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1 Introduction

Parasitic gaps as in (1) have often been used to diagnose whether scrambling is A- or A′-movement (papers in Corver and van Riemsdijk 1994; Karimi 2003a,b, a.o.).[1]

(1) Who do [friends of $\_\__{PG}$] often end up hating __? (Nissenbaum 2000:22)

If scrambling licenses a parasitic gap, then it is A′-movement:

(2) a. [XP_i ... [✓ $\_\__{PG}$] ... t_i] A′-scrambling

b. [XP_i ... [✗ $\_\__{PG}$] ... t_i] A-scrambling

Parasitic gap ∼ scrambling connection from a different angle:
If a language allows PGs within DPs, ***A-scrambling should feed PG licensing in cases which would otherwise trigger a violation of the anti-c-command condition***.

(3) **ANTI-C-COMMAND CONDITION ON PARASITIC GAPS** (Engdahl 1983):
The licensing gap cannot c-command the parasitic gap.

(4) **Pre-scrambling structure:**
*anti-c-command

[DP_1 ... t_1 ... [$_{DP2}$ ✗ $\_\__{PG}$]]
wh-movt

(5) **Post-scrambling structure:**
✓anti-c-command

A-scrambling
[DP_1 ... [$_{DP2}$ ✓ $\_\__{PG}$] ... t_1 t_2]]
wh-movt

This prediction is confirmed in West Circassian.

West Circassian (or Adyghe, Northwest Caucasian family) is polysynthetic: radical head marking, pro-drop, free word order

Standard cues for diagnosing scrambling (e.g. word order) cannot be easily identified.

Parasitic gaps can be identified via morphological clues = **multiple wh-agreement.**

Roadmap: 2 Background on West Circassian; 3 Multiple wh-agreement as a parasitic gap dependency; 4 The anti-c-command condition; 5 A-Scrambling; 6 Conclusion.

[1]The data for this talk comes from the Temirgoy dialect and was collected in Maykop and the Khatazhukay rural settlement (Republic f Adygea, Russia) in fall 2017 and summer 2018. The author thanks the speakers of West Circassian for their help, especially Svetlana K. Alishaeva, Saida Gisheva, Susana K. Khatkova, and Zarema Meretukova. The author is grateful to Karlos Arregi, Yury Lander, Jim McCloskey, Jason Merchant, David Pesetsky, and the audiences at the Morphology & Syntax Workshop at UChicago and NELS 48 for feedback and helpful discussion of various aspects of this project. This work was funded by the Graduate Research Aid Initiative in Linguistics from the University of Chicago, the Dissertation Research Grant from the Association for Slavic, East European, and Eurasian Studies, and the NSF Doctoral Dissertation Research Improvement Grant #1749299. All mistakes are my own.

2 Background on West Circassian

2.1 General clause structure

- Polysynthesis:[2]

(6) sə- qə- p- f- a- r- jə- ʁe- ƛeʁʷə -ʁ
1SG.ABS- DIR- 2SG.IO- BEN- 3PL.IO- DAT- 3SG.ERG- CAUS- see -PST
'He showed me to them for your sake.' (Korotkova and Lander 2010:301)

- Cross-reference morphology strictly ordered per ergative alignment:

(7) a. **ABS- APPL- ERG-**
w- a- de- s- šʼaʁ
1SG.ABS- 3PL.IO- COM- 1SG.ERG- bring.PST
'I brought you with them' (Rogava and Keraševa 1966:160)

b. **ABS- APPL-**
wə- q- a- fe- qʷaʁ
2SG.ABS- DIR- 3PL.IO- BEN- go.PST
'You went' (Rogava and Keraševa 1966:138)

- Possessee marked with personal marker referring to possessor:

(8) **s-**šəpχʷə-xe-r
1SG.PR-sister-PL-ABS
'my sisters' (inalienable)

(9) **t-jə-**ʁʷənaʁʷə-xe-m
1PL.PR-POSS-neighbor-PL-OBL
'our neighbors' (alienable)

- Ergative alignment in case marking:

-r (absolutive) = subject of intransitive verb, theme of transitive verb
-m (oblique) = agents of transitive verbs, applied objects, possessors, complements of postpositions

- Indefinite nouns, possessed nominals in the singular, proper names and personal pronouns are usually unmarked for case (Arkadiev et al. 2009:51-52; Arkadiev and Testelets 2015) ⇒ case markers are definite determiners (D^0).

[2]Glosses: ABSolutive; ADV–adverbial; BENefactive; CAUSative; DATive; DIRective; ERGative; HABITual; IO–indirect object; LIMitive; LOCative; MODal future; NEGation; OBLique; PLural; POSSessive; PP–complement of postposition; PR–possessor; PREDicative; PRS–present tense; PST–past; Question; SG–singular.

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2.2 Relative clauses

Per Lander (2009a,b, 2012); Caponigro and Polinsky (2011)

Relativization is the only type of wh-movement.

(10) **General structure of relative clauses (Caponigro and Polinsky 2011):**

[$_{CP}$ Op$_i$ C[WH] [$_{TP}$ ... t_i ...]]

- ϕ-agreement referring to the relativized participant replaced by **wh-agreement**:

  z(ə)- = ergative agents, applied objects, and possessors

  Ø- = absolutive arguments

- **Nominal head** (i) appears to the left of relative clause with *-ew* (ADV) case marking; (ii) to the right with regular case marking; (iii) is null (in headless relative clauses).

(11) **Relativization of an ergative agent:**

a. **mə č̣'ale-m$_i$(ERG)** ə-š velosjəped
this boy-OBL 3SG.PR-brother bicycle
Ø- Ø- r- **jə-** tə -ʁ
3ABS- 3SG.IO- DAT- **3SG.ERG**- give -PST
'This boy gave a bicycle to his brother.'

b. marə č̣'al-ew [$_{RC}$ Op$_i$ t_i(ERG) ə-š velosjəped
here boy-ADV 3SG.PR-brother bicycle
Ø- Ø- je- **zə-** tə -ʁe] -r
3ABS- 3SG.IO- DAT- **WH.ERG**- give -PST -ABS
'Here is the boy that gave a bicycle to his brother.'

2.3 Multiple wh-agreement

Multiple wh-agreement: if the relativized participant is co-referent with another argument in the clause, that argument may trigger additional wh-agreement.

(12) marə č̣'al-ew [$_{RC}$ Op$_i$ [$_{DP}$ ***pro*$_i$(PR)** **ə / zə-**š](ERG) t_i(IO)
here boy-ADV **3SG/WH.PR**-brother
velosiped Ø- qə- **ze-** r- jə- tə -ʁe] -r
bicycle 3ABS- DIR- **WH.IO**- DAT- 3SG.ERG- give -PST -ABS
'Here is the boy$_i$ to whom his$_i$ brother gave a bicycle.'

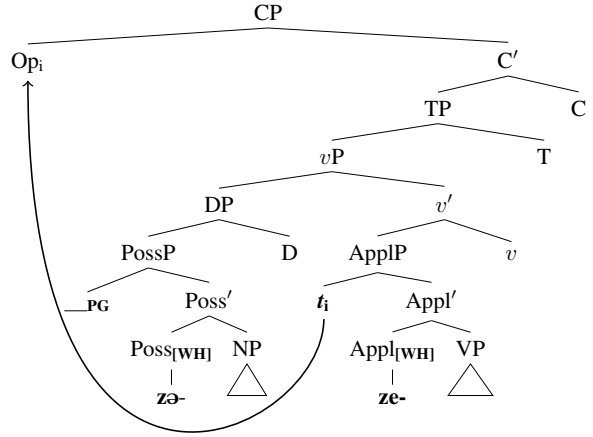
May also appear cross-clausally:

(13) marə č̣'al-ew [$_{RC}$ Op$_i$ t_i(ERG) varenje Ø- **zə-** šxə -re -r
here boy-ADV jam 3ABS- **WH.ERG**- eat -PRS -ABS
[$_{CP}$ ***pro*$_i$(ERG)** s^{w}əpə-r Ø- **ə / zə-** mə- wəx -ze]]
soup-ABS 3ABS- **3SG/WH.ERG**- NEG- finish -CNV
'Here is the boy who is eating jam without finishing the soup.'

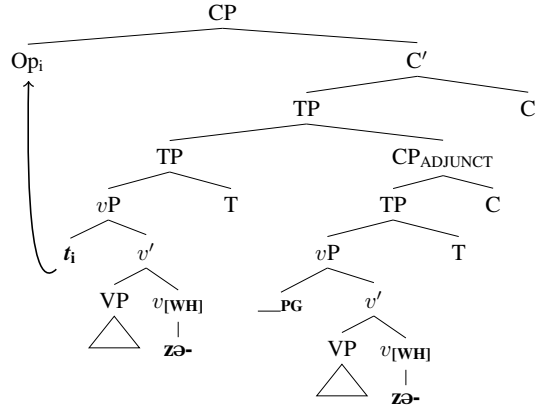
3 Multiple wh-agreement as a parasitic gap dependency

Main point: parasitic gaps can be diagnosed via multiple wh-agreement.
- One-to-one mapping between wh-traces and wh-agreement.
- Additional wh-agreement is agreement with a parasitic wh-trace.

(14) Structure for (12):



(15) Structure for (13):



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Multiple wh-agreement displays properties typical of parasitic gaps (Ershova 2018b):

- Additional wh-agreement in multiple wh-agreement is mostly optional.
- Additional wh-agreement may appear within islands for extraction:

(16) **Non-absolutive DPs:**[3]

a. * marə ŝʷəz-ew [$_{RC}$ Op$_i$ [$_{DP}$ ***t*$_i$** **z**-jə-ç̣’ale]**(ERG)** dax-ew
here woman-ADV **WH.PR**-POSS-boy good-ADV
wered Ø- q- ə- ʔʷe -re] -r
song 3ABS- DIR- 3SG.ERG- say -PRS -ABS
Expected: ‘Here is the woman whose son sings (lit. says songs) well.’

b. [$_{RC}$ Op$_i$ [$_{DP}$ *pro*$_i$/**__$_{PG}$(PR)** Ø / **z**-jate]**(ERG)** ***t*$_i$(IO)** mašjəne
3SG / **WH.PR**-father car
Ø- qə- **ze**- r- jə- tə -ʁe] č’ale-m sjexʷapse
3ABS- DIR- **WH.IO**- DAT- 3SG.ERG- give -PST boy-OBL I envy
‘I envy the boy to whom$_i$ his$_i$ father gave a car.’

(17) **Clausal adjuncts:**

a. * xet-a [$_{RC}$ Op$_i$ Zarine [$_{ADJUNCT}$ ***t*$_i$**(IO) Ø- **z**- e- mə-
who-Q Zarine 3ABS- **WH.IO**- DAT- NEG-
wəpç̣’əž’ -ew] mə pŝaŝe-m qəfjəš’efəʁe] -r
ask -ADV this girl-OBL 3SG.IO(BEN)+3SG.ERG.buy.PST -ABS
lit. ‘Whom did Zarina buy a book for this girl [without asking __].’

b. xet-a [$_{RC}$ Op$_i$ Zarine [$_{ADJUNCT}$ *pro*$_i$/**__$_{PG}$(IO)** Ø- j / **z**-
who-Q Zarine 3ABS- 3SG / **WH.IO**-
e- mə- wəpç̣’əž’ -ew] ***t*$_i$(IO)** Ø- qə- **z**- f- jə-
DAT- NEG- ask -ADV 3ABS- DIR- **WH.IO**- BEN- 3SG.ERG-
š’efə -ʁe] -r
buy -PST -ABS
‘Whom did Zarina buy a book for _ [without asking _].’

Additional evidence for parasitic gap analysis of multiple wh-agreement in **Appendix A**.

[3]See e.g. Bošković (2015, in press) on islandhood of inherent case-marked phrases.

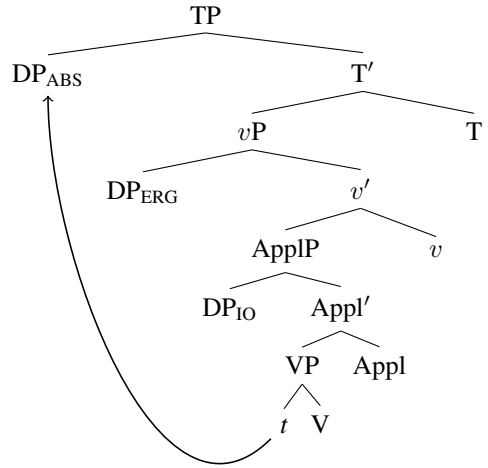
4 The Anti-C-Command Condition

Parasitic gaps in West Circassian are subject to the **anti-c-command condition** (Ershova 2018b,a):

(18) ANTI-C-COMMAND CONDITION:
“A parasitic gap may not be c-commanded by the real gap.” (Engdahl 1983:22)

- West Circassian is a **high-absolutive** language: DP$_{ABS}$ is assigned case by T^0 and moves to Spec,TP.
- Previous proposals for high absolutive: Bittner and Hale (1996); Manning (1996); Aldridge (2008); Coon et al. (2014); Yuan (2018)
- ⇒ **an absolutive trace fails to license parasitic gaps within clausemate DPs**[4]

(19) West Circassian clause structure for three-place predicate:



(20) **Absolutive external argument + possessor within an applied object DP:** ***PG**

a. se səš’eš’əne ha-w [$_{RC}$ Op$_i$ *t*$_i$**(ABS)** [$_{DP}$ *pro*$_i$ / ***__$_{PG}$**(PR)
I fear dog-ADV
Ø / *****z**-jə-xʷezjajən]**(IO)** **Ø**- Ø- je- ceqež’ə -ʁe] -m
3SG/***WH.PR**-POSS-owner **WH.ABS**- 3SG.IO- DAT- bite -PST -OBL
‘I fear the dog that bit its owner.’

[4]The ban on multiple wh-agreement with a relativized absolutive was first observed by Lander (2009a,b, 2012).

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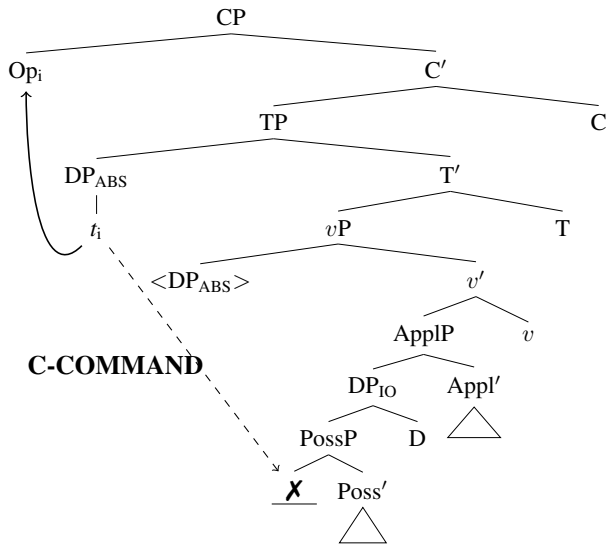
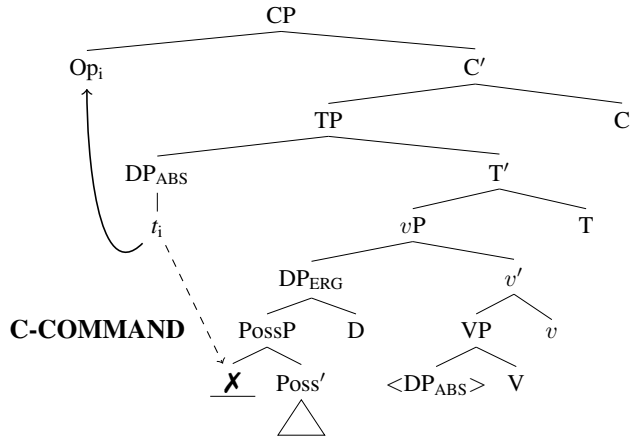
b.



(21) **Absolutive internal argument + possessor within an ergative DP: *PG**

a. [$_{RC}$ Op$_i$ t_i**(ABS)** [$_{DP}$ *pro*$_i$ / ***__PG**(PR) Ø / ***z**-jane]**(ERG)**
3SG/***WH.PR**-mother
Ø- mə- ʁa- šxe -re] haž^{w}əš'ər-xe-m səg^{w} afewəzə
WH.ABS- NEG- CAUS- eat -PRS puppy-PL-OBL my heart aches
'My heart aches for the puppies whom their mother doesn't feed.'

b.



Ergative and applied object traces <u>can</u> license PGs within DP$_{ABS}$ – see **Appendix B**.

Summary: West Circassian parasitic gaps are subject to the anti-c-command condition – the absolutive trace in Spec,TP cannot license parasitic gaps in other DPs.

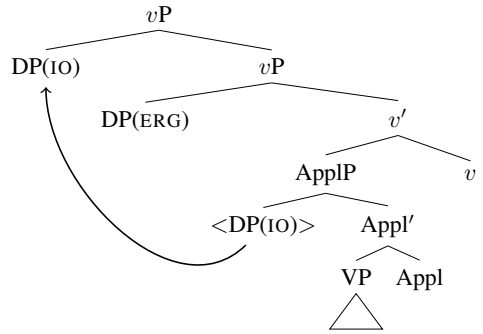
5 Interactions between non-absolutive DPs and A-scrambling

Main claim: The applied object may undergo A-scrambling from Spec,ApplP to Spec,vP above ergative agent.

Evidence: Non-absolutive DPs do not display anti-c-command effects.

Local A-scrambling is common cross-linguistically: e.g. in Hindi (Mahajan 1990, 1994; Dayal 1994), Persian (Karimi 2003b, 2005), Japanese (Grewendorf and Sabel), Georgian (McGinnis 1999), and Tlingit (Cable 2009).

(22) **Structure of vP after A-scrambling:**



5.1 Non-absolutive DPs are not subject to the anti-c-command condition

Baseline prediction: If XP c-commands YP, wh-movement of XP should fail to license parasitic gap in YP.

⇒ If DP$_{ERG}$>DP$_{IO}$, an ergative trace should fail to license parasitic gaps in DP$_{IO}$.

<u>This is not borne out:</u>

- Applied object trace can license PG in ergative DP:

(23) marə č'al-ew [$_{RC}$ Op$_i$ [$_{DP}$ *pro*$_i$ / **__PG(PR)** ə / **zə**-š](ERG)
here boy-ADV 3SG/**WH.PR**-brother
t_i(IO) velosiped Ø- qə- **ze**- r- jə- tə -ʁe] -r
bicycle 3ABS- DIR- **WH.IO**- DAT- 3SG.ERG- give -PST -ABS
'Here is the boy$_i$ to whom his$_i$ brother gave a bicycle.'

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- **(!)** But ergative trace can likewise license PG in applied object DP:

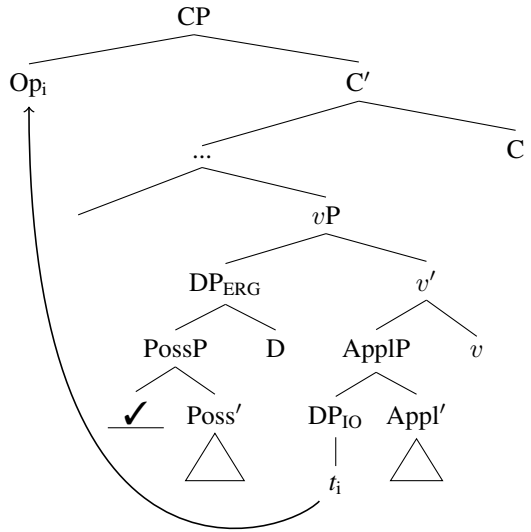
(24) marə č̣'al-ew [$_{RC}$ Op$_i$ t_i(ERG) [$_{DP}$ *pro*$_i$ / **__PG**(PR) ə / **zə**-š](IO)
here boy-ADV 3SG/**WH.PR**-brother
velosjəped Ø- Ø- je- **zə**- tə -ʁe] -r
bicycle 3ABS- 3SG.IO- DAT- **WH.ERG**- give -PST -ABS
'Here is the boy who$_i$ gave a bicycle to his$_i$ brother.'

Proposal: the lack of any anti-c-command effect between non-absolutive DPs is a consequence of A-scrambling within vP.

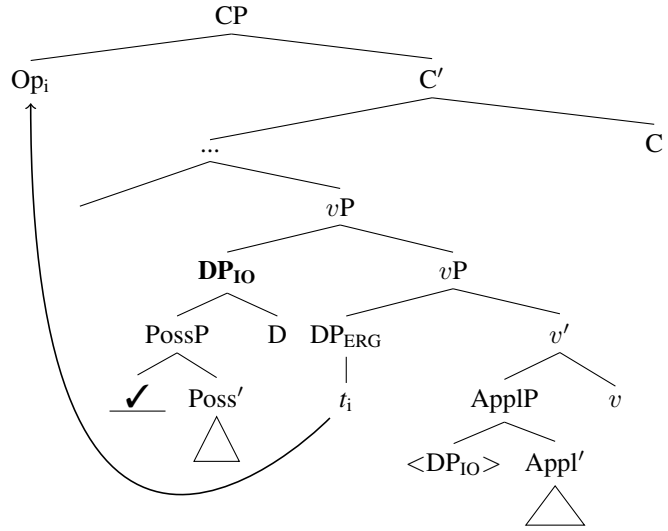
Analysis: v^0 may optionally carry an uEPP feature which allows for the applied object to undergo movement to Spec,vP.

Consequence for parasitic gaps: no anti-c-command effects

(25) a. IO trace licenses PG in ergative DP:



b. ERG trace licenses PG in scrambled applied object DP:



Summary: A-scrambling feeds parasitic gap licensing within the applied object DP by an ergative wh-trace.

5.2 Another puzzle explained: no Weak Crossover effects

Main claim: Clausemate DPs fail to display Weak Crossover effects due to A-scrambling.

Engdahl (1983): potential Weak Crossover configurations give rise to obligatory PGs

(26) a. Which student$_i$ did [your attempt to talk to _/*him$_i$] scare _ to death? (Engdahl 1983:16)

b. [$_{CP}$ which student$_i$ ... [$_{TP}$ [$_{DP}$ ... _/*him$_i$] ... scare t_i ...]]

The same pattern holds in West Circassian: wh-movement out of an embedded CP licenses an obligatory parasitic gap in the matrix clause

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(27) a. marə pŝaŝ-ew [RC Opi [CP ç̣'elejeʁaǯe-r t_i(IO)
here girl-ADV teacher-ABS
Ø- qə- **z-** e- ç̣eç̣e -n -ew]
3ABS- DIR- **WH.IO**- DAT- scold -MOD -ADV
[DP __PG / ***pro*i** **z / *Ø**-jane(ABS)] Ø-fe-mə-je] -r
WH/3SG.PR-mother 3ABS-BEN-NEG-want -ABS
'Here is the girl whom$_i$ her$_i$ mother doesn't want [the teacher to scold __]'

b. [RC Opi [DP __PG / ***pro*i** ...] ... [CP ... t_i(IO) ...]]

A-scrambling analysis correctly predicts lack of Weak Crossover effects between DP_{IO} and DP_{ERG}, i.e. optionality of parasitic gap:

(28) a. marə ç̣'al-ew [RC Opi [DP ***pro*i / __PG(PR)** **ə / zə-š**](ERG)
here boy-ADV **3SG/WH.PR**-brother
t_i(IO) velosiped Ø- qə- **ze-** r- jə- tə -ʁe] -r
bicycle 3ABS- DIR- **WH.IO**- DAT- 3SG.ERG- give -PST -ABS
'Here is the boy$_i$ to whom his$_{i/j}$ brother gave a bicycle.'

b. Hypothesized structure without scrambling:
* [CP Opi ... [DP(ERG) *pro*i ...] ... t_i(IO)]

c. Actual structure – no Weak Crossover configuration:
[RC Opi [vP t_i(IO) [vP [DP(ERG) ***pro*i** ...] ...]]

Summary: A-scrambling of DP_{IO} to Spec,vP accounts for the absence of both anti-c-command and Weak Crossover violations between non-absolutive DPs.

6 Conclusion

- West Circassian scrambling can be diagnosed solely through morphological cues (wh-agreement marking), without any reference to word order.
- A-scrambling can feed parasitic gap licensing by obviating potential anti-c-command violations.

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Appendices

A Additional evidence for parasitic gap analysis

A.1 Parasitic gaps cannot be embedded in an additional island

Kayne (1983); Chomsky (1986); Nissenbaum (2000); Hornstein (2001); Kennedy (2003); Nunes (2004), *a.o.*: parasitic gap dependency cannot cross more than one island boundary.

(29) Who did John visit _
non-island: ✓ [without claiming [that he knew _]]
adjunct island: ?? [after offending me [by not introducing me to _]]

In West Circassian:

(30) a. marə [RC bzəʎfəʁ-ew$_i$ [ADJUNCT [COMP *pro*$_i$ / **?_PG**(IO)
here woman-ADV
sə- **Ø / ?z-** de- g^{w}əš'ə?e -nə -m] sə-pəʎə-fe]
1SG.ABS- **3SG/WH.IO**- COM- speak -MOD -OBL 1SG.ABS-attempt-LIM
zə-g^{w}ere t_i(IO) Ø- qə- **z-** fə- tje- wa -ʁe] -r
one-INDEF 3ABS- DIR- **WH.IO**- BEN- LOC- hit -PST -ABS
'Here is the woman whom someone called [while I was trying [to speak with her]]'

b. marə [RC ŝ^{w}əz-ew$_i$ [ADJUNCT [ADJUNCT *pro*$_i$ / **??_PG**(IO)
here woman-ADV
sə- **Ø / ??z-** de- g^{w}əš'ə? -ew] sə- š'e- sə -fe]
1SG.ABS- **3SG/??WH.IO**- COM- speak -ADV 1SG.ABS- LOC- sit -LIM
zə-g^{w}ere t_i(IO) Ø- qə- **z-** fə- tje- wa -ʁe] -r
one-INDEF 3ABS- DIR- **WH.IO**- BEN- LOC- hit -PST -ABS
'Here is the woman whom someone called [while I was sitting [talking to her]]'

A.2 Parasitic gaps cannot be licensed by a PP wh-trace

Cinque (1990); Postal (1993): parasitic gaps cannot be licensed by a PP-trace.

(31) a. This is a topic$_i$ you should think about t_i [before talking about _$_{PG}$].
b. * This is a topic about which$_i$ you should think t_i [before talking _$_{PG}$].

PPs are cross-referenced on the predicate via applicative (LOC) and can be *pro*:

(32) [CP pŝaŝe-r [PP Ø-jə-ʁ^{w}əneʁ^{w}ə-xe-m a-dež']$_i$
girl-ABS 3SG.PR-POSS-neighbor-PL-OBL 3PL.PP-at
Ø- **Ø-** **š'-** e- čəje -fe] se *pro*$_i$(LOC)
3ABS- **3SG.IO- LOC-** PRS- sleep -LIM I
sə- **Ø-** **š'-** e- ǯeg^w
1SG.ABS- **3SG.IO- LOC-** PRS- play
'While the girl sleeps at her neighbors', I play there.'

Relativization of postpositional phrases:

(33) [PP t-jə-ʁ^{w}əneʁ^{w}ə-xe-m a-dež'] arə [RC Op$_i$ $t_{i\text{LOC}}$
1SG.PP-POSS-neighbor-PL-OBL 3PL.PP-at PRED
sə- **z-** še- ǯeg^{w}ə -re -r [CP mə pŝaŝe-r
1SG.ABS- **WH.IO**- LOC- play -PRS -ABS this girl-ABS
pro$_i$ / ***_PG**(LOC) Ø- Ø / ***zə-** š'- e- čəje -fe]]
3ABS- 3SG/***WH.IO**- LOC- PRS- sleep -LIM
'At our neighbors' is where I play while this girl sleeps there.'

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Contrast with a locative DP:

(34) [$_{RC}$ Op$_i$ λepqə-r [$_{CP}$ **__PG**(LOC) Ø- **zə-** š'ə- rehatə -ʁe -w]
tribe-ABS 3ABS- **WH.IO**- LOC- settle -PST -ADV
t_i(LOC) Ø- **zə-** š'ə- beʁ^{w}a -ʁe] -r a wəne-ç̣ək̟^{w}ə-xe-r
3ABS- **WH.IO**- LOC- reproduce -PST -ABS that house-small-PL-ABS
arə
PRED

'Those small houses are where the tribe multiplied, having settled there.' (Adyge Mak', 2017.07.05)

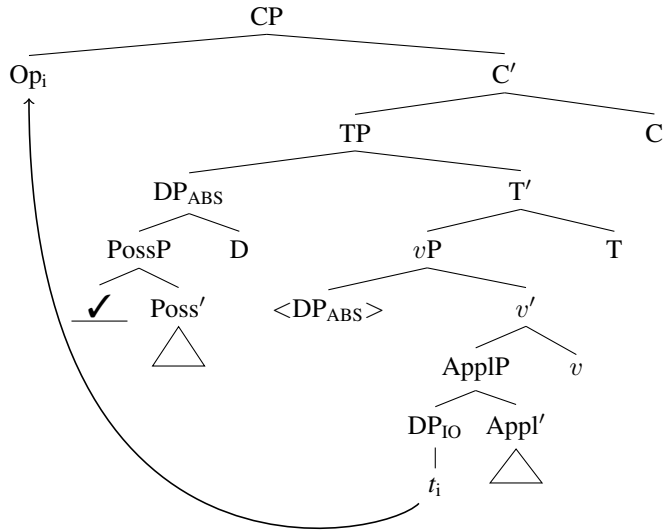
B Non-absolutive arguments can license parasitic gaps within the absolutive DP

B.1 Unergative verb with applied object (ABS-IO)

Applied object trace can license PG within absolutive external argument.

(35) a. [$_{RC}$ Op$_i$ [$_{DP}$ *pro*$_i$ / **__PG**(PR) ə / **zə**-š]**(ABS)** t_i**(IO)**
3SG / **WH.PR**-brother
Ø- qə- **z-** e- wa -ʁe] ç̣'ale-m sjewəŝəjəš'taʁ
3ABS- DIR- **WH.IO**- DAT- hit -PST boy-OBL I was consoling
'I was consoling the boy whom$_i$ his$_i$ brother hit.'

b.



B.2 Transitive (ERG-ABS) verb

Ergative trace can license PG within absolutive theme.

(36) a. marə četəw-ew [$_{RC}$ Op$_i$ [$_{DP}$ *pro*$_i$ / **__PG**(PR)
here cat-ADV
Ø / **z**-jə-šxən]**(ABS)** t_i**(ERG)** Ø- **zə-** mə- šxə -re] -r
3SG/**WH.PR**-POSS-food 3ABS- **WH.ERG**- NEG- eat -PRS -ABS
'Here is the cat who$_i$ doesn't eat its$_i$ food.'

b.