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 dislocates as an unordered set of adjuncts (Jelinek [1984]; Baker [1996]; Pensalfini [2004])

\[
\text{TP} \quad \text{DP} \quad \text{DP} \\
\text{DP} \quad \text{TP} \quad \text{DP} \\
\text{TP} \quad \text{DP} \quad \text{DP}
\]

- 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, Adygea (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

(2) sə- qə- p- f- a- r- jə- wə- mə- ńə-
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)

1 Gloses: 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 č’ale-m](IO) zaure [o-šxe-r](ABS)
      this boy-OBL sometimes 3SG.Poss-brother-PL-OBL
      jewex
      3ABS.PL+3SG.IO.hit
   b. [o-šxe-r](ABS) zaure [mə č’ale-m](IO)
      3SG.Poss-brother-PL-ABS sometimes this boy-OBL
      jewex
      3ABS.PL+3SG.IO.hit
      ‘His brothers sometimes hit this boy.’

(4) applied object (IO) + ABS theme (ABS(O))
   a. [Ø-jo-txɔλ-xe-r](ABS) [mə č’ale-m](IO)
      3SG.Poss-ALIEN-book-PL-ABS this boy-OBL
      jestɔζ’əɾ
      3ABS+3SG.IO+1SG.ERG.return.PST
   b. [mə č’ale-m](IO) [Ø-jo-txɔλ-xe-r](ABS)
      3SG.Poss-ALIEN-book-PL-ABS this boy-OBL
      jestɔζ’əɾ
      3ABS+3SG.IO+1SG.ERG.return.PST
      ‘I returned his books to the boy.’

Possessee marked with personal marker referring to possessor:

(5) s-šɔpɔw-ə-xe-r
    1SG.Poss-sister-PL-ABS
    ‘my sisters’ (inalienable)

(6) t-jo-bw’one’w-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-šw’e
    this girl-ABS beautiful-ADV 3ABS-DIR-dance
    ‘This girl dances well.’
   b. saboj-xe-m ha-xe-r Ø-q-a-łɛw’ə-ə
    child-PL-OBL(=ERG) dog-PL-ABS 3ABS-DIR-3PL.ERG-see-PST
    ‘The children saw the dogs.’
c. řegw̃ǫ-m  sə-ǫ-∅-š’-w̃a-∩-ep
wedding-OBL(=IO)  1SG.ABS-DIR-3SG.IO-LOC-dance-PST-NEG
‘I didn’t dance at the wedding.’

d. mə  šw̃azə-m  Œ-jo-p̣aše
this woman-OBL(=POSS)  3SG.POSS-ALIEN-girl
‘this woman’s daughter’

e. mə šw̃azə-m  paje
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 Testelets 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. šw̃ə-  t-  řεw̃ə -v
2PL.ABS-  1PL.ERG- see -PST
‘We saw you(pl).’

b. zə-  t-  řεw̃ə -v
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 Op₁ [DP _POSS(=PG) z-jate ](ERG) j₁(IO)] 3SG / WH.POSS-father
maʃjane  qɔzerjatəbe ]  č‘ale-m  sjexw̃apse
car  3ABS+WH.IO+3SG.ERG.give.PST  boy-OBL  I envy
‘I envy the boy to whom, his₂(=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**

```
CP
  \(\langle QP_i \rangle\) ...
    ...
    ...
    XP
    pro\_i
      ...
    QP\_i
```

(11) **No weak crossover violation**

```
CP
  \(\langle QP_i \rangle\) ...
    ...
    ...
    QP\_i
    ...
    ...
    XP
    pro\_i
```

Lander and Testelets (2017) present this weak crossover example as evidence for argument asymmetries (more specifically: subjecthood) in West Circassian:

(12) Ø-j-ane(ABS) č’ale-pepč(IO) de?epa?e

3SG.POSS-ALIEN-mother boy-each 3ABS+3SG.IO.help

a. ‘His/her mother helps every boy,’

b. * ‘His mother helps every boy.’

Two factors at play:

1. bound possessor in a thematically more prominent argument:
   - IO quantifier and bound pronoun in ABS(S)
   - ABS(S) is more agentive (≈ subject-like)

2. bound possessor linearly precedes quantifier:
   - [ABS pro_i ...] ... QP_i(IO) ...
   - thematic prominence does not play a role

Lander and Testelets (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. øšɔpɛ̃ɔ-xe-r(ABS) pšaše-pepč(IO) qjebowanew sɔfaj

3SG.POSS-sister-PL-ABS girl-each 3ABS+3SG.IO.kiss.ADV I want

‘I want her_{i,j} sisters to kiss every girl.’

*b_{ABS pro_j} [QP_j(IO)]

b. pšaše-pepč(IO) øšɔpɛ̃ɔ-xe-r(ABS) qjebowanew sɔfaj

girl-each 3SG.POSS-sister-PL-ABS 3ABS+3SG.IO.kiss.ADV I want

‘I want her_{i,j} sisters to kiss every girl.’

✓QP_j(IO) [ABS pro] 

2Segmentation and glossing are adjusted to match the conventions in this paper.
(14) ABS external argument + applied object: bound pronoun in IO

a. \( \omega-\omega-\omega-\omega-\omega \) p\( \alpha \alpha \) new s\( \alpha \alpha \) jabew\( \omega \) new 3SG.POSS-sister-PL.OBL girl-each 3ABS+3PL.IO.kiss.ADV I want

‘I want every girl\(_j\) to kiss her\(_i/\_j\) sisters.’  \( *[\text{IO } \text{pro}_1] \text{QP}_{\text{ABS}} \)

b. p\( \alpha \alpha \) new s\( \alpha \alpha \) jabew\( \omega \) new 3SG.POSS-sister-PL.OBL 3ABS+3PL.IO.kiss.ADV I want

‘I want every girl\(_j\) to kiss her\(_j\) sisters.’  \( \sqrt{\text{QP}_{\text{ABS}} [\text{IO } \text{pro}_1]} \)

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

a. \( \emptyset-\emptyset-\emptyset-\emptyset-\emptyset \) s\( \emptyset \) new 3SG.POSS-mother-father-PL.OBL child-each good a\( \emptyset \) new s\( \emptyset \) jabew\( \emptyset \) new 3ABS+3PL.ERG.see.ADV I want

I want their\(_i/\_j\) parents to love every child\(_j\).  \( *[\text{ERG pro}_j] \text{QP}_{\text{ABS}} \)

b. s\( \emptyset \) new \( \emptyset-\emptyset-\emptyset-\emptyset-\emptyset \) child-each 3SG.POSS-mother-father-PL.OBL good a\( \emptyset \) new s\( \emptyset \) jabew\( \emptyset \) new 3ABS+3PL.ERG.see.ADV I want

I want their\(_i/\_j\) parents to love every child\(_j\).  \( \sqrt{\text{QP}_{\text{ABS}} [\text{ERG pro}_j]} \)

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

a. \( ?-\omega-\omega-\omega-\omega-\omega \) s\( \omega \) new 3SG.POSS-sister-PL-ABS child-each good j\( \emptyset \) new s\( \emptyset \) x\( \emptyset \) 3SG.ERG+3PL.ABS.see.PRS seems to me

‘I think that every child\(_j\) loves their\(_i/\_j\) sisters.’  \( *[\text{ABS pro}_j] \text{QP}_{\text{ERG}} \)

b. s\( \omega \) new \( ?-\omega-\omega-\omega-\omega-\omega \) child-each 3SG.POSS-sister-PL-ABS good j\( \emptyset \) new s\( \emptyset \) x\( \emptyset \) 3SG.ERG+3PL.ABS.see.PRS seems to me

‘I think that every child\(_j\) loves their\(_j\) sisters.’  \( \sqrt{\text{QP}_{\text{ERG}} [\text{ABS pro}_j]} \)

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. bɔl̩w̩ow̩ep̩ep̩ faj [ Ē-j̄-sabj̄-xe-r ze̩j̲emj̲o
woman-each 3ABS.want 3SG.POSS-ALIEN-child-PL-ABS all.OBL
§w̩ o ̱ale̱w̩w̩o̱new ]
good 3ABS+3PL.ERG.see.ADV
‘Every woman, wants everyone to love her, children. [QPj [CP [DP proj]]]

b. [ Ē-j̄-sabj̄-xe-r ze̩j̲emj̲o 3SG.POSS-ALIEN-child-PL-ABS all.OBL good
a̱le̱w̩w̩o̱new ] bɔl̩w̩ow̩ep̩ep̩ faj
3ABS+3PL.ERG.see.ADV woman-each 3ABS.want
‘Every woman, wants everyone to love her, children. [CP [DP proj]] QPJ

(18) a. saj̄ep̩ep̩ faj [ bere Ē-j̄-jane-xe-r
child-each 3ABS.want much 3SG.POSS-mother-father-PL-ABS
m̄o̱m̄e̱x̱ṉx̱w̱ ]
3PL.ABS+NEG.sick.ADV
‘Every child, wants for their, parents to not be ill much. [QPj [CP [DP proj]]]

b. [ bere Ē-j̄-jane-xe-r
much 3SG.POSS-mother-father-PL-ABS
m̄o̱m̄e̱x̱ṉx̱w̱ ] saj̄ep̩ep̩ faj
3PL.ABS+NEG.sick.ADV child-each 3ABS.want
‘Every child, wants for their, parents to not be ill much. [CP [DP proj]] QPJ

⇒ 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.
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.

\[ \text{ABS > ERG & ERG > ABS} \]

• ABS > IO & IO > ABS, etc.

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

⇒ Not every copy may be relevant for a diagnostic.

<table>
<thead>
<tr>
<th>Hypothesis for weak crossover:</th>
</tr>
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<tbody>
<tr>
<td>Weak crossover is sensitive to which copies are spelled out, and thus to surface word order.</td>
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</tbody>
</table>

*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) ✓[CP [DP pro ] ] QP j 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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References


