

# Configurationality in Polysynthesis: Weak Crossover in West Circassian\*

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## 1 Introduction

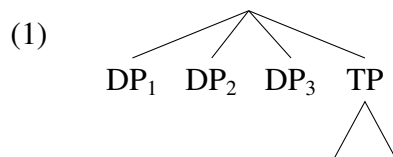
**The question:** How is free word order derived in polysynthetic languages?

**West Circassian** (=Adyghe; Northwest Caucasian) is polysynthetic:

- head-marking, with arguments indexed on the predicate
- pro-drop: nominal arguments are optional
- free word order

### Approaches to free word order in polysynthesis:

- Nominal arguments are dislocated as an unordered set of adjuncts (Jelinek 1984; Baker 1996; Pensalfini 2004)



- The PF spellout of nominal arguments is ordered postsyntactically (Compton and Pittman 2010)

⇒ **word order is not determined syntactically**

\*This work is based on elicitation with two speakers of the Temirgoy dialect of West Circassian, collected in Maykop, Adyghe (Russia). Weak crossover effects are subtle and not expected to be fully ungrammatical; while both speakers observed some degree of contrast between violating and non-violating examples, the grammaticality judgements are provided from the consultant who consistently rejects weak crossover violations.

**Documented argument asymmetries:**

- one of the arguments is phonologically null + morphology on the predicate
- anaphoric binding, parasitic gap licensing, raising/control constructions, and weak crossover in relative clauses (Caponigro and Polinsky 2011; Potsdam and Polinsky 2012; Lander 2012; Letuchiy 2010; Ershova 2019, 2020, 2021)

⇒ the relationship between syntactic structure and surface word order is unclear.

**Main claim:**

**In West Circassian, surface word order directly reflects syntactic c-command relations.**

- West Circassian is polysynthetic *and* configurational: nominal arguments asymmetrically c-command each other.
- Mapping to PF is established in familiar ways: linear precedence = structural c-command, per e.g. Kayne (1994).

**Evidence:** Weak crossover with quantifier raising in simple and complex clauses

- in simple clauses, weak crossover is sensitive to linear precedence
- in complex clauses, weak crossover is sensitive to structural prominence (c-command)
- ⇒ **linear precedence correlates with structural prominence**

**Roadmap:**

- 2 Background on West Circassian
- 3 Weak crossover is sensitive to word order in basic clauses
- 4 Weak crossover is sensitive to structural prominence in complex clauses
- 5 Word order reflects configurationality
- 6 Conclusion

**2 Background on West Circassian**

Polysynthetic morphology and pro-drop:<sup>1</sup>

- (2) sə-        qə- p-        f-    a-        r-    jə-        be-    лeб<sup>w</sup>ə -b  
 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)

<sup>1</sup>Glosses: ABS = absolutive; ADV = adverbial; ALIEN = alienable possession; BEN = benefactive; CAUS = causative; DAT = dative; DIR = directional; ERG = ergative; IO = indirect object; LOC = locative; NEG = negation; OBL = oblique; PL = plural; POSS = possessor; PST = past tense; SG = singular.

Free word order:

- (3) ABS external argument (ABS(S)) + applied object (IO)
- a. **[mə ɕ'ale-m](IO)**      zaɸ<sup>w</sup>ere      **[ə-š-xe-r](ABS)**  
 this boy-OBL      sometimes 3SG.POSS-brother-PL-OBL  
 jewex  
 3ABS.PL+3SG.IO.hit      **ABS(S) > IO**
- b. **[ə-š-xe-r](ABS)**      zaɸ<sup>w</sup>ere      **[mə ɕ'ale-m](IO)**  
 3SG.POSS-brother-PL-ABS sometimes this boy-OBL  
 jewex  
 3ABS.PL+3SG.IO.hit      **IO > ABS(S)**  
 'His brothers sometimes hit this boy.'
- (4) applied object (IO) + ABS theme (ABS(O))
- a. **[Ø-jə-txəλ-xe-r](ABS)**      **[mə ɕ'ale-m](IO)**  
 3SG.POSS-ALIEN-book-PL-ABS this boy-OBL  
 jestəʒ'əɸ  
 3ABS+3SG.IO+1SG.ERG.return.PST      **IO > ABS(O)**
- b. **[mə ɕ'ale-m](IO)**      **[Ø-jə-txəλ-xe-r](ABS)**  
 this boy-OBL      3SG.POSS-ALIEN-book-PL-ABS  
 jestəʒ'əɸ  
 3ABS+3SG.IO+1SG.ERG.return.PST      **ABS(O) > IO**  
 'I returned his books to the boy.'

Possessee marked with personal marker referring to possessor:

- (5) **s-šəpɣ<sup>w</sup>ə-xe-r**  
**1SG.POSS-sister-PL-ABS**  
 'my sisters' (inalienable)
- (6) **t-jə-ɸ<sup>w</sup>əneɸ<sup>w</sup>ə-xe-m**  
**1PL.POSS-ALIEN-neighbor-PL-OBL**  
 'our neighbors' (alienable)

Ergative alignment in case marking (and agreement):

**-r** (absolutive) = subject of intransitive verb (7a), theme of transitive verb (7b)  
**-m** (oblique) = agents of transitive verbs (7b), applied objects (7c), possessors (7d), complements of postpositions (7e)

- (7) a. mə pšaše-**r**      dax-ew      Ø-qa-š<sup>w</sup>e  
 this girl-ABS      beautiful-ADV 3ABS-DIR-dance  
 'This girl dances well.'
- b. sabəj-xe-**m**      ha-xe-**r**      Ø-q-a-λeɸ<sup>w</sup>ə-ɸ<sup>w</sup>  
 child-PL-OBL(=ERG)      dog-PL-ABS      3ABS-DIR-3PL.ERG-see-PST  
 'The children saw the dogs.'

- c. ʒeg<sup>w</sup>ə-**m**                      sə-qə-Ø-š'ə-ŝ<sup>w</sup>a-B-ep  
wedding-OBL(=IO)        1SG.ABS-DIR-3SG.IO-LOC-dance-PST-NEG  
'I didn't dance at the wedding.'
- d. mə ŝ<sup>w</sup>əzə-**m**                      Ø-jə-pšaše  
this woman-OBL(=POSS)     3SG.POSS-ALIEN-girl  
'this woman's daughter'
- e. mə ŝ<sup>w</sup>əzə-**m**                      pajə  
this woman-OBL(=PP) for  
'for this woman'

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 Testelet 2015).

Previously documented diagnostics for argument prominence do not involve two overt nominals: one of the elements in the construction is always phonologically null.

- **Anaphor binding** is expressed morphologically by replacing agreement with the bound argument with a specialized morpheme (Letuchiy 2010; Ershova 2019, 2020):

- (8) a.  $\hat{S}^{w\bar{a}}$ - t-  $\lambda e_B^{w\bar{a}}$  -B  
**2PL.ABS-** 1PL.ERG- see -PST  
 ‘We saw you(pl).’  
 b.  $z\bar{a}$ - t-  $\lambda e_B^{w\bar{a}}$  -B  
**REFL.ABS-** 1PL.ERG- see -PST  
 ‘We saw ourselves.’

- **Parasitic gap** constructions display an anti-c-command effect (Engdahl 1983 *et seq.*): the licensing gap cannot c-command the parasitic gap (Ershova 2021). This construction involves a wh-trace in place of one of the arguments.

- (9) [RC Op<sub>i</sub> [DP \_\_<sub>PG</sub>(POSS) z-jate ](ERG) *t<sub>i</sub>*(IO)  
 3SG / WH.POSS-father  
 mašjəne qəzerjətəbe ] č'ale-m sjex<sup>w</sup>apse  
 car 3ABS+WH.IO+3SG.ERG.give.PST boy-OBL I envy  
 'I envy the boy to whom<sub>i</sub> his<sub>i</sub>(=PG) father gave a car.'

⇒ West Circassian clearly displays argument asymmetries, but how do they correlate with word order?

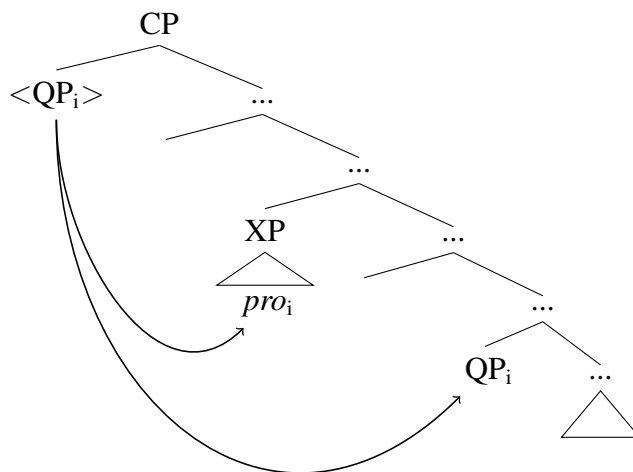
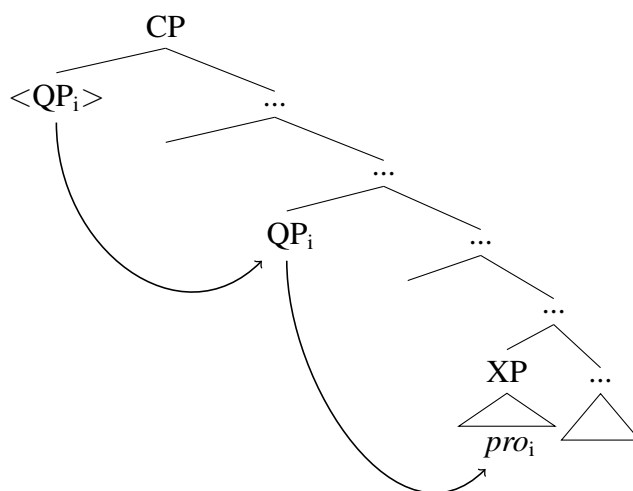
### 3 Weak crossover is sensitive to word order

**Main claim:**

- West Circassian displays weak crossover effects in quantifier raising constructions.
- Weak crossover effects are sensitive to surface word order in co-argument configurations.

**Weak crossover:**

- An operator cannot bind a pronoun and a trace at the same time.
- In quantifier raising, the raised operator is covert, and the trace is spelled out.

**(10) Weak crossover violation**

**(11) No weak crossover violation**


Lander and Testelefs (2017) present this weak crossover example as evidence for argument asymmetries (more specifically: subjecthood) in West Circassian<sup>2</sup>:

- (12) Ø-j-ane(ABS)                      č’ale-pepč(10)    deʔepəʔe  
       3SG.POSS-ALIEN-mother    boy-each            3ABS+3SG.10.help  
 a.    ‘His/her<sub>i</sub> mother helps every boy<sub>j</sub>.’  
 b.    \* ‘His<sub>i</sub> mother helps every boy<sub>i</sub>.’

Two factors at play:

1. bound possessor in a thematically more prominent argument:
  - 10 quantifier and bound pronoun in ABS(S)
  - ABS(S) is more agentive ( $\approx$  subject-like)
2. bound possessor linearly precedes quantifier:
  - [<sub>ABS</sub> *pro*<sub>i</sub> ...] ... QP<sub>i</sub>(10) ...
  - thematic prominence does not play a role

Lander and Testelefs (2017) → **option 1.**

This talk → **option 2.**

**Generalization on weak crossover and quantifier raising:**

In co-argument configurations, a bound pronoun cannot linearly precede the corresponding quantifier.

**Evidence for sensitivity to word order:**

- (13) ABS external argument + applied object: bound pronoun in ABS
- a. ə-šəpχ<sup>w</sup>ə-xe-r(ABS)      pšaše-pepč(10)      qjebewənew      səfaj  
       3SG.POSS-sister-PL-ABS    girl-each            3ABS+3SG.10.kiss.ADV    I want  
       ‘I want her<sub>i/\*j</sub> sisters to kiss every girl<sub>j</sub>.’                      \* [<sub>ABS</sub> *pro*<sub>j</sub> ] QP<sub>j</sub>(10)
- b. pšaše-pepč(10)      ə-šəpχ<sup>w</sup>ə-xe-r(ABS)      qjebewənew      səfaj  
       girl-each            3SG.POSS-sister-PL-ABS    3ABS+3SG.10.kiss.ADV    I want  
       ‘I want her<sub>j</sub> sisters to kiss every girl<sub>j</sub>.’                      ✓ QP<sub>j</sub>(10) [<sub>ABS</sub> *pro*<sub>j</sub> ]

<sup>2</sup>Segmentation and glossing are adjusted to match the conventions in this paper.

(14) ABS external argument + applied object: bound pronoun in IO

- a.  $\text{ə-šəpχ}^w\text{-xe-m(10)}$   $\text{pšaše-pepč(ABS)}$   $\text{jabewənew}$   $\text{səfaj}$   
**3SG.POSS-sister-PL-OBL** girl-each **3ABS+3PL.IO.kiss.ADV** I want

‘I want every girl<sub>j</sub> to kiss her<sub>i/\*j</sub> sisters.’

$*[\text{10 } \textit{pro}_i] \text{ QP}_{\text{ABS}}$

- b.  $\text{pšaše-pepč(ABS)}$   $\text{ə-šəpχ}^w\text{-xe-m(10)}$   $\text{jabewənew}$   $\text{səfaj}$   
girl-each **3SG.POSS-sister-PL-OBL** **3ABS+3PL.IO.kiss.ADV** I want

‘I want every girl<sub>j</sub> to kiss her<sub>j</sub> sisters.’

$\checkmark \text{QP}_{\text{ABS}} [\text{10 } \textit{pro}_i]$

(15) ERG external argument + ABS internal argument: bound pronoun in ERG

- a.  $\text{Ø-jane-jate-xe-m(ERG)}$   $\text{sabjəj-pepč(ABS)}$   $\text{š}^w\text{ə}$   
**3SG.POSS-mother-father-PL-OBL** child-each good  
 $\text{aləw}^w\text{ənew}$   $\text{səfaj}$   
**3ABS+3PL.ERG.see.ADV** I want

I want their<sub>i/\*j</sub> parents to love every child<sub>j</sub>.

$*[\text{ERG } \textit{pro}_j] \text{ QP}_j(\text{ABS})$

- b.  $\text{sabjəj-pepč(ABS)}$   $\text{Ø-jane-jate-xe-m(ERG)}$   $\text{š}^w\text{ə}$   
child-each **3SG.POSS-mother-father-PL-OBL** good  
 $\text{aləw}^w\text{ənew}$   $\text{səfaj}$   
**3ABS+3PL.ERG.see.ADV** I want

I want their<sub>j</sub> parents to love every child<sub>j</sub>.

$\checkmark \text{QP}_j(\text{ABS}) [\text{ERG } \textit{pro}_j]$

(16) ERG external argument + ABS internal argument: bound pronoun in ABS

- a.  $\text{? ə-šəpχ}^w\text{-xe-r(ABS)}$   $\text{sabjəj-pepč(ERG)}$   $\text{š}^w\text{ə}$   
**3SG.POSS-sister-PL-ABS** child-each good  
 $\text{jele}^w\text{əx}$   $\text{sš}^w\text{ešə}$   
**3SG.ERG+3PL.ABS.see.PRS** seems to me

‘I think that every child<sub>j</sub> loves their<sub>i/\*j</sub> sisters.’

$*[\text{ABS } \textit{pro}_j] \text{ QP}_j(\text{ERG})$

- b.  $\text{sabjəj-pepč(ERG)}$   $\text{ə-šəpχ}^w\text{-xe-r(ABS)}$   $\text{š}^w\text{ə}$   
child-each **3SG.POSS-sister-PL-ABS** good  
 $\text{jele}^w\text{əx}$   $\text{sš}^w\text{ešə}$   
**3SG.ERG+3PL.ABS.see.PRS** seems to me

‘I think that every child<sub>j</sub> loves their<sub>j</sub> sisters.’

$\checkmark \text{QP}_j(\text{ERG}) [\text{ABS } \textit{pro}_j]$

**Summary:**

- In co-argument configurations, weak crossover is sensitive to word order, not thematic prominence.
- A bound pronoun cannot linearly precede the quantifier that binds it.

## 4 Weak crossover is sensitive to structural prominence

### Main claim:

Quantifier raising in complex clauses provides evidence for weak crossover being sensitive to structural prominence, not *just* word order:

A bound pronoun in an embedded clause may linearly precede the overt realization of the quantifier, with no weak crossover effect.

A bound pronoun in an embedded clause may linearly precede the quantifier that binds it.

- (17) a. bzəlfəbe-pepč faj [ Ø-jə-sabjəj-xe-r zeč'emjə  
 woman-each 3ABS.want 3SG.POSS-ALIEN-child-PL-ABS all.OBL  
 šʷə aɬeβʷənew ]  
 good 3ABS+3PL.ERG.see.ADV  
 'Every woman<sub>i</sub> wants everyone to love her<sub>i</sub> children.' ✓QP<sub>j</sub> [CP [DP *pro*<sub>j</sub> ]]

- b. [ Ø-jə-sabjəj-xe-r zeč'emjə šʷə  
 3SG.POSS-ALIEN-child-PL-ABS all.OBL good  
 aɬeβʷənew ] bzəlfəbe-pepč faj  
 3ABS+3PL.ERG.see.ADV woman-each 3ABS.want  
 'Every woman<sub>i</sub> wants everyone to love her<sub>i</sub> children.' ✓[CP [DP *pro*<sub>j</sub> ] ] QP<sub>j</sub>

- (18) a. sajəj-pepč faj [ bere Ø-jane-jate-xe-r  
 child-each 3ABS.want much 3SG.POSS-mother-father-PL-ABS  
 məsəmežənxew ]  
 3PL.ABS+NEG.sick.ADV  
 'Every child<sub>i</sub> wants for their<sub>i</sub> parents to not be ill much.' ✓QP<sub>j</sub> [CP [DP *pro*<sub>j</sub> ]]

- b. [ bere Ø-jane-jate-xe-r  
 much 3SG.POSS-mother-father-PL-ABS  
 məsəmežənxew ] sajəj-pepč faj  
 3PL.ABS+NEG.sick.ADV child-each 3ABS.want  
 'Every child<sub>i</sub> wants for their<sub>i</sub> parents to not be ill much.' ✓[CP [DP *pro*<sub>j</sub> ] ] QP<sub>j</sub>

⇒ Weak crossover is sensitive to syntactic structure, not simply linear precedence.

**There is a syntactic difference in how linear precedence is achieved with co-argument DPs versus DP + embedded CP.**



## 5 Word order reflects configurationality

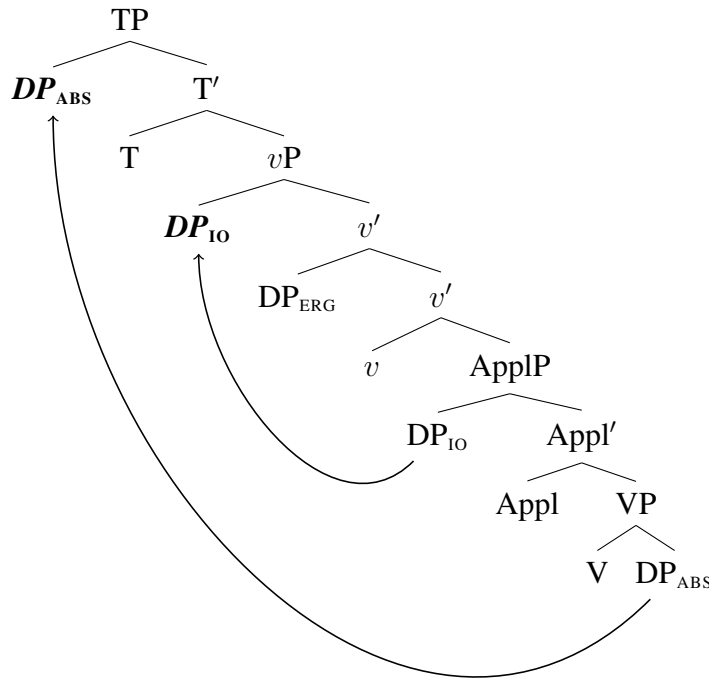
### Main claim:

Word order permutations between nominal co-arguments are achieved via syntactic movement.

Ershova (2019, 2020, 2021): anaphoric binding, parasitic gaps, and obligatory control constructions provide evidence for the following A-movement operations.

1. Arguments are merged based on thematic prominence.
2. The absolutive DP moves to Spec,TP.<sup>3</sup>
3. The applied argument (IO) optionally A-scrambles to Spec,vP.

(19) Example derivation for di-transitive verb (ERG-IO-ABS):



Copy theory of movement (Chomsky 1993 *et seq.*) predicts that the lower copy of a movement chain may be spelled out  $\Rightarrow$  **free surface word order**.

+ Depending on which movement copy is considered, all c-command relations are attested.

- $ABS > ERG$  &  $ERG > ABS$

<sup>3</sup>See e.g. Bittner and Hale (1996); Manning (1996); Baker (1997); Aldridge (2008); Coon et al. (2014, to appear); Yuan (2018) for similar analyses of other syntactically ergative languages.

- $ABS > IO$  &  $IO > ABS$ , *etc.*

Diagnostics for prominence (e.g. anaphoric binding) are domain-restricted.

⇒ Not every copy may be relevant for a diagnostic.

**Hypothesis for weak crossover:**

Weak crossover is sensitive to *which copies are spelled out*, and thus to surface word order.

\*Alternative 1: Surface word order reflects which movement operations have taken place. Unlikely due to obligatory nature of ABS movement.

\*Alternative 2: Surface word order is achieved with additional movement. Not desirable without additional evidence.

**Why is there no weak crossover when the bound pronoun is in an embedded CP?**

(20) ✓<sub>[CP [DP *pro*<sub>j</sub> ] ]</sub> QP<sub>j</sub> V

- The surface position of the embedded CP is not achieved via A-movement, in contrast with DPs.
- May be a case of PF extraposition (to the right or to the left) to satisfy prosodic well-formedness, per e.g. Potsdam (2021).

## 6 Conclusion

- Based on weak crossover effects in West Circassian, linear precedence between co-argument DPs = structural c-command.
- This is counter to proposals that nominal arguments in polysynthetic languages are dislocated adjuncts (Jelinek 1984; Baker 1996; Pensalfini 2004) or are ordered post-syntactically (Compton and Pittman 2010).

**Moving forward:**

- What is the relation between copy spellout and interpretation at LF?
- How does weak crossover interact with other prominence diagnostics? (Not easily tested.)
- Are there additional movement operations, e.g. for information structural purposes?

## Thank you!

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