

## Variation in Control Structures

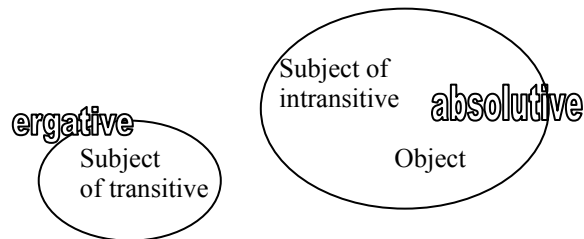
Maria Polinsky, Shin Fukuda, Laura Kertz  
University of California, San Diego

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“Our impression from the literature ... is that control behaves crosslinguistically in much the same fashion [as in English]...”  
(Jackendoff and Culicover 2003: 519)

### 1. Introduction: The puzzle

- Tsez (Nakh-Daghestanian)<sup>1</sup>
  - SOV basic word order
  - relatively free in root clauses
  - head-final
  - *pro*-drop (unemphatic subjects are null)
  - no passive
  - ergative-absolutive case system
    - ergative (ERG): subject of transitive
    - absolutive (ABS): subject of intransitive, direct object



- agreement  
Verb obligatorily agrees with its absolutive argument in noun class
- (1) kid y-ik'i-s  
girl.CLASS II.ABS II-go-PAST  
'The girl went away.' (intransitive predicate)

<sup>1</sup>ABS—absolutive, CLASS + ROMAN NUMERAL—noun class, ERG—ergative, FUT—future, INF—infinitive, NMLZ—nominalizer, PAST—past, PL—plural, PRES—present, REFL—reflexive, SG—singular, VAL—validator. Roman numerals in glosses show noun class agreement (e.g., II means ‘class II agreement’).

- (2) kid-bā ziya b-išer-si  
girl-ERG cow. CLASS III.ABS III-feed-PAST  
'The girl fed the/a cow.'
- (3) \*kid-bā ziya y-išer-si  
girl-CLASS II-ERG cow.CLASS III. ABS. II-feed-PAST  
(‘The girl fed the/a cow.’)

**But:** Agreement pattern with the verbs *-oqa* ‘begin’, *-iča* ‘continue’ is different; the verb agrees with the non-absolutive argument

- (4) a. kid-bā ziya bišra y-oqsi  
girl.CLASS II-ERG cow. CLASS III.ABS feed.INF III-began  
'The girl began to feed the cow.'
- b. \*kid-bā ziya bišra b-oqsi  
girl.CLASS II-ERG cow. CLASS III.ABS feed.INF II-began
- c. \*kid-bā ziya bišra r-oqsi  
[girl-ERG cow.ABS feed.INF]. IV IV-began  
sentential complement. CLASS IV

Neither absolutive agreement (4b) nor agreement with the sentential complement (4c) is possible

**Why?**

### 2. Overview of the talk

#### § 3 Solving the puzzle: A new type of Control structure

provides evidence for a Backward Control (BC) structure in which the downstairs subject is pronounced and the upstairs subject is a non-overt, thematic, coindexed empty category

#### § 4 Backward Control and Control Theory

investigates consequences of BC for theories of Obligatory Control, arguing that BC is incompatible with the base-generation analysis of Control

#### § 5 Control as movement

argues that BC provides empirical evidence for a movement analysis of Control resulting in the unification of Control and Raising

#### § 6-8 Mapping out the variation in Control and Raising

examines unresolved questions; demonstrates how the theory can be used to predict cross-linguistic variation, and presents the Control and Raising Database (under construction)



the whole embedded clause can be followed by validator clitic

- (11) [kɪdbā zɪya bɪʃra] yuy yoqsi  
 girl.ERG cow feed.INF VAL began  
 ‘The girl indeed began to feed the cow.’

Further evidence: scrambling, case-marking, null complement anaphora (Polinsky 2000; Polinsky and Potsdam 2002), even quantification (3.5)

☞ subject of embedded verb is in the complement clause of *oqa* ‘begin’; the construction is biclausal

### 3.5 Empty category subject of ‘begin’

Proposal

- (12) Δ<sub>i</sub> [kɪd-bā<sub>i</sub> zɪya bɪʃra] y-oqsi  
 EC.CLASS II.ABS girl-ERG cow.ABS feed-INF II-began  
 ‘The girl began to feed the cow.’

• reflexive binding

Tsez reflexives are strictly local, no logophors

- (13) a. enir [užā nesā nesir yutku roda] etin  
 mother boy.I.ERG REFL.I.DAT house.ABS build.INF wanted  
**antecedent anaphor**  
 ‘The mother wanted the boy to build himself a house.’  
 b. \*enir [užā yutku roda] nesā nesir etin  
 mother boy.I.ERG house.ABS build.INF REFL.I.DAT wanted  
**antecedent boundary anaphor**  
 (‘The mother wanted for him that the boy should build a house.’)

there is a reflexive in the matrix clause of the puzzling construction;  
 the empty category binds a local reflexive

- (14) [yesi žek’ā<sub>i</sub> ʔagarawyo-r yutku roda]  
 this man.I.ERG relative-DAT house.ABS build.INF  
**antecedent boundary**  
 Δ<sub>i</sub> nesā nesir oqsi  
 EC REFL.DAT began  
**antecedent anaphor**  
 ‘The man began for himself (~for his own sake), to build a house for his relative.’

Further evidence: depictive licensing, local agreement, Long-Distance Agreement (Polinsky 2000; Polinsky and Potsdam 2002)

☞ the subject of ‘begin’ is a thematic empty category

### 3.6 Obligatory vs. Non-Obligatory Control

**Obligatory (OC) versus Non-obligatory (NOC) distinction:**

What is the range of arguments that can determine the referential properties of the controllee?

- (15) a. Sandy<sub>i</sub> plans PRO<sub>i,\*k</sub> to sing OC  
 b. Sandy<sub>i</sub> thinks that PRO<sub>i, i+k,k</sub> to sing would be fun NOC
- (16) *properties* OC NOC  
 a. allows PRO<sub>arb</sub> reading (no antecedent) ✗ ✓  
 b. permits strict reading under ellipsis ✗ ✓  
 c. paraphrasable with a pronoun ✗ ✓  
 d. allows a non-local antecedent ✗ ✓  
 e. allows a non-c-commanding antecedent ✗ ✓  
 (Landau 2000, Hornstein 2003, Jackendoff and Culicover 2003, and references therein)

embedded and matrix subjects must be coindexed

- (17) \**pro/uži/užā<sub>k</sub>* [kɪdbā<sub>i</sub> zɪya bɪʃra] oqsi  
 pro/boy.ABS/boy.ERG girl.ERG cow.ABS feed.INF began  
 (‘The boy began to have the girl feed the cow.’)

pronominal paraphrase not allowed

- (18) \**ža/kid<sub>i</sub>* [kɪdbā<sub>i</sub>/nelā<sub>i</sub> zɪya bɪʃra] oqsi  
 pro/boy.ABS/boy.ERG girl.ERG cow.ABS feed.INF began  
 (‘The girl began to feed the cow.’)

#### (19) Obligatory Control properties in Tsez

	‘try’	‘begin’, ‘continue’
allows PRO <sub>arb</sub> reading (no antecedent)	✗	✗
permits strict reading under ellipsis	✗	✗
paraphrasable with a pronoun	✗	✗
allows a non-local antecedent	✗	✗
allows a non-c-commanding antecedent	✗	✗
allows for partial control reading	✗	✗

☞ the puzzling construction is Obligatory Control

#### 4. Re-evaluating the theory

##### 4.1 Summary: Backward Control

(20) conclusions so far:

- i. subject of complement verb is in lower clause
- ii. subject of 'begin' is a thematic co-indexed empty category
- iii. the construction is Obligatory Control

(21)  $\Delta_i$  [kidbā<sub>i</sub> ziya bišra] yoqsi  
 EC girl.ERG cow.ABS feed.INF began  
 'The girl began to feed the cow.'

*oqa* 'begin' is a Backwards Subject Control verb in which the lower co-indexed subject is expressed and the higher one is unpronounced

(22) *oqa*, 'begin', V, [ \_\_ IP ]  
 $\theta_1$   $\theta_2$

##### 4.2 Principles & Parameters: EC as PRO

**Standard analysis of Control:** EC is PRO

(23) PRO<sub>i</sub> [kidbā<sub>i</sub> ziya bišra] y-oqsi  
 PRO.II girl.II.ERG cow.ABS feed.INF II-began  
 'The girl began to feed the cow.'

- (24) crucial theoretical assumptions (Chomsky and Lasnik 1993)
- a. PRO is assigned Null Case
  - b. PRO must be bound for a referential interpretation
  - c. every contentful NP receives exactly one  $\theta$ -role (Theta Criterion)

Theoretical problems:

- PRO is not bound
- no arbitrary interpretation; PRO<sub>arb</sub> interpretation is otherwise available in Tsez

(25) PRO<sub>arb</sub> [kidbā<sub>i</sub> ziya bišra] yoqsi  
 girl.ERG cow.ABS feed.INF began  
 'The girl began to feed the cow.'  
 \*'Someone began to have the girl feed the cow.'

- Condition C
- Case: agreement facts show that EC is assigned absolutive Case, not Null Case

☞ P&P analysis of Control rules out Backward Control  
 Tsez Backward Control is incompatible with the base-generation analysis

##### 4.3 EC as a null pronoun (*pro*)

**Proposal:** EC is a silent pronominal (consistent with Tsez being *pro*-drop)

(26) *pro*<sub>i</sub> [kidbā<sub>i</sub> ziya bišra] y-oqsi  
 pro.II girl.II.ERG cow.ABS feed.INF II-began  
 'The girl began to feed the cow.'

Theoretical problems:

- no alternation with an overt pronoun
- unexplained Obligatory Control interpretation
- Condition C

☞ the silent element is not *pro*

#### 5. Analysis of Control without PRO

**Proposal:** Control is derived by movement

- (27) crucial assumptions (Hornstein 1999, 2003, Boeckx and Hornstein 2003, among others)
- a.  $\theta$ -roles are features
  - b. an NP "receives" a  $\theta$ -role by checking a  $\theta$ -feature of a verb that it merges with
  - c. there is no upper bound on the number of  $\theta$ -roles a chain can have (no Theta Criterion)
  - d. movement is driven by feature checking
  - e. features can be strong or weak

### 5.1 Forward Control: Movement analysis

- (28) a. The girl tried to leave.  
 b. The girl<sub>i</sub> tried t<sub>i</sub>/\*PRO<sub>i</sub> to leave

(29) Control  
 [IP The girl [VP t tried [IP t to [VP t leave]]]]  
 CASE/EPP            θ<sub>try</sub>                            EPP                            θ<sub>leave</sub>

(30) Raising  
 [IP The girl [VP t is likely [IP t to [VP t leave]]]]  
 CASE/EPP            theta-role                            EPP                            θ<sub>leave</sub>

☞ Raising and Control receive a unified analysis as instances of A-movement

Previous relevant insights:

- Bolinger 1961, 1967: the distinction between Raising and Control is elusive
- Langacker 1995: Raising and Control are not distinct
- Walenski 2002: Raising and Control are minimally different, the difference is mainly semantic

Conceptual advantages of the movement analysis

- eliminates need for Control module to specify PRO's controller
- eliminates PRO formative and Null Case
- assimilates locality of Control to locality of A-movement
- unifies Raising and Control as instances of A-movement (difference between the two constructions has to do with selectional restrictions)

Further empirical evidence for the movement analysis:

- Japanese passives, with Direct Passive analyzed as a Control structure (Fukuda 2004)
- Psych-verbs in Chilean Spanish (Gonzalez 1991)
- Finite control (Polinsky in progress)

### 5.2 Movement analysis of Tsez Control

- (31) a. kidbā<sub>i</sub> [Δ<sub>i</sub> ziya bišra] hakarat nelsi  
 girl.ERG cow.ABS feed.INF attempt gave  
 'The girl tried to feed the cow.' (Forward)  
 b. Δ<sub>i</sub> [kidbā<sub>i</sub> ziya bišra] yoqsi  
 girl.ERG cow.ABS feed.INF began  
 'The girl began to feed the cow.' (Backward)

- (32) a. Forward Control  
 [IP **girl** [VP [IP t<sub>girl</sub> [VP feed cow] try]]] SS  
 'The girl tried to feed the cow.'  
 b. Backward Control  
 [IP [VP [IP girl [VP feed cow] begin]]] SS  
 [IP **girl** [VP [IP t<sub>girl</sub> [VP feed cow] begin]]] LF  
 'The girl began to feed the cow.'

☞ Forward Control vs Backward Control: overt vs covert movement

Why is movement covert?

- Tsez has covert movement elsewhere (A'-movement, Polinsky 2002, Polinsky and Potsdam 2001)
- Lexical properties of 'begin', 'continue'

(33) *Stipulation:*

*oqa* 'begin' has a weak external θ-role feature, which prevents overt movement

☞ No independent evidence for (33)

**But:** cross-linguistic support for it, based on similar behavior of several aspectual verbs in Tzotzil (Aissen 1994)

### 5.3 Summary of the analysis

RESULT	WHAT THIS RESULT ACCOUNTS FOR (presented here)
the verb ‘begin’ has a thematic subject (a subject $\theta$ -role)	idioms; selectional restrictions; imperative formation
at surface structure, ‘begin’ has no subject NP, its logical subject still in the complement clause	validator clitic placement; case-marking determined by the embedded predicate; scrambling; event quantification; null complement anaphora; absence of Condition C violations
at LF, ‘begin’ has a syntactic subject which can participate in covert syntax	licensing of reflexives; depictive interpretation; agreement and Long-Distance Agreement (all calculated at LF)
no lexical material can be introduced during the covert syntax, therefore, the weak $\theta$ -role must be checked in the covert syntax by an NP that was introduced into the derivation overtly	Obligatory Control pattern

### 5.4 Interim conclusions

- Control phenomena can be accounted for under a movement analysis
- Under the movement analysis, Control and Raising can receive a unified account; the difference is in selectional restrictions only
- Backward Control provides empirical motivation for such an analysis; it is minimally different from Forward Control—the raising of the controller takes place covertly, not overtly

### 6. Outstanding questions and predictions

- Theory-internal problems
- Lexical determination of “unusual” control
- Cross-linguistic distribution of “unusual” control
- Interpretive differences between Forward and Backward configurations

### 6.1 Theory-internal problems

- Case-checking: Case is checked twice in BC
- EPP: EPP is satisfied outside NP movement

### 6.2 Lexical issues

Is Backward Control limited to aspectual verbs?

(34) *Verbs licensing Backward Subject Control*

LANGUAGE	ASPECTUAL VERBS	NON-ASPECTUAL VERBS
Tsez	begin, continue	
Bezhta	begin, continue, stop	anticipate
Tsaxur	begin	dare, dread
Tzotzil	begin, stop, continue	
Jacaltec	begin	
Jemez		
Malagasy	begin, stop, accomplish (~finish)	
Kabardian	stop, begin	dread, take a risk, dare, anticipate, want, hope, must, be able to
Adyghe	stop, begin, continue	anticipate

If aspectual semantics is not the answer, do BC verbs still form a coherent class?

☞ Empirical work on Backward Control is necessary to answer this question



- (38) *Languages with Forward/Backward alternations*  
 a. Subject Control: Kabardian, Adyghe  
 b. Object Control: Korean, Japanese  
 c. Raising: Adyghe

Kabardian (Kumaxov & Vamling 1998: 221)

- (39) a. a-r<sub>i</sub> mə-š<sub>i</sub>nə  
 3SG-ABS SUBJ.3SG-fear.INTRANS.PRES  
 [Δ<sub>i</sub> tχ<sub>i</sub>ī-īr j-tχ<sub>i</sub>-n]  
 EC book-ABS SUBJ.3SG-write-INF  
 ‘He dreads writing a book.’ (Forward Subject Control)  
 b. [a-b<sub>i</sub> tχ<sub>i</sub>ī-īr j-tχ<sub>i</sub>-n]  
 3SG-ERG book-ABS SUBJ.3SG-write-INF  
 Δ<sub>i</sub> mə-š<sub>i</sub>nə  
 EC SUBJ.3SG-fear.INTRANS.PRES  
 ‘He dreads writing a book.’ (Backward Subject Control)

Japanese: scope differences between Forward and Backward Object Control;  
 the controller in the backward structure must take narrow scope with  
 respect to the event described by the main verb (Fujii 2004)

Possible analysis: the choice of non-raised vs raised construction is determined  
 by information structure (following Langacker 1995: 29-35)

### 7. From the puzzle to theory: Conclusions so far

- Evidence for a Backward Control structure

Tsez

- (40) Δ<sub>i</sub> [kidbā<sub>i</sub> ziya bišra] yoqsi  
 EC girl.ERG cow.ABS feed.INF began  
 ‘The girl began to feed the cow.’

- Backward Control and syntactic theory

*Backward Control and current theories: An evaluation metric*  
 (shaded: discussed in this talk)

	P&P	Minimal-ism	HPSG	LFG	Cognitive Grammar
Should Backward Control be theoretically permitted?	No	Yes	No	No	Yes
Why?	PRO	θ-roles as features	Cond. C	Cond. C	variation in profiled participant

- The range of variation in Control and Raising is richer than could be predicted on the basis of English and similar languages

“Our impression from the literature ... is that control behaves crosslinguistically in much the same fashion [as in English]...”  
 (Jackendoff and Culicover 2003: 519)

- Cross-linguistic variation is crucial for theory evaluation and development

### 8. From the puzzle to outstanding questions: Work in progress

#### 8.1 Variation in Control structures

- (41) *Correlates of the Forward/Backward Subject Control alternation*

- Case marking of subjects in control complements
- EPP satisfied independently of XP-movement
- Surface word order equally accommodating of overt and covert movement  
 SOV (head-final) and VOS/VSO (head-initial): Forward and Backward Control have the same surface realization:

- (42) Forward Control      Backward Control      surface order
- |               |           |          |
|---------------|-----------|----------|
| a. S [SOV]V   | S [SOV] V | S O V V  |
| b. V [VO S] S | V [VOS] S | V V O S  |
| c. SV[SVO]    | S V[SVO]  | SVVO/VSO |

(43) *Languages with Backward Subject Control*

<b>Head-final (42a)</b>	<b>Head-initial (42b)</b>
Tsez	Malagasy
Bezhta	Jacalteco (?)
Tsaxur	Tzotzil (?)
Kabardian	
Adyghe	
Newari (?)	
Mizo (?)	

8.2 *Alternation between Forward and Backward structures*

8.3 *Semantics of verbs that license backward structures*

8.4 *How rare are backward patterns and why?*

Rare phenomena can change the outlook of linguistic theory,  
e.g. onset-sensitive stress (Gordon 2003)  
Periphery requires as much explanation as core

Processing explanation: Backward dependencies are harder to process?  
Experimental evidence: Sturt 2003; Sturt et al. 2000; Kazanina and Phillips  
2004

*Antecedent*: expression that determines the referential properties  
*Consequent*: expression (including null ones) whose referential properties  
are determined by the antecedent  
➤ : linear precedence

	antecedent ➤ consequent	consequent ➤ antecedent
Relative clause	Externally headed	Internally headed
Textual reference (endophora)	Anaphora	Cataphora
Control	Forward Control	Backward Control

Preliminary experimental evidence: Korean Object Control  
Reading times: Backward Control > Forward Control (Kwon in progress)

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[polinsky@ling.ucsd.edu](mailto:polinsky@ling.ucsd.edu)   [fukuda@ling.ucsd.edu](mailto:fukuda@ling.ucsd.edu)   [kertz@ling.ucsd.edu](mailto:kertz@ling.ucsd.edu)  
<http://ling.ucsd.edu/~polinsky/control.html>