.3SG	you		bought		and Peter		sold	

"What did you buy and Peter sell?"

Outline

Short vs. long ATB-movement

- How can we explain the different distribution of reflexes across the two conjuncts in short vs. long ATB questions?

Idea: clause-bound upward Agree:

Short vs. long ATB-movement

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Idea: clause-bound upward Agree:The reflex-hosting head (C, T, v/V) agrees upwards with the (copy of the) operator in the minimal SpecC and checks whether this OP is in its terminal or in an intermediate landing site

(see among others Nunes 2004; Chomsky 2000; 2001; Sabel 2000; Heck and Müller 2003; Bošković 2007 for such a distinction)

Short vs. long ATB-movement

▶ How can we explain the different distribution of reflexes across the two conjuncts in short vs. long ATB questions?

Idea: clause-bound upward Agree:The reflex-hosting head (C, T, v/V) agrees upwards with the (copy of the) operator in the minimal SpecC and checks whether this OP is in its terminal or in an intermediate landing site

(see among others Nunes 2004; Chomsky 2000; 2001; Sabel 2000; Heck and Müller 2003; Bošković 2007 for such a distinction)

- short ATB-movement (C′ or TP-coordination):
  The closest SpecC for the C/T/v heads in Conj1 and Conj2 = the sole SpecC that hosts wh-XP in its terminal position ⇒ TR in both conjuncts

(29) $[_{\mathrm{CP}}$ **wh-XP** $[_{\mathrm{C'}}$ C $[_{\&\mathrm{P}}$ $[_{\mathrm{TP}_1}$ $\mathbf{T}_1$ … t_{wh} … $[_{\&'}$ $[_{\mathrm{TP}_1}$ $\mathbf{T}_2$ …]]]]]]

TR

TR

Short vs. long ATB

- long ATB-movement (CP-coordination):
  - **matrix** C/T/v: minimal SpecC = matrix SpecC with wh-XP in its terminal position ⇒ TR
  - Conj1 C/T/v: minimal SpecC = Conj1-SpecC with a copy of wh-XP in its intermed. landing site ⇒ IR
  - Conj2 C/T/v: minimal SpecC = Conj2-SpecC with OP in its terminal position ⇒ TR

(30) $[_{\mathrm{CP}}$ **wh-XP** $[_{\mathrm{C'}}$ C $[_{\mathrm{TP}}$ **T** ... $[_{\mathrm{VP}}$ V $[_{\&\mathrm{P}}$ $[_{\mathrm{CP}_1}$ **t′** $[_{\mathrm{C}'_1}$ C_1 $[_{\mathrm{TP}_1}$ $\mathbf{T}_1$ ... t]]]
$[_{\&'}$ $[_{\mathrm{CP}_2}$ **OP** $[_{\mathrm{C}'_2}$ C_2 $[_{\mathrm{TP}_2}$ $\mathbf{T}_2$ ... t]]]]]]]]]

TR

IR

TR

A different analysis of reflex pattern 2?

- asymmetric pattern 2: reflex only in the terminal clause under long Ā-movement

(31) $[_{\mathrm{CP}_1}\ \mathrm{XP}_{\mathrm{wh}}\ [_{\mathrm{C}'_1}\ \mathbf{C}_1\textbf{-R}\ \ldots\ [_{\mathrm{CP}_2}\ \ldots\ \mathrm{C}_2\ \ldots\ [_{\mathrm{CP}_3}\ \ldots\ \mathrm{C}_3\ \ldots\ \underline{\quad}_{\mathrm{XP}}\ ]]]]$

A different analysis of reflex pattern 2?

- asymmetric pattern 2: reflex only in the terminal clause under long Ā-movement

(31) $[_{\mathrm{CP}_1}\ \mathrm{XP}_{\mathrm{wh}}\ [_{\mathrm{C}'_1}\ \mathbf{C}_1\textbf{-R}\ \ldots\ [_{\mathrm{CP}_2}\ \ldots\ \mathrm{C}_2\ \ldots\ [_{\mathrm{CP}_3}\ \ldots\ \mathrm{C}_3\ \ldots\ \underline{\quad}_{\mathrm{XP}}\ ]]]]$

- alternative analysis: the special morphological form is not a reflex of movement, but indicates clause-type (interrogative) $\hookrightarrow$ hence, it is absent in the embedded (declarative) clause(s); cf Zentz (2013*b*) on Duala *no*-marking

A different analysis of reflex pattern 2?

- asymmetric pattern 2: reflex only in the terminal clause under long Ā-movement

(31) $[_{\mathrm{CP}_1}\ \mathrm{XP}_{\mathrm{wh}}\ [_{\mathrm{C}'_1}\ \mathbf{C_1\text{-}R}\ \ldots\ [_{\mathrm{CP}_2}\ \ldots\ \mathrm{C}_2\ \ldots\ [_{\mathrm{CP}_3}\ \ldots\ \mathrm{C}_3\ \ldots\ \_\_\mathrm{XP}\ ]]]]$

- alternative analysis: the special morphological form is not a reflex of movement, but indicates clause-type (interrogative) $\hookrightarrow$ hence, it is absent in the embedded (declarative) clause(s); cf Zentz (2013*b*) on Duala *no*-marking
- **The long ATB-data show that this view is not tenable** (for Duala): the special morphological form also occurs in Conj2 – a declarative clause $\Rightarrow$ it is indeed a reflex of movement

Conclusions

- new diagnostic tool that can help us distinguish between symmetric and asymmetric approaches to ATB-movement: asymmetric reflexes of movement (morph. difference between terminal / intermed. movement steps)
- asymmetric and symmetric approaches make different predictions about the distribution of these reflexes across conjuncts under long ATB-movement
- the facts argue for asymmetric extraction from conjunct 1
- further asymmetry between short and long ATB-movement: can be modeled by a locality restriction on upward Agree

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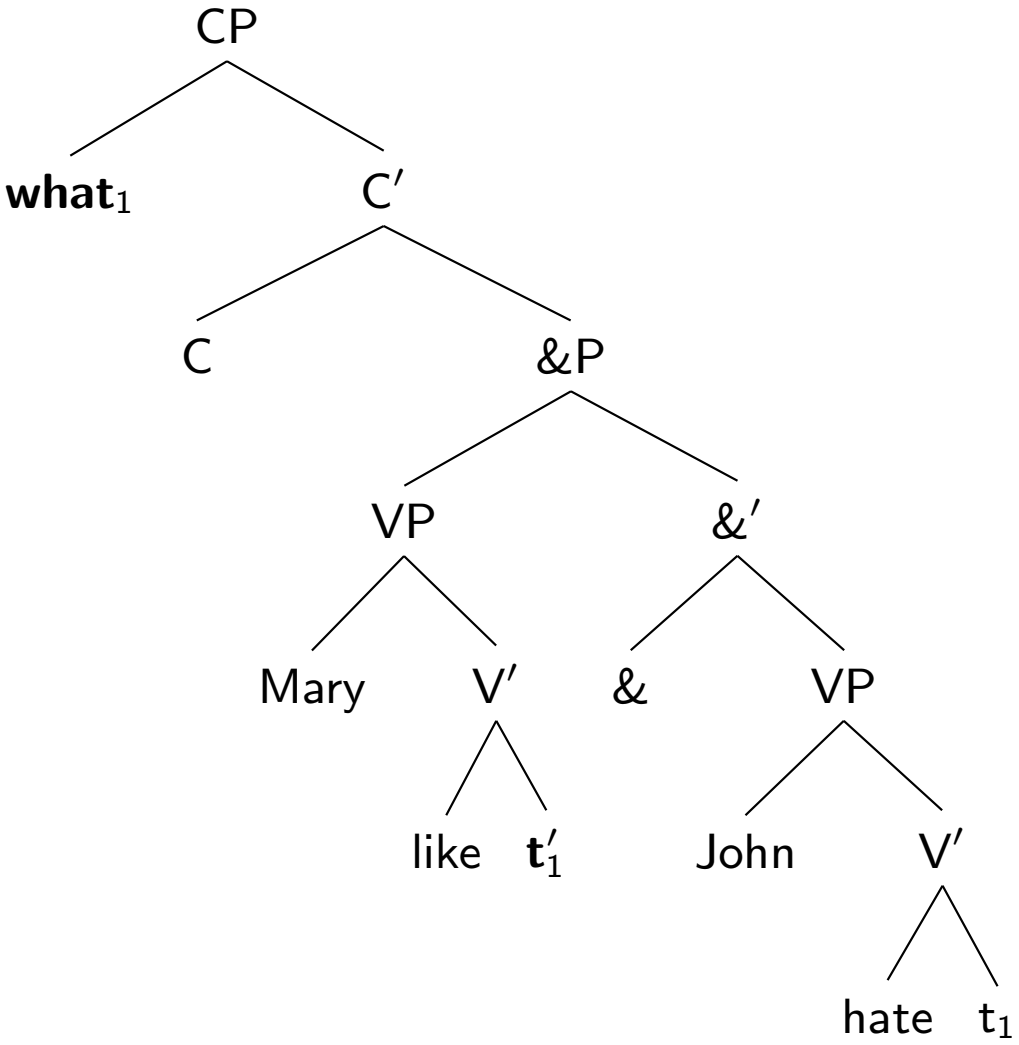
Sideward-movement approach to ATB-movement

- Nunes (2004); has properties of symmetric and asymmetric approaches
- wh-movement of wh-XP to the scope position only from Conj1, but there is interarboreal movement of wh-XP from Conj2 into Conj1



Sideward-movement approach to ATB-movement

Predictions for long ATB-movement + reflexes:

- MC: terminal movement step of wh-XP ⇒ TR
- Conj1: intermed. movement step of wh-XP to SpecC ⇒ TR
- Conj2: does the wh-XP move to Conj2-SpecC before it moves to Conj1??
  - yes: intermed. movement step ⇒ IR
  - no: no reflex of $\bar{\text{A}}$-movement (default morphology)

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Conclusion: The sideward movement approach makes wrong predictions for the reflex pattern in Conj2 under long ATB.