

Control and Raising, Back and Forth

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1. Introduction

1.1 Controller-controllee relationship

CONTROL: a dependency between two argument positions in which the referential properties of the overt CONTROLLER determine the referential properties of the silent CONTROLLEE:

(1) Bradley_i tried [_i to cut in line]
CONTROLLER CONTROLLEE

(2) *Basic assumption*: Controller is structurally higher than controllee

(3) *_i tried [Bradley_i to cut in line]
CONTROLLEE CONTROLLER

◇ Is this assumption necessary?

1.2 Control as A-movement

Two innovations in syntactic theory:

- analysis of control as movement (Hornstein 1999, 2003, and many others)
- the copy-and-delete view of movement (Chomsky 1993 and many others)

(4) *Assumptions*
a. θ -roles are features that are checked/deleted in a derivation
b. a DP bears a θ -role by checking the θ -role feature of a verb that it merges with
c. there is no upper bound on the number of θ -roles in a chain
d. movement involves copying and deletion

(5) a. Bradley tried to cut in line
b. [_{TP} Bradley [_{VP} tried [_{TP} Bradley to [_{TP} cut in line]]]]
higher copy **lower copy**

(6) *Consequences*
a. raising and control are instances of A-movement
b. original copy may not undergo deletion (Pesetsky 1998, Bošković 2002, Ghomeshi et al. 2004, and many others)
c. backward control and backward raising should be possible

Higher element pronounced	Lower element pronounced	Resulting structure
✓	✗	forward control/raising
✗	✓	backward control/raising
✓	✓	copy control/raising

◇ Are backward patterns possible?

Outline of the talk:

- Evidence for backward patterns (section 2)
- Why are backward patterns rare? (section 3)
- What motivates backward patterns? (section 4)
- Conclusions and open questions (sections 5-6)

2. Evidence for backward patterns

Main components :

- Evidence for control/raising
- Evidence for biclausal structure
- Evidence that the overt DP is in the embedded clause
- Evidence for the silent element in the matrix clause (the higher copy, although deleted, has structural effects)

Patterns that have been empirically attested:

- Backward subject control
- Backward object control
- Backward raising

2.1 Backward subject control

👉 Backward subject control attested: Tsez (Polinsky 2000; Polinsky and Potsdam 2002), Bezhta (Polinsky 2002), Tsaxur (Kibrik 1999), Kabardian (Kumaxov and Vamling 1998), Adyghe (Say 2004), Malagasy (Polinsky and Potsdam 2003)

Tsez (*Nakh-Daghestanian*) (Polinsky 2000; Polinsky and Potsdam 2002)

- SOV basic word order, relatively free in root clauses
- head-final
- *pro*-drop
- no passive
- ergative-absolutive case system
- agreement

Verb obligatorily agrees with its absolutive argument in noun class¹

- (7) kid y-ik'i-s
girl.CLASS II.ABS II-go-PAST
'The girl went away.' (intransitive predicate)
- (8) kid-bā ziya b-išer-si
girl-ERG cow. CLASS III.ABS III-feed-PAST
'The girl fed the/a cow.'
- (9) *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

¹ABS=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’).

- (10) a. kid-bā ziya bišra y-oqsi
girl.CLASS II-ERG cow. CLASS III.ABS feed.INF II-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 III-began
- c. *kid-bā ziya bišra r-oqsi
[girl-ERG cow.ABS feed.INF].IV IV-began
sentential complement.CLASS IV

Impossible: Regular agreement with the absolutive DP (10b) or agreement with the sentential complement (10c)

👉 Why?

Proposal: the ergative NP is in the embedded clause; it is co-indexed with an absolutive empty category (represented as Δ) in the main clause; this is an instance of backward subject control

- (11) a. *oqa*, V, <AGENT, EVENT>
b. *iča*, V, <AGENT, EVENT>
- (12) a. kid-bā ziya b-išr-a y-oq-si
girl-ERG cow.ABS III-feed-INF II-begin-PAST.EVID
'The girl began to feed the cow.'
- b. Δ_i [kid-bā_i ziya bišra] yoqsi
EC girl.ERG cow.ABS feed began

(13) Obligatory control properties in Tsez

	‘try’, ‘intend’	‘begin’, ‘continue’
allows PRO _{arb} 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	✗	✗

(14) Analysis of the puzzling construction as backward subject control
(Polinsky 2000; Polinsky and Potsdam 2002)

Analytical component	Evidence for the analysis
Obligatory control	selectional restrictions, imperative formation; typical OC properties (13)
Biclausal structure	event quantification, null complement anaphora, distribution of the root clause clitic
The subject of the complement verb (ERG) is in the lower clause	scrambling with clause-mate elements, case-marking determined by the lower verb, scrambling of the entire embedded clause as a constituent, inability of the lower subject to interact with the root clause clitic
The subject of the matrix verb ('begin', 'continue') is a co-indexed empty category	depictive licensing, control of local agreement, control of Long-Distance Agreement, binding of clause-mate reflexive

- ☞ the agreement problem is solved, as the matrix controllee has the same agreement features as the embedded controller, and determines agreement in a standard local fashion
- ☞ the puzzling construction is backward subject control

Difference between forward and backward control

(15) Forward control

kidbā_i [Δ_i ziya bišra] ħakarat nelsi
girl.ERG cow.ABS feed.INF attempt gave
'The girl tried to feed the cow.'

(16) Backward control

Δ_i [kidbā_i ziya bišra] yoqsi
girl.ERG cow.ABS feed.INF began
'The girl began to feed the cow.'

	Forward	Backward
Selectional restrictions	✗	✗
Biclausal structure	✗	✗
Obligatory control	✗	✗
Overt subject controller	✗	✗
Controller upstairs	✓	✗

(17) Forward control

[IP **girl.ERGATIVE** [VP [IP **girl.ERGATIVE** [VP feed the cow] try]]]
└──────────────────────────┘
A-chain

(18) Backward control

[IP **girl.ABSOLUTIVE** [VP [IP **girl.ERGATIVE** [VP feed cow] begin]]]
└──────────────────────────┘
A-chain

- ☞ Forward control vs backward control: pronunciation of the higher vs lower element of the movement chain

2.2 Backward object control

- ☞ Backward object control attested: Korean (Monahan 2003), Japanese (Harada 1973, Kuroda 1978, 1999, Fujii 2004), Brazilian Portuguese (Farrell 1995), Kabardian (Kumaxov and Vamling 1998)

Korean (Monahan 2003)

- (19) a. Chelswu-nun **Yenghi-lul**_i [~~Yenghi-ka~~ kakey-ey
Chelswu-TOPIC Yenghi-ACC ~~Yenghi-NOM~~ store-to
ka-tolok] seltukhaessta
go-COMP persuaded
'Chelswu persuaded Yenghi to go to the store.' (Forward control)
- b. Chelswu-nun ~~Yenghi-lul~~ [**Yenghi-ka**_i kakey-ey ka-
tolok]
Chelswu-TOPIC ~~Yenghi-ACC~~ Yenghi-NOM store-to go-COMP
seltukhaessta
persuaded
'Chelswu persuaded Yenghi to go to the store.' (Backward control)

(20) Analysis of (19b) as backward object control (Monahan 2003)

Analytical component	Evidence for the analysis
Evidence for control	selectional restrictions, passive/active synonymy
Biclausal structure	event quantification, case distribution (as compared to monoclausal constructions)
The subject of the complement verb (NOM) is in the lower clause	case assignment, scrambling, NPI licensing
The object of the matrix verb ('persuade', 'force') is a co-indexed empty category	honorific licensing, case agreement on post-nominal quantifiers, reflexive binding

2.3 Backward raising

☞ Backward raising attested: Adyghe (Say 2004a, b)

Adyghe (Abkhazo-Adyghe)

- SOV basic word order, relatively free in root clauses
- head-final
- subject and object *pro*-drop
- ergative-absolutive case system
- absolutive agreement

(21) Non-raised construction

pro_{expl} Ø-wəbla-γ
3SG.INAN(IMATE) 3SG.INAN-begin-PAST

|-----|
Agree

[bombexe-m *pro* qewe-n-x-ew]
bombs-ERG explode-FUT-3SG.ABS-INF

'The bombs started exploding.'

(lit. 'It began that the bombs exploded it.')

- matrix verb agrees with the null expletive in 3sg.inanimate
- embedded verb is transitive with a *pro* object

(22) a. Forward raising: the raised absolutive DP triggers agreement

bombxe_{i-r} [~~bombxe_{i-m}~~ *pro* qewenxew] a-wəbla-γ
bombs-ABS bombs-ERG explode.INF 3PL-begin-PAST

|-----|
Agree

'The bombs started exploding.'

b. Backward raising: the higher copy is deleted but still triggers agreement

~~bombxe_{i-r}~~ [bombxe_{i-m} *pro* qewenxew] a-wəbla-γ
~~bombs-ABS~~ bombs-ERG explode.INF 3PL-begin-PAST

|-----|
Agree

'The bombs started exploding.'

Cf. singular agreement pattern in the main clause of (21)

(23) Analysis of (22b) as backward raising (Say 2004a, b, and p.c.)

Analytical component	Evidence for the analysis
Raising	absence of selectional restrictions/idiom chunks
Biclausal structure	negation, VP-ellipsis, event quantification
The subject of the complement verb (ERG) is in the lower clause	case assignment, binding
The subject of the matrix verb ('begin') is a co-indexed empty category	agreement, quantifier float

☞ Backward configurations exist, thus providing empirical evidence for the reduction of control to movement and for the unification of raising and control

☛ **But:** backward patterns are rare
“[E]ven if we accept the validity of the phenomenon, cases requiring an analysis involving counter-equi [backward control] are quite rare.”
(Noonan 2004: 27)

◆ **Why?**

3. Why are backward configurations rare?

3.1 Defining the difference between ‘forward’ and ‘backward’ languages

3.1.1 Case-marked subject of a non-finite clause

Why isn’t English like Tsez or Korean?

Case-marked subject of a non-finite clause is necessary

Case-marked subject of a non-finite clause available	Case-marked subject of a non-finite clause unavailable
Tsez, Adyghe, Korean, Japanese, Portuguese, Hindi, Tongan, Icelandic, Finnish	English, etc.

☞ Backward patterns are impossible in languages that lack case-marked subjects of non-finite clauses

3.1.2 The EPP

Why isn’t Icelandic like Tsez?

The EPP should be satisfied by ways other than NP movement

EPP satisfied through verb movement/other means	EPP satisfied through NP movement
Arabic, Greek, Niuean, Maori, Irish, Russian,	English, Icelandic, Hindi, Tongan

☞ Backward patterns are impossible in strong EPP languages

3.1.3 Surface word order

Why isn’t Maori like Tsez or Malagasy?

Surface word order should be equally accommodating of the deletion of the higher and lower copy

(24)	Forward subject control	Backward subject control	surface order	
a.	S [$\$$ -OV]V	$\$$ [SOV] V	S O V V	<i>Tsez</i>
b.	V [VO $\$$] S	V [VOS] $\$$	V V O S	<i>Malagasy</i>
c.	VS[V $\$$ O]	V- $\$$ [VSO]	VSVO/VVSO	<i>Maori</i>
d.	SV[$\$$ VO]	$\$$ V[SVO]	SVVO/VSVO	<i>English</i>

(simplified: extraposition and *pro*-drop not considered)

☞ Backward patterns are impossible (unlikely?) if they create a surface word order different from that found in the corresponding forward patterns

Structural properties necessary for the presence of backward patterns

Property	Tsez, Malagasy	English
case-marked subject of a non-finite clause	✓	✗
EPP satisfied outside NP movement	✓	✗
“accommodating” word order	✓	✗

◆ Sensitivity to surface order suggests that processing may play a role too. Is there evidence for processing differences between forward and backward patterns?

3.2 Processing differences between forward and backward configurations

Previous experimental studies: cataphoric relations take longer to process than anaphoric relations (Gordon and Hendrick 1997, Kazanina and Phillips 2004)

Korean object control again

- (25) a. Chelswu-nun Yenghi-lul, [Yenghi-ka kekey-ey
Chelswu-TOPIC Yenghi-ACC Yenghi-NOM store-to
ka-tolok] seltukhaessta
go-COMP persuaded
'Chelswu persuaded Yenghi to go to the store.' (Forward control)
- b. Chelswu-nun Yenghi-lul — [Yenghi-ka kekey-ey ka-
tolok]
Chelswu-TOPIC Yenghi-ACC Yenghi-NOM store-to go-COMP
seltukhaessta
persuaded
'Chelswu persuaded Yenghi to go to the store.' (Backward control)

- (26) *Forward control bias*
PREDICTION: Forward control (FC) should take less time to process than backward control (BC)
TESTING: self-paced reading time study, 40 sentences per condition, 23 subjects (Kwon and Polinsky, in preparation)

- (27) *Example test sentence:*
'The marketing department persuaded **the leading actress to appear on a popular talk show** to advertise the movie.'

actress-ACC	[popula r	talk_show- to	go-COMP]	persuade d	FC
[actress-NOM	popular	talk_show- to	go-COMP]	persuade d	BC
W7	W8	W9	W10	W11	

Backward cControl: Slower reading times at W7 and W10:



Figure 1. Reading time results, forward vs backward control

- ☞ Backward control takes significantly longer to process than forward control ($p < 0.0088$).

3.3 *Interim conclusions*

The distribution of backward patterns is constrained by independently motivated structural properties (licensing of subjects in non-finite complements, EPP requirements) and by processing considerations

But: Backward patterns still exist.

“When the grammar permits both backward and forward [options] use the backward option only if you have a reason to do so.” (Reinhart 1976)

- ◇ What forces the deletion of the higher copy?

4. *Motivating backward patterns*

Two main cases:

- alternation between the forward and backward option (Korean, Japanese, Adyghe, Kabardian)
- backward option only (for a particular predicate—Tsez, Bezhta, Tsaxur, Malagasy, possibly Jakaltec)

4.1 *Forward/backward alternation*

4.1.1 *Commitment to the truth of the embedded proposition*

Is the speaker committed to the truth of the proposition expressed by the embedded clause?

- FORWARD CONTROL: yes
- BACKWARD CONTROL: no

Evidence: interpretive contrasts in Korean

(28) Forward control
Chelswu-ka Yenghi-lul hakkyo-lul ttena-tolok
Chelswu-NOM Yenghi-ACC school-ACC leave-COMP
seltukhayssta. #Kulentey pro/Yenghi-nun hakkyo-lul
persuaded but pro/Yenghi-TOP school-ACC
ttenaci anh-ass-ta
leave NEG-PAST-DECL
'Chelswu persuaded Yenghi_k to quit school, *but she/Yenghi_k did not quit school.' (contradiction; the control verb is properly implicative)

(29) Backward control
Chelswu-ka Yenghi-ka hakkyo-lul ttena-tolok
Chelswu-NOM Yenghi-NOM school-ACC leave-COMP
seltukhayssta. Kulentey pro/Yenghui-nun hakkyo-lul
persuaded but pro/Yenghi-TOP school-ACC
ttenaci anh-ass-ta
leave NEG-PAST-DECL
'Chelswu persuaded Yenghi_k to quit school, but she/Yenghi_k did not quit school/do so.' (no contradiction)

Backward control: preferred with honorified controller, as the non-implicative interpretation reduces the pragmatic awkwardness of influencing a socially privileged participant

☞ The forward/backward alternation is used to express the contrast that other languages express by different lexical verbs (*persuade/urge*; *force/encourage*, *prevent/hinder*)

◇ Is this distinction observed for predicates beyond implicatives?

◇ Is this interpretive contrast specific to Korean?

Cf. A'-movement: the choice of the copy to undergo deletion may be determined by language-specific constraints (Bošković 2002 for Serbo-Croatian, Cole and Hermon 2000 for Malay)

4.1.2 Information structure

Can the controller correspond to sentence topic?

FORWARD CONTROL: yes (but it does not have to)
BACKWARD CONTROL: no

Evidence:

- embedded (backward) controller with an overt topic marker cannot be interpreted as regular topic; a contrastive interpretation is forced (Korean), (31)-(32) below;
- backward object control is strongly preferred with non-specific controllers, which cannot be topics (Korean);
- backward controller cannot take wide scope, which is typical of 'lower' projections (Korean; Japanese), (33) below

Korean: Differences in the interpretation of the topic-marked controller

(31) Forward control, two readings (topic; contrastive)

Chelswu-ka Yenghi-nun ecey [nayil
Chelswu-NOM Yenghi-TOP yesterday [tomorrow
hakkyo-ey ka-tolok] seltukhaessta
school-to go-COMP] persuaded

'As for Yenghi, yesterday Chelswu persuaded her to go to school tomorrow.'

'Yesterday Chelswu persuaded YENGHI (=not someone else) to go to school tomorrow.'

(32) Backward control, one reading (contrastive only)

Chelswu-ka ecey [nayil Yenghi-nun
Chelswu-NOM yesterday [tomorrow Yenghi-TOP
hakkyo-ey ka-tolok] seltukhaessta
school-to go-COMP] persuaded

*'As for Yenghi, yesterday Chelswu persuaded her to go to school tomorrow.' (impossible reading)

'Yesterday Chelswu persuaded YENGHI (=not someone else) to go to school tomorrow.'

Japanese (Fujii 2004): Backward control forces scope freezing, forward control is scope-ambiguous

- (33) keikan-ga _____ [san-nin-no doroboo-ga nigeyosite
policeman-NOM 3-CLF-GEN thief-NOM about to escape
iru tokoro-o taihosita
be TOKORO-ACC arrested
'The policeman arrested three burglars as they were about to escape.'
(narrow scope, *arrest* > 3 burglars)
(*'The policeman made arrests of three burglars as each was about to escape.'
wide scope, 3 burglars > arrest)

☞ The choice of copy for deletion is determined by non-syntactic factors

◇ What is the full range of these factors?

4.2 Backward pattern only

- (34) *Stipulation:*
'Backward' predicates are lexically deficient, which forces the deletion of the higher copy

☞ No independent evidence for (34)

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

◇ Are backward predicates all aspectual?

(35) Verbs licensing backward subject control

LANGUAGE	ASPECTUAL VERBS	NON-ASPECTUAL VERBS
Tsez	begin, continue	
Bezhta	begin, continue, stop	anticipate
Tsaxur	begin	dare, dread
Jacaltec	begin	
Malagasy	begin, stop, accomplish (~finish)	

☞ Not enough empirical data on the range of predicates

☞ No clear theoretical motivation for deletion

5. Conclusions

- backward control and backward raising are possible within current theoretical assumptions
- cross-linguistic variation in control and raising is richer than could be predicted on the basis of English and similar languages
- the distribution of backward patterns is constrained by independently motivated structural properties and by processing considerations
- the forward/backward alternation seems to be semantically motivated (preliminary evidence)

6. Be careful what you wish for: Outstanding questions

- What is the full range of factors forcing the deletion of the higher element? Why are these factors what they are (commitment to the truth of the embedded proposition, anti-topic status of the controller)? How strongly do these factors vary across languages?
- What lexical properties characterize backward control/raising predicates? Are these properties cross-linguistically constant?
- Theory-internal challenges:
 - what mechanisms are available to handle controllees in Case positions?
 - what mechanisms are available to satisfy the EPP without NP movement?
 - is partial A-movement possible (*à la* partial A'-movement)?
 - what is the status of copy control/raising within the new understanding of control as movement?
 - what role could backward configurations play in distinguishing between a trace theory of movement and a copy theory of movement?

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