# Backward Control 

## Maria Polinsky Eric Potsdam


#### Abstract

This article documents and analyzes a pattern of backward subject control in the Nakh-Daghestanian language Tsez. In backward control two subject arguments are coindexed but it is the higher subject that is unpronounced: $\Delta_{i}$ tried [John to leave]. The principles-and-parameters framework (Chomsky and Lasnik 1993) explicitly rules out backward control. In contrast, recent minimalist analyses of control (e.g., Hornstein 1999) permit backward control because they allow movement from one thematic position to another. Backward control results if this movement takes place covertly. We argue that the phenomenon thus provides interesting evidence for the reduction of control to movement.


Keywords: obligatory control, backward control, languages of the Caucasus, Tsez

## 1 Introduction

In the spirit of minimalist reductionism, Hornstein (1999) proposes a movement analysis of obligatory control (OC) phenomena as in (1a). The obligatory coreference between the two semantic arguments is derived by raising of a single noun phrase from one syntactic argument position to another, as illustrated in (1b). The movement approach to OC contrasts with earlier principles-and-parameters ( $\mathrm{P} \& \mathrm{P}$ ) analyses in which a base-generated PRO and a control module accounted for the syntax and interpretation of OC, as shown in (1c).
(1) a. The girl tried leaving.
b. The girl ${ }_{\mathrm{i}}$ tried $\mathrm{t}_{\mathrm{i}}$ leaving.
c. The girl $l_{\mathrm{i}}$ tried $\mathrm{PRO}_{\mathrm{i} / * \mathrm{k}}$ leaving.

The analysis of OC along the lines of (1c) was forced in the $\mathrm{P} \& \mathrm{P}$ framework by the $\theta$ Criterion (Chomsky 1981), which required a one-to-one mapping between arguments and $\theta$-roles. Given that both the matrix and embedded verbs have external $\theta$-roles to assign, there had to be two distinct arguments to bear these roles. The nonovert one was the null formative PRO.

[^0]The Minimalist Program dispenses with the $\theta$-Criterion and its accompanying stipulation that an argument bear exactly one $\theta$-role (Brody 1993, Bošković 1994, Chomsky 1995). This architectural simplification in principle allows an argument to receive multiple $\theta$-roles, via movement from one $\theta$-position to another. In Hornstein's analysis of OC in (1b), the Extended Projection Principle (EPP) and Case-checking inadequacies of English infinitivals force the DP to move overtly from the embedded clause subject position into the matrix clause. This overt movement of the DP yields what we will call a forward obligatory control configuration in which the higher argument position, the head of the multiple $\theta$-role movement chain, is pronounced.

The architecture of the Minimalist Program leads us to expect, however, that the movement could and should be covert if the Case and EPP motivations were somehow removed. Given Procrastinate (Chomsky 1993), the raising into the matrix clause should take place in the covert derivation to Logical Form (LF). This would yield a backward control configuration in which the lower argument position is pronounced and the higher one is not.

In this article we document and analyze a construction in the language Tsez (northeast Caucasus) that exemplifies backward control. The Tsez verbs -oqa 'begin' and -iča 'continue' occur in the syntactic configuration illustrated in (2). These verbs assign a thematic role to an obligatorily nonovert subject, which we represent atheoretically as $\Delta$. This silent element $\Delta$ is obligatorily coindexed with the subject of an infinitival complement clause. ${ }^{1}$
(2) $\Delta_{i / * k}\left[\begin{array}{lll}k i d b \\ \bar{a}_{i} & \text { ziya bišra }\end{array}\right]$ yoqsi girl.ERG cow.ABS feed.INF began 'The girl began to feed the cow.'

We will ultimately propose that $\Delta$ is a copy resulting from covert movement of the embedded clause subject into the matrix clause at LF. Under our analysis the construction instantiates expected crosslinguistic variation and provides interesting evidence for the reduction of control to movement.

The article is organized as follows. In section 2 we present the Tsez construction in detail and argue for the structure schematized in (2). In particular, we provide evidence that the overt subject is the subject of the infinitival complement at Spell-Out and that the subject of -oqa 'begin' and -iča 'continue' is a thematic empty category that must be coindexed with the embedded clause subject. In section 3 we argue against a P\&P analysis of backward control in which the empty category in (2) is PRO. In section 4 we turn to the movement analysis of control and demonstrate how it accounts for forward control. We then consider Tsez backward control in section 5 and suggest that its properties also follow from the movement analysis of control if the movement is covert. We summarize our findings in section 6.

[^1]
## 2 The Tsez Backward Control Construction

### 2.1 The Structural Proposal

Tsez is a Nakh-Daghestanian language spoken by approximately 7,000 people in the mountains of the northeast Caucasus. It is a pro-drop, head-final, and morphologically ergative language. ${ }^{2}$ Transitive subjects appear in the ergative case, (3a), and direct objects and intransitive subjects in the absolutive case, ( $3 \mathrm{a}-\mathrm{b}$ ). The predicate in Tsez agrees with the absolutive element in noun class, of which there are four (glossed as I, II, III, or IV). In (3) the absolutive argument ziya 'cow.III.ABS' belongs to class III, which registers as an agreement prefix on the verb. Agreement with nonabsolutive DPs is impossible.

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(3) a. kid-bā ziya b-išer-si
    girl.II-ERG cow.III.ABS III-feed-PAST.EvID
    'The girl fed the cow.'
    b. ziya b-ik'i-s
    cow.III.ABS III-go-PAST.EVID
    'The cow went.'
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Tsez has two verbs, -oqa 'begin' and -iča 'continue', that appear with an unusual agreement pattern illustrated in (4).
(4) a. kid-bā ziya b-išr-a y-oq-si
girl.II-ERG cow.III.ABS III-feed-INF II-begin-PAST.EVID
'The girl began to feed the cow.'
b. kid-bā ziya b-išr-a y-iči-s
girl.II-ERG cow.III.ABS III-feed-INF II-continue-PAST.EVID
'The girl continued to feed the cow.'
As expected, the embedded verb $b$-išr-a 'm-feed-INF' agrees with its absolutive argument ziya 'cow.iII.Abs'. Agreement between the matrix verb and the ergative subject kid-bā 'girl.II-ERG' is entirely unexpected, however, because Tsez verbs do not otherwise agree with nonabsolutive arguments. Two analytical possibilities arise here: either the two verbs exceptionally agree with an ergative DP, an otherwise unmotivated and unattested option, or there is an unpronounced absolutive element triggering the agreement on -oqa and -iča. The latter possibility leads us to propose the structure in (5) for (4a), where $\Delta$ indicates the presence of a semantically contentful syntactic element at some level of representation. Anticipating our full description of the phenomenon, we will refer to this construction as control and the verb as control-oqa. ${ }^{3}$

[^2](5) $\Delta_{\mathrm{i}} \quad\left[\mathrm{kid}-\mathrm{b} \overline{\mathrm{a}}_{\mathrm{i}} \quad\right.$ ziya $\quad \mathrm{b}$-išr-a] y -oq-si
II.ABS girl.II-ERG cow.III.ABS III-feed-INF II-begin-PAST.EVID
'The girl began to feed the cow.'
In this structure -oqa subcategorizes for an oblique infinitival complement and has an unpronounced external argument. The clause is thus intransitive and the verb correctly agrees with its absolutive subject, which is coindexed with the subject in the complement clause. The apparent agreement with the ergative argument observed in (4) is actually agreement with the silent absolutive subject $\Delta$.

In the following sections we defend the central aspects of our proposal:
(6) Core characteristics of control -oqa construction
a. -oqa assigns an external thematic role (section 2.3).
b. The overt subject is in the complement clause (section 2.4).
c. -oqa has an unpronounced syntactic subject (section 2.5).

In section 2.3 we argue that -oqa assigns an external thematic role. In section 2.4 we support the claim that the overt subject is not the syntactic subject of -oqa; rather, it is the subject of the complement clause. In section 2.5 we offer evidence for a distinct element serving as the syntactic subject and external argument of -oqa. Finally, in section 2.6 we summarize our finding that -oqa is a backward subject control verb.

Before turning to these arguments, however, in section 2.2 we introduce a superficially similar construction whose syntactic behavior directly contrasts with that of the control construction under study. Like English begin, Tsez -oqa can also appear in a subject-to-subject raising construction, in which case it has no external argument and its surface subject has overtly raised from the infinitival complement. We will demonstrate in the subsequent sections that the two uses of -oqa have different characteristics and should therefore receive distinct analyses.

### 2.2 The Raising Construction

In addition to appearing in the control construction repeated in (7), the verbs -oqa 'begin' and -iča 'continue' can be used in the construction in (8). This example superficially contrasts with the control example only in that the subject is in the absolutive case rather than in the ergative. Agreement on -oqa is exactly the same but in this instance it agrees as expected with an absolutive subject. The translation is equivalent to that of (7) as well. ${ }^{4}$
(7) kid-bā ziya b-išr-a y-oq-si
girl.II-ERG cow.III.ABS III-feed-INF II-begin-PAST.EVID
'The girl began to feed the cow.'

[^3]（8）kid ziya b－išr－a y－oq－si
girl．II．ABS cow．III．ABS m－feed－INF i－begin－PAST．EVID
＇The girl began to feed the cow．＇
It will become clear，however，that the construction in（8）is syntactically rather different from the control construction in（7）．We will argue that（8）instantiates a subject－to－subject raising construction with the analysis in（9）and the characteristics in（10）．In its raising use－oqa has the syntax of an English subject－to－subject raising verb：it has one argument and a clausal comple－ ment，and it assigns no external thematic role．The surface subject originates in the complement clause and raises overtly to the higher subject position．
（9） $\operatorname{kid}_{i} \quad\left[t_{i}\right.$ ziya b－išr－a］$y$－oq－si
girl．II．ABS cow．III．ABS III－feed－INF II－begin－PAST．EVID
＇The girl began to feed the cow．＇
（10）Core characteristics of raising－oqa construction
a．－oqa assigns no external thematic role（section 2．3）．
b．The overt subject is in the matrix clause（sections 2.4 and 2．5）．
In what follows we will systematically compare the control and raising uses of－oqa．The superficial，surface difference between the two constructions is the case on the subject，as seen in（7）versus（8）．${ }^{5}$ This will serve as the flag for distinguishing the two，although we will also label examples as control or raising for clarity．The fact that－oqa also has a raising use complicates the presentation of the data but at the same time it demonstrates that a raising－like analysis and lexical entry are inappropriate for control－oqa．

## 2．3 An External Argument

In this section we propose that the two versions of－oqa have different argument structures， accounting for a number of semantic contrasts．Both instances of－oqa take an event，realized as an infinitive，as an internal argument．However，only control－oqa assigns an intentional agent role to an external argument；raising－oqa assigns no external thematic role．
（11）a．Control－oqa
〈AGENT，EVENT〉
b．Raising－oqa
〈EVENT〉

We define an intentional agent as a participant $a$ in an event $e$ who intends to bring about $e$ （Farkas 1988：37）．We will call such an event $e$ an intentional event．In the case of control－oqa the participant assigned the agent role of（11a）intends to begin to bring about the event expressed by the internal argument．Raising－oqa has no such agent．The data in（12）－（15）illustrate conse－ quences of this difference．

First，only raising－oqa is compatible with the adverbs sutti＇accidentally，unexpectedly＇， $-i(y) n c ̌$＇ey（tow）＇unintentionally，unknowingly＇，and qi入＇orotu $\lambda$＇ay＇unintentionally，accidentally＇，

[^4](12); control -oqa is not. The presence of the adverb forces a nonintentional interpretation of the matrix event. The adverb is incompatible with control -oqa, (12a), because an intentional agent is incompatible with an accidental event. Since raising -oqa involves no intentional agent, the raising example with the adverb, (12b), is felicitous.
(12) a. \#kid-bā ziya b-išr-a qi $\lambda^{\prime}$ orołu $\lambda$ 'ay $y$-oq-si (control) girl.II-ERG cow.III.ABS III-feed-INF accidentally ir-begin-PAST.EVID
b. kid ziya b-išr-a qi ${ }^{\prime}$ 'orołu ${ }^{\prime}$ 'ay $y$-oq-si (raising) girl.II.ABS cow.III.ABS II-feed-INF accidentally ir-begin-PAST.EVID 'The girl accidentally began to feed the cow.'

Similarly, only control -oqa is felicitous with the adverbs -etintow 'intentionally, on purpose' and uryidin(tow) 'deliberately'.
(13) a. kid-bā ziya b-išr-a yetintow y-oq-si (control) girl.II-ERG cow.III.ABS III-feed-INF on purpose II-begin-PAST.EVID 'The girl intentionally began to feed the cow.'
b. \#kid ziya b-išr-a yetintow y-oq-si (raising)
girl.II.ABS cow.III.ABS III-feed-INF on purpose ir-begin-past.Evid
('The girl intentionally began to feed the cow.')
In this case the adverb requires an intentional agent in the matrix clause, as we have claimed is the case only with control -oqa. Raising -oqa has no external argument at all.

Second, an inanimate, and hence nonintentional and nonagentive, subject is possible only with the raising verb, not the control verb.
(14) a. $\mathrm{k}^{\mathrm{w}}$ art'- $\overline{\mathrm{a}}$ č'ikay yexur-si
hammer-ERG glass.abs break-Past.Evid
'The hammer broke the glass.'
b. \#kwart'-ā č'ikay yexur-a roq-si
(control)
hammer-ERG glass.ABS break-INF begin-PAST.EVID
c. $\mathrm{k}^{\mathrm{w}}$ art'a č'ikay yexur-a roq-si
(raising)
hammer.ABS glass.ABS break-INF begin-PAST.EVID
'The hammer began to break the glass.'
Third, control -oqa is impossible with embedded events that cannot intentionally be brought about. In ( $15 \mathrm{~b}-\mathrm{c}$ ) only the raising verb can embed the experiential predicate hazab bukada 'suffer (literally, suffering see)'. The control verb in (15b) is anomalous because an intentional agent is normally incompatible with an event in which one begins to suffer. With raising -oqa in (15c), no such semantic incompatibility arises because there is no intentional agent role associated with the matrix verb.

| (15) a. | kid-ber $\hbar$ hazab bukay-n |
| ---: | :--- |
|  | girl-DAT suffering.ABS see-PAST.NONEVID |
|  | 'The girl suffered.' |



Finally, imperatives provide evidence for the proposed argument structure for control -oqa. We follow the reasoning in Farkas 1988:39 concerning the semantics of imperatives: positive imperatives must represent an intentional event $e_{i m p}$, and the participant associated with the external argument of $e_{i m p}$ must be a possible intentional agent of $e_{i m p}$ since one does not ordinarily issue a directive to someone to do something that is not under his or her intentional control. As a result, imperatives such as \#Be tall! or \#Know the answer now! are infelicitous. Also infelicitous as imperatives under this characterization are nonthematic raising predicates (Perlmutter 1970) because they are not potentially intentional events, having no external argument at all.
(16) a. \#Be likely to win!
b. \#Seem to enjoy the play!
c. \#Be bound to succeed!

In (17), however, -oqa is possible in an imperative. This cannot be raising -oqa and must be an alternate in which the external role of the matrix predicate is compatible with intentionality. Given that there is no other construction in which -oqa participates, this must be the control use.
ziya bišr-a y-oq
(control)
cow.abs feed-INF iI-begin.IMPER
'Begin to feed the cow (to a female addressee)!'
From the behavior of agentive adverbials, animate subjects, and imperatives, we conclude that control -oqa assigns an external thematic role but raising -oqa does not. Thus, -oqa 'begin', like its English counterpart, has two different argument structures (Perlmutter 1970, Ross 1972). Centrally, the control use shows full evidence of assigning an external thematic role. ${ }^{6}$

[^5]
### 2.4 The Overt Subject

Given that control -oqa assigns an external thematic role, it would be reasonable to conclude that the overt ergative noun phrase in (4) is its subject. In this section we present five arguments indicating that this is incorrect. The ergative subject is a structural member of the complement clause, as claimed in (5), and so it is the subject of the embedded clause. In contrast, in the raising derivation the overt subject is indeed in the matrix clause, having raised there overtly. In summary, we will provide evidence for the constituencies shown in (18).
(18) a. [kid-b̄̄ ziya bišra] yoqsi (control)
b. kid [ziya bišra] yoqsi (raising)
girl cow feed began
2.4.1 Case Marking A number of verbs in Tsez have case frames in which the nonabsolutive argument bears not ergative but dative or some other case (see (15a) above and Comrie 2000). The examples in (19) and (20) demonstrate that when such verbs are embedded under -oqa, the overt subject takes either absolutive case or the case appropriate for the embedded predicate. The data are thus compatible with the expected scenario: the subject is in the local case in the control construction where, by hypothesis, it is still in the complement clause. In the raising construction, raising into the matrix clause has taken place and the subject is an intransitive, hence absolutive, subject. For example, teqa 'hear' in (19a) requires a dative subject and an absolutive object. When this predicate is embedded under -oqa, the subject remains in the dative case in the control use, (19b), but is absolutive in the raising construction, (19c). ${ }^{7}$
a. kid-ber babiw-s xabar teq-si
girl-dat father-GEn story.ABS hear-PAST.EvID
'The girl heard the father's story.'
b. kid-ber babiw-s xabar teq-a $y$-oq-si
(control) girl.II-DAT father-GEN story.III.ABS hear-INF II-begin-PAST.EVID
c. kid babiw-s xabar teq-a y-oq-si
(raising) girl.II.ABS father-GEN story.III.ABS hear-INF ir-begin-PAST.EVID 'The girl began to hear the father's story.'
(20) illustrates the verb guga 'lose', which takes a locative subject. ${ }^{8}$
a. uži-q micxir gugi-s
boy-SUPERESSIVE money.ABS disappear-PAST.EVID
'The boy lost the money.'

[^6]b. ?\#uži-q micxir gug-a $\emptyset$-oq-si (control) boy.I-SUPERESSIVE money.ABS disappear-INF i-begin-PAST.EVID
c. uži micxir gug-a Ø-oq-si (raising) boy.I.ABS money.ABS disappear-INF I-begin-PAST.EVID 'The boy began to lose the money.'
2.4.2 Scrambling Clause-internal scrambling facts support the constituencies proposed in (18). Constituent order in Tsez clauses is relatively free, and scrambling both to the left and to the right is possible in root clauses.
(21)
a. už-ā hibore-d bikori žek'-si
boy-ERG stick-INSTR snake.ABS hit-PAST.EVID
'The boy hit the snake with a stick.'
b. bikori užā hibored žek'si snake boy stick hit
c. hibored užā bikori žek'si stick boy snake hit
d. hibored bikori žek'si užā
stick snake hit boy
e. užā hibored žek'si bikori
boy stick hit snake
In Polinsky and Potsdam 2001b we demonstrate that scrambling in Tsez is clause bound. Neither adjuncts nor arguments can scramble out of any type of clause: finite, infinitival, or participial. In particular, scrambling out of a control infinitive is not allowed. ${ }^{9}$
(22) a. uži-r [PRO t'ek magazin-yāy yis-a] šu入'i-s
boy-DAt book.ABS store-ABL take-INF forget-PAST.EvID
'The boy forgot to buy a book from the store.'
b. *magazinyāy užir [PRO t'ek yisa] šu $\lambda$ 'is
store boy book take forgot
'From the store, the boy forgot to buy a book.'
c. 't'ek užir [PRO magazinyāy yisa] šu $\lambda$ 'is
book boy store take forgot
'A book, the boy forgot to buy from the store.'
Given these descriptive generalizations, we can use scrambling as a diagnostic for constituency and embedding in -oqa examples. The first observation is that the overt subject in the control -oqa construction cannot scramble with a matrix clause element such as $\hbar u t$ 'yesterday',

[^7](23b), but the absolutive subject of raising -oqa can do so, (23c). The contrast is accounted for if the two subjects are members of distinct clauses at Spell-Out and scrambling is clause bound. ${ }^{10}$
(23) a. huł kid-bā/kid ziya bišr-a yoq-si
yesterday girl-ERG/girl.ABS cow.ABS feed-INF begin-PAST.EVID
b. *kidbā huł ziya bišra yoqsi
(control)
girl.erg yesterday cow feed began
c. kid huł ziya bišra yoqsi
(raising)
girl.abs yesterday cow feed began
'Yesterday the girl began to feed the cow.'
In contrast, only the subject of the control construction can scramble with embedded clause elements; the subject of the raising construction cannot.

| (24) a. $\quad$ [ziya kid-bā bišr-a] yoq-si | (control) |  |
| ---: | :--- | ---: | :--- |
|  | cow.ABS girl-ERG feed-INF begin-PAST.EVID |  |
| b. ${ }^{*}$ ziya kid bišra yoqsi | (raising) |  |
|  | cow.ABS girl.ABS feed began |  |
|  | 'Yesterday the girl began to feed the cow.' |  |

With the hypothesized structures, the derivation of (24a) involves only scrambling of the object in the embedded clause. There is no licit derivation for (24b), however, if the absolutive subject is indeed in the matrix clause. The embedded object cannot scramble into the matrix clause in violation of clause-boundedness, and the matrix subject cannot lower into the embedded clause.

The second observation is that the hypothesized infinitival complements can scramble as a unit within the matrix clause. In the case of control -oqa the subject is seen to be part of the infinitival, (25b), and cannot be left in preverbal position, (25c). In the raising case, in contrast, the subject remains preverbal because it is not part of the scrambled infinitive, (26b). Again, the data follow straightforwardly if the overt subject in the control structure is in the embedded clause and the overt subject in the raising structure is in the matrix clause, as shown.
(25) a. ћuł [kidbā ziya bišra] yoqsi
yesterday girl.erg cow feed began
b. ћuł yoqsi [kidbā ziya bišra]
yesterday began girl.erg cow feed
c. *huł kidbā yoqsi ziya bišra
yesterday girl.erg began cow feed 'Yesterday the girl began to feed the cow.'
${ }^{10}$ (23c) does not require scrambling for its derivation if the adverb can be base-generated after the subject. It nonetheless supports our claim because the interpretation is such that hut 'yesterday' is a matrix clause modifier and thus kid 'girl' must also be in the matrix clause, being to the left of the adverb.
(26) a. ћuł $\operatorname{kid}_{i} \quad$ [ $\mathrm{t}_{\mathrm{i}}$ ziya bišra] yoqsi
(raising) yesterday girl.ABS cow feed began
b. huł $\quad \operatorname{kid}_{\mathrm{i}} \quad$ yoqsi [ $t_{\mathrm{i}}$ ziya bišra] yesterday girl.ABS began cow feed 'Yesterday the girl began to feed the cow.'
2.4.3 Event Quantification The proposed structures also provide an appealing account of the event quantification data in (27) and (28). The italicized temporal adverbial uyrax āłiru 'for the fourth time' has the potential of modifying either the embedded verb bišra 'feed' or the matrix verb yoqsi 'began' depending upon which clause it is in. In the two constructions, however, the same linear position of the adverbial yields different interpretations. In (27) the adverbial follows the overt subject in both constructions, yet only the raising example, (27b), is ambiguous. When the adverbial follows the ergative subject in (27a), it is interpreted as modifying only the embedded verb because of the hypothesized constituent organization shown. With the proposed constituency, the adverbial cannot simultaneously follow the subject and be in the matrix clause. In the raising construction, (27b), the absolutive subject is in the matrix clause and the position following the subject can be structurally either in the matrix clause or in the embedded clause, as bracketed in ( $27 \mathrm{c}-\mathrm{d}$ ). Thus, the example is ambiguous.
(27) a. [kidbā uyrax ātiru ziya bišra] yoqsi
(control) girl.ERG fourth time cow feed began 'The girl began to feed the cow for the fourth time.' *'The girl began for the fourth time to feed the cow.' (four feedings) (four beginnings)
b. kid uyrax ātiru ziya bišra yoqsi
(raising) girl.abs fourth time cow feed began 'The girl began to feed the cow for the fourth time.'
(four feedings)
'The girl began for the fourth time to feed the cow.'
(four beginnings)
c. $\operatorname{kid}_{i}$ [uyrax āłiru $t_{i}$ ziya bišra] yoqsi

If the modifier is clause initial, however, the situation is reversed. The control example, (28a), is ambiguous, with the possible bracketings in (28b-c). The raising example, (28d), is unambiguous; the adverbial can only be in the matrix clause.
(28) a. uyrax āłiru kidbā ziya bišra yoqsi
(control)
fourth time girl.ERG cow feed began 'The girl began to feed the cow for the fourth time.'
(four feedings)
'The girl began for the fourth time to feed the cow.'
(four beginnings)
b. [uyrax āłiru kidbā ziya bišra] yoqsi
c. uyrax āłiru [kidbā ziya bišra] yoqsi
d. uyrax ātiru kid $_{\mathrm{i}} \quad$ [ $\mathrm{t}_{\mathrm{i}}$ ziya bišra] yoqsi
(raising)
fourth time girl.ABS cow feed began
*‘The girl began to feed the cow for the fourth time.'
(four feedings)
'The girl began for the fourth time to feed the cow.'
(four beginnings)

In conclusion, the interpretation of adverbial modifiers strongly supports the constituency contrast presented in (18).
2.4.4 Second-Position Validator Clitic Tsez has certain second-position clitics that also serve to indicate the constituency of -oqa examples. Minimally, we make the largely uncontroversial assumption that the mechanism that places second-position clitics-be it phonological, morphological, or syntactic—is sensitive to phonologically overt material in the first position (Halpern 1995, Halpern and Zwicky 1996, Anderson 1996). One such clitic is the validator clitic -uy 'indeed, definitely; simply', which agrees with the local absolutive argument (thus, it has allomorphs uy, buy, yuy, and ruy). The monoclausal example in (29) demonstrates the second-position restriction on this clitic (italicized). It can only appear in the position shown in (29a); the options in (29b) are ungrammatical because the clitic is not in second position.
(29) a. kid-bā buy ziya bišer-si
girl-ERG VAL cow.ABS feed-PAST.EVID
'The girl indeed fed the cow.'
b. (*buy) kidbā ziya (*buy) bišersi $\left({ }^{*}\right.$ buy)
val girl cow val fed val
(30) illustrates that -uy is further restricted to root clauses. The clitic cannot appear in an embedded clause, regardless of whether or not the second-position restriction is satisfied.
(30) a. eni-r [kid-bā (*buy) ziya bišr-a] reti-x
mother-dat girl-ERG val cow.abs feed-INF want-PRes
'The mother wants the girl to (*indeed) feed the cow.'
b. [t'ekmabi (*ruy) t'et'r-a] rigu yoł
books.ABS.PL val read-INF good be.PRES
'To (*indeed) read books is good.'
We can now enlist this clitic to determine the clause membership of the overt subject in the control and raising constructions. The examples in (31a,c) illustrate the only possible positions for the clitic. In the control construction, (31a), the clitic identifies the entire embedded clause, including the ergative subject, as the first constituent of the matrix clause. In (31b), although the clitic is superficially in second position, the example is ungrammatical because the first constituent $k i d b \bar{a}$ 'girl' is in the complement clause where -uy cannot appear. In the raising construction, (31c), the raised subject is the first constituent, as expected.
(31) a. [kid-bā ziya bišr-a] yuy yoq-si (control) girl-erg cow feed-INF val begin-Past.evid
b. *[kidbā buylyuy ziya bišra] yoqsi (control) girl.ERG VAL cow feed began
c. $\operatorname{kid}_{\mathrm{i}} \quad y u y\left[\mathrm{t}_{\mathrm{i}}\right.$ ziya bišra] yoqsi (raising) girl.abs val cow feed began 'The girl indeed began to feed the cow.'
2.4.5 Complement Ellipsis The final argument for the constituency of the control construction comes from the phenomenon of complement ellipsis. Control -oqa can appear without its clausal complement; when this happens, the entire infinitival clause including the subject must be missing, (32b). ${ }^{11}$ The subject cannot be left behind, as would be expected if it were outside the embedded clause, (32c). ${ }^{12}$
(32) a. kid-bā ziya bišr-a bay-inč'i-łin
girl-ERG cow.Abs feed-INF must-NEG-though
'Although the girl didn't have to feed the cow,'
b. hudun [kid-bā ziya bišr-a] yoq-si
(control)
nevertheless girl-ERG cow.ABS feed-INF begin-PAST.EviD
'(she) nevertheless began.'
c. *hudun kid-bā yoq-si
nevertheless girl-ERG begin-PAST.EVID
('the girl nevertheless began.')
From these arguments we conclude that the two constructions have distinct syntactic structures, repeated here.

| a. $[\mathrm{kidbā}$ | ziya bišra] yoqsi | (control) |
| :--- | :---: | :---: |
| b. kid | [ziya bišra] yoqsi | (raising) |
| girl | cow feed began |  |

With regard to the raising construction in (33b), the overt subject is in the matrix clause, as expected. Since we also demonstrated that the subject does not receive a thematic role from raising -oqa, it must have raised from the complement clause. The evidence presented all supports

[^8]our claim that raising -oqa is indeed a canonical raising verb. We present further arguments for the overt raising in the following section but turn our attention to the more unusual control construction, which is the focus of the article.

### 2.5 An Unpronounced Subject of Control -oqa

To summarize our conclusions about the control construction thus far: control -oqa assigns an external thematic role, but the most likely candidate, the overt subject, is not the bearer of that thematic role because it is the subject of the embedded clause. We are led to posit the existence of a coindexed unpronounced subject for control -oqa.
(34) $\Delta_{i} \quad\left[\right.$ kid-b $\bar{a}_{i} \quad$ ziya b-išr-a $] \quad y$-oq-si
II.ABS girl.II-ERG cow.III.ABS III-feed-INF II-begin-PAST.EVID
'The girl began to feed the cow.'
In this respect raising and control -oqa are alike: they both have a syntactic subject in their clause. However, the subject of control -oqa is nonovert. The existence of an unpronounced subject is supported by several empirical arguments below. We conclude that control -oqa must have a syntactic subject in its clause at some level of representation. We will continue to represent this subject as $\Delta$, without making any theory-internal claims regarding its identity.
2.5.1 Agreement As pointed out earlier, the agreement pattern in (34) is exceptional in two respects. First, -oqa agrees in grammatical class with an argument of the embedded predicate. Second, it agrees with a nonabsolutive noun phrase, an otherwise unattested option in Tsez. A coindexed unpronounced subject solves both of these problems. The verb is not actually agreeing with the embedded nonabsolutive noun phrase; rather, it is agreeing with $\Delta$ in its own clause. This results in a canonical instance of agreement with an absolutive intransitive subject.
2.5.2 Depictive Interpretation The distribution of depictives such as sisxoli 'alone', xizāz 'last', and $a d \bar{a} z$ 'first' also supports the existence of $\Delta$. Such depictives have two relevant distributional properties: they can be oriented toward the subject, regardless of its surface case, and they must be c-commanded by the phrase that they modify. ${ }^{13}$ These two observations account for the interpretations of the data in (35).
(35) a. kid-bā ziya sisxoli bišer-si girl-erg cow.abs alone feed-past.evid 'The girl $_{\mathrm{i}}$ alone $_{\mathrm{i}}$ fed the cow.' 'The girl fed the $\mathrm{cow}_{\mathrm{i}}$ alone $_{\mathrm{i}}$.'
b. kidbā sisxoli ziya bišersi girl alone cow fed 'The girl $_{i}$ alone $_{i}$ fed the cow.' *'The girl fed the cow $_{\mathrm{i}}$ alone $_{\mathrm{i}}$.'

[^9]
## c. *sisxoli kidbā ziya bišersi <br> alone girl cow fed

In (35a) the italicized depictive sisxoli 'alone' is c-commanded by both the subject and the object and the depictive orientation is ambiguous. When the depictive follows only the subject, (35b), the sentence is unambiguous and the depictive can modify only the subject and not the object. Predictably, if the depictive appears clause-initially, (35c), the result is ungrammatical because there is no noun phrase that c-commands the depictive.

Given the ungrammaticality of (35c), the grammatical example with control -oqa in (36a) is of interest.


In contrast to (35c), (36a) with a clause-initial depictive is grammatical. An explanation of (36a) compatible with our proposal is that sisxoli 'alone' modifies the hypothesized empty element $\Delta$, as shown in (36b). ${ }^{14}$ Such a structure satisfies both of the requirements on the depictive's distribution and supports the existence of an unpronounced subject. As expected, the corresponding example with raising -oqa in (36c) is ungrammatical because there is once again no c-commanding noun phrase.
2.5.3 Reflexive Binding Tsez reflexives provide additional support for $\Delta$. Reflexives in Tsez are clause bound and must find an antecedent in the minimal clause containing them, (37a) (Comrie 2000, Polinsky and Potsdam 2001b). Not surprisingly, they are not licensed in a clause higher than their antecedent, (37b).
a. babi- $\mathrm{r}_{\mathrm{k}}$ [už- $\overline{\mathrm{a}}_{\mathrm{i}}$ nesā nesir $\mathrm{i}_{\mathrm{j} / * \mathrm{k}}$ үutku rod-a] reti-n father.I-DAT boy.I-ERG REFL.I.DAT house.ABS build-INF want-PASt.NONEVID 'The father wanted the boy to build a house for himself.'
b. babir $_{\mathrm{k}}$ nesā nesir ${ }_{*_{i / k}}$ [užā ${ }_{\mathrm{i}}$ үutku roda] retin father REFL.IDAT boy house.abs build wanted 'The father wanted for himself that the boy should build a house.'

[^10]Nevertheless, when the embedding verb is control -oqa, this is what appears to happen.
(38) $\Delta_{\mathrm{i}}$ nesā $^{\text {nesir }}{ }_{\mathrm{i}}$ [irbahin- $\overline{\mathrm{a}}_{\mathrm{i}}$ halma $\gamma$-or $\gamma$ utku rod-a] $\emptyset$-oq-si REFL.I.DAT Ibrahim.I-ERG friend-DAT house.ABS make-INF I-begin-PAST.EVID 'Ibrahim began, for himself, to build a house for his friend.'

The null element hypothesized in (38) accounts for the apparent long-distance binding. It is the coindexed $\Delta$, not the embedded subject, that is the antecedent of the reflexive, and the example obeys the clausemate restriction and is predicted to be grammatical.
2.5.4 Long-Distance Agreement The final argument supporting the unpronounced subject comes from the phenomenon of long-distance agreement documented in Polinsky 2000 and Polinsky and Potsdam 2001b. Under long-distance agreement a matrix verb can exceptionally agree with the absolutive element in its complement clause.
(39) eni-r [kid-bā ziya b-išerxosi-łi] b-iy-x
mother-dat girl-ERG cow.iII.ABS II-fed-nMLZ III-know-pres
'The mother knows that the girl is feeding the cow.'
In (39) the matrix verb $b-i y-x$ 'iII-know-pres' agrees in class III with the embedded absolutive ziya 'cow.III.ABS'. A crucial fact about long-distance agreement is that the agreement cannot cross more than one clause boundary (Polinsky and Potsdam 2001b). Thus, a verb may not agree with an absolutive inside a complement embedded in its own complement. For example, in (40) the matrix verb b-iy-x 'III.know-PRes' cannot agree with the multiply embedded absolutive ziya 'cow. III.ABS' because it is too far away.
(40) *babir [enir [kid-bā ziya b-išerxosi-łi] tāqru-łi] b-iy-x father mother.II girl.II-ERG cow.III.ABS III-fed-NMLZ heard-NMLZ III-know-PRES ('The father knows [that the mother heard [that the girl is feeding the cow]].')

Given that long-distance agreement is restricted to one level of embedding, (41a), in which the intermediate verb is control -oqa, is once again surprising because the matrix verb $y$-iy-x 'II-know-PRES' shows long-distance agreement with the ergative noun phrase kid-bā 'girl.II-ERG' at two levels of embedding. The ergative noun phrase should be too deeply embedded for the verb to agree with it (disregarding the fact that ergatives do not otherwise trigger agreement).
(41) a. dār [[kid-bā ziya bišr-a] yāqru-łi] y-iy-x
me girl.II-ERG cow.ABS feed-INF began-NMLZ it-know-PRES
b. dār $\left[\Delta_{i} \quad\left[k i d-b \bar{a}_{i} \quad\right.\right.$ ziya bišr-a] yāqru-łi] y-iy-x me iI.ABS girl.II-ERG cow.ABS feed-INF began-NMLZ II-know-PRES 'I know that the girl began to feed the cow.'

In fact, the proposed structure is (41b) and the verb is agreeing with the silent element. All restrictions are satisfied: the verb agrees with an absolutive that is in its complement clause at only one level of embedding. We conclude from these facts that control -oqa does have a syntactic subject in its clause as we have represented in numerous examples above.

### 2.6 Backward Control

The structure that we have argued for is repeated in (42).
(42) $\Delta_{i}\left[k i d b \bar{a}_{i}\right.$ ziya bišra] yoqsi
girl.ERG cow.ABS feed.INF began
'The girl began to feed the cow.'
(42) resembles the English obligatory control (OC) structure in (43) in that it is a biclausal configuration in which the two subject arguments are coindexed and one is nonovert.
(43) $\mathrm{Ali}_{\mathrm{i}}$ hopes $\left[\mathrm{PRO}_{\mathrm{i}}\right.$ to leave].

The parallel is remarkably complete in that the Tsez structure evidences two further central characteristics of OC: (a) the coindexed interpretation is obligatory and (b) the empty category does not alternate with an overt noun phrase. (44) illustrates the first characteristic, that the embedded and matrix subjects must be coindexed. There is an obligatory control interpretation between the two subject positions regardless of the form of the noun phrase that is realized in either position.
(44) *pro/uži/už- $\bar{a}_{j} \quad\left[p r o / k i d-b \bar{a}_{i} \quad\right.$ ziya bišr-a] Ø-oq-si pro/boy.I.ABS/boy-ERG pro/girl-ERG cow.ABS feed-INF I-begin-PAST.EVID ('The boy began to have the girl feed the cow.')
(45) illustrates the second characteristic: the subject of -oqa must be nonovert. The silent $\Delta$ does not alternate with an overt noun phrase.

$$
\begin{aligned}
& \text { (45) *ža/kid }{ }_{i} \quad\left[\text { nełā }_{i} \text { ziya bišr-a] } y\right. \text {-oq-si } \\
& \text { 3sG.ABS/girl.II.ABS 3sG.ERG cow.ABS feed-INF ii-begin-PAST.EVID } \\
& \text { ('The girl began to feed the cow.') }
\end{aligned}
$$

In summary, the subject of control -oqa is a thematic, unpronounced element that is obligatorily coindexed with the subject of its infinitival complement clause. Given these attributes, we will call control -oqa a backward subject control (BC) verb. BC is a biclausal control configuration in which the lower coindexed subject is expressed and the thematic subject in the higher clause is unpronounced. ${ }^{15}$ The construction's crucial properties are summarized in (46). In the remaining sections we consider possible analyses of the Tsez BC construction.

[^11](46) Characteristics of Tsez BC construction
a. The subject of -oqa is thematic.
b. The subject of -oqa must be nonovert.
c. The overt subject is in the embedded clause.
d. The subject of -oqa is obligatorily coindexed with the complement clause subject.

## 3 A Principles-and-Parameters Analysis

In this section we will consider a principles-and-parameters ( $\mathrm{P} \& \mathrm{P}$ ) analysis of BC that employs the null formative PRO. Such a base-generation analysis will not account for the full range of properties in (46) and, consequently, should be rejected.

Within the $\mathrm{P} \& \mathrm{P}$ paradigm the null subject in control constructions such as $(47 \mathrm{a}-\mathrm{b})$ is the null element PRO.
(47) a. $\mathrm{John}_{\mathrm{i}}$ tried $\left[\mathrm{PRO}_{\mathrm{i}}\right.$ leaving].
b. $\left[\mathrm{PRO}_{\text {arb }}\right.$ reading books $]$ is fun.

The presence of PRO is forced by $\theta$-theory. The $\theta$-Criterion in (48) applies at least at D-Structure.
(48) D-Structure $\theta$-Criterion (Chomsky 1981)
a. Each argument bears exactly one $\theta$-role.
b. Each $\theta$-role is assigned to exactly one argument.

The D -Structure $\theta$-Criterion requires biuniqueness between arguments and $\theta$-roles. Thus, the two agent $\theta$-roles in (47a) must each be assigned to a distinct argument at D-Structure. The overt subject fills the matrix subject position and PRO is necessary to fill the nonovert embedded subject position.

Case theory then restricts PRO's distribution. Using recent terminology, PRO only appears in the subject position of some infinitives and does not alternate with an overt noun phrase because the $\mathrm{T}^{0}$ head of control infinitivals assigns null Case and PRO is the only element capable of bearing null Case (Chomsky and Lasnik 1993). Finally, control theory governs the actual interpretation of PRO. To a first approximation, PRO's controller is the closest c-commanding noun phrase according to Rosenbaum's (1967) Minimal Distance Principle (MDP) formulated in (49).
(49) Minimal Distance Principle

PRO's controller is the closest c-commanding potential antecedent.
If there is no appropriate controller, PRO receives an arbitrary interpretation, $\mathrm{PRO}_{\text {arb }}$ in (47b). The crucial assumptions of the $\mathrm{P} \& \mathrm{P}$ analysis are summarized in (50).
(50) PRO control assumptions
a. Every argument receives exactly one $\theta$-role ( $\theta$-Criterion).
b. PRO bears null Case.
c. PRO must be bound for a referential interpretation.

Extending the $\mathrm{P} \& \mathrm{P}$ control analysis to Tsez BC requires the structure in (51). The empty element $\Delta$ is identified as PRO and is coindexed with the embedded subject.
(51) $\mathrm{PRO}_{i}$ [kid-bā ${ }_{\mathrm{i}}$ ziya bišr-a] y -oq-si

PRO.II girl.II-ERG cow.abs feed-INF iI-begin-PAST.EVID
'The girl began to feed the cow.'
The PRO analysis immediately explains why the subject of -oqa must always be nonovert: PRO does not alternate with an overt noun phrase. Despite this apparent advantage and the relative simplicity of the PRO analysis, certain empirical and theoretical difficulties render it untenable.
(51) violates the structural requirement on referential PRO. As is clear, the embedded subject $k i d b \bar{a}$ 'girl' does not c-command the matrix subject, yet the obligatory control interpretation still obtains. Since there is no syntactic controller, we instead expect an arbitrary interpretation for the subject of -oqa, as in (52a) with the structure in (52b), but this meaning is impossible. ${ }^{16}$
(52) a. kid-bā ziya bišr-a yoq-si
girl-ERG cow.ABS feed-INF begin-PAST.EVID
*'Someone began to have the girl feed the cow.'
'The girl began to feed the cow.'
b. $\mathrm{PRO}_{\text {arb }}$ [kid-bā ziya bišr-a] yoq-si
girl-erg cow.abs feed-INF begin-PAST.EVID
Thus, the first difficulty with the PRO analysis is that it does not account for the entire range of $B C$ properties in (46). In particular, it does not adequately capture the required coindexed interpretation in (46d).

The second difficulty with (51) is that it should violate Condition C of the binding theory because the R-expression kidbā 'girl' is c-commanded by a coindexed noun phrase. Although the R-expression is not free, the example remains grammatical. Tsez otherwise exhibits Condition C effects.

Since these arguments are essentially independent of particulars of Tsez syntax, they indicate that the architecture of $\mathrm{P} \& \mathrm{P}$ and its assumptions about control in (50) quite generally rule out the possibility of BC . Thus, according to the $\mathrm{P} \& \mathrm{P}$ theory, BC should not exist in natural language. Given the inadequacy of a PRO-based account, we turn to a minimalist movement analysis. ${ }^{17}$

[^12]
## 4 The Movement Analysis of Control

The Minimalist Program dispenses with D-Structure as a level of representation, retaining only the interface levels LF and PF (Chomsky 1995). This elimination of D-Structure in turn leads to the questioning of two fundamental principles that hold there, the D-Structure $\theta$-Criterion repeated in (53) and the P\&P Projection Principle in (54).
(53) D-Structure $\theta$-Criterion (Chomsky 1981)
a. Each argument bears exactly one $\theta$-role.
b. Each $\theta$-role is assigned to exactly one argument.
(54) P\&P Projection Principle (Chomsky 1981)

Lexical requirements must be satisfied at every level of representation (including DStructure).

Several researchers (see Brody 1993, Bošković 1994, Chomsky 1995) argue that simplified versions of both principles, which we formulate in (55) and (56) for expository purposes, hold at LF by virtue of Full Interpretation and do not need to be stated independently in Universal Grammar.
(55) LF $\theta$-Criterion (Bošković 1994:252)
a. Each argument bears a $\theta$-role.
b. Each $\theta$-role is assigned to an argument.
(56) LF Projection Principle

Lexical requirements must be satisfied.
If we follow this minimalist approach and abandon the D-Structure-based versions of these principles in favor of the LF counterparts, we are led to ask what theory-internal restrictions are lost. The residue of the D-Structure $\theta$-Criterion, the difference between (55) and (53), is the biuniqueness between arguments and $\theta$-roles-the claim that each argument bears exactly one $\theta$-role and each $\theta$-role is assigned to exactly one argument. Brody (1993) and Bošković (1994) indicate that this stipulation should not be retained in the Minimalist Program. They argue that it is empirically inadequate for a wide range of constructions-tough-movement, parasitic gaps, Romance restructuring verbs, and English root modals-and that the work it does can be accomplished with independently needed theoretical mechanisms. Turning to the Projection Principle,

[^13]the residue of the P\&P Projection Principle applying at D-Structure is a ban on movement into $\theta$-positions. The Projection Principle had forced D-Structure to be a pure representation of thematic structure. In the Minimalist Program, where there is no D-Structure, only LF has this property and movement into a $\theta$-position before LF is in principle permitted. In summary, eliminating DStructure (potentially) removes the restrictions in (57), paving the way for a movement analysis of OC.
(57) a. An argument bears exactly one $\theta$-role.
b. Movement into a $\theta$-position is impossible.

Several recent works (O’Neil 1995, Lidz and Idsardi 1998, Hornstein 1999, Manzini and Roussou 1999) propose such an analysis within minimalist assumptions. Below we develop Hornstein's (1999) analysis and show how it accounts for the core case of OC. In section 5 we apply the proposal to Tsez BC. The primary departure from the P\&P control analysis that minimalist assumptions permit is the possibility that a single argument chain can bear multiple $\theta$-roles.

We begin by giving our analytical assumptions in (58) and (59).
(58) Movement and control assumptions
a. $\theta$-roles are features.
b. A DP bears a $\theta$-role by checking the $\theta$-role feature of a verb that it merges with.
c. There is no upper bound on the number of $\theta$-roles a chain can have.
d. Covert movement targets full categories, not features.

In order to implement multiple $\theta$-role assignment to a single chain, we follow Hornstein (1999) in assuming that $\theta$-roles are features, (58a). A phrase is assigned a $\theta$-role by checking the corresponding $\theta$-role feature of the predicate, (58b). (58c) is simply a by-product of eliminating the D-Structure $\theta$-Criterion and $\mathrm{P} \& \mathrm{P}$ Projection Principle. There is now nothing to prevent an argument from merging/moving into multiple $\theta$-positions. ${ }^{18}$ Finally, we assume that covert movement targets entire categories, not simply features (Chomsky 2000). Recent QR-based analyses of antecedent-contained deletion support this assumption (Kennedy 1997).
(59) Checking assumptions
a. Features can be strong or weak.
b. Procrastinate: weak features do not force overt checking.
c. Case, agreement, and $\theta$-role features are weak.
d. The D-feature of $\mathrm{T}^{0}$ (the EPP) is strong.
e. Features are checked in core structural relations.

Our assumptions about features and feature checking in (59a-e) are largely standard within the Minimalist Program. Features of a head may be strong or weak, (59a). Strong features must be

[^14]checked prior to Spell-Out because they are illegitimate PF objects and cause a derivation to crash. Weak features are in some sense "invisible" at the PF interface and do not cause the derivation to crash. The economy principle Procrastinate thus demands that weak features be checked as late as possible in the derivation, generally not until the covert syntax, (59b) (Chomsky 1993, and see Lasnik 1999 for discussion). We assume, at least for Tsez, that Case, agreement, and $\theta$-role features are uniformly weak and that the D-feature of $\mathrm{T}^{0}$, which represents the EPP, is strong, (59d). Finally, (59e) follows Bobaljik (1995), Radford (1997), and Bobaljik and Thráinsson (1998) in assuming that features are checked in core structural relations: head-specifier, headhead, or head-complement (Chomsky 1993:172-173).

With these assumptions, Hornstein's movement analysis assigns to the forward control example in (60a) the derivation in (60b), in which traces are shown as struck-through copies and external $\theta$-roles are checked in Spec,VP. Features of a head are shown on a line with that head.
(60) a. Ali hopes to leave.
b.


The numeration contains five relevant features to be checked: the two external $\theta$-role features of hope and leave, the D-features (the EPP) of the matrix and embedded $\mathrm{T}^{0}$, and the Case feature
of the tensed matrix $\mathrm{T}^{0}$. Remember that we assume that EPP features are strong (indicated by italicization above) and must be checked overtly, while other features, specifically Case, are weak. The structure building and derivation proceed in a bottom-up fashion as follows: Ali first merges with the embedded verb leave and checks that verb's external $\theta$-role. This DP then moves to the infinitival subject position to check the D-feature (EPP) of infinitival $T^{0}$. From there it moves into the matrix clause and checks the external $\theta$-role of the control verb hope in Spec,VP. At this point Ali bears two $\theta$-roles, the external roles of hope and leave. Ali finally moves to the matrix Spec,TP, where it checks the D-feature of $\mathrm{T}^{0}$ (EPP) and Case. The derivation converges with all features checked (indicated by the $\sqrt{ }$ preceding the feature).

The movement analysis of control has a number of conceptual advantages. Most obviously, it eliminates the stipulative elements PRO and null Case. It also does away with a control module that specifies PRO's interpretation. The core of control theory was the MDP in (49). Instead, the movement analysis assimilates the locality effects of the MDP to the locality of A-movement. As discussed by Hornstein (1999:85-88), the Minimal Link Condition (Chomsky 1995:311) will force the embedded subject to move to the closest argument position and not cross over one to reach a farther argument position, mimicking the MDP. ${ }^{19}$

## 5 A Movement Analysis of Backward Control

In this section we offer a movement analysis of BC. The account in section 5.1 appeals to variation permitted within the minimalist architecture: movement may be overt or covert. We propose that BC results when the raising of the controller into the matrix clause occurs covertly. In section 5.2 we address how the EPP is nevertheless satisfied when the controller does not move to Spec, TP overtly.

### 5.1 The Analysis

We propose that the central difference between the forward control (FC) derivation in section 4 and Tsez BC is that in the latter there is nothing forcing the DP to raise into the matrix clause overtly. Consequently, the overt subject is pronounced in the embedded clause. By LF, however, this DP has moved into the matrix clause, yielding the syntactic and semantic effects associated with control.

In what follows we step through the derivation of the Tsez BC example in (61) and discuss the details of the analysis. The Spell-Out representation is given in (62) with head-final projections (English words are substituted for Tsez words).

[^15](61) $\mathrm{EC}_{\mathrm{i}}$ [kid-bā${ }_{\mathrm{i}}$ ziya bišr-a] y-oq-si

EC.II.ABS girl.iI-ERG cow.abs feed-INF it-begin-PAST.Evid
'The girl began to feed the cow.'
(62) Spell-Out (first version)


The numeration contains eight relevant features to be checked: the external $\theta$-roles of the embedded verb 'feed' and the matrix verb 'begin', the D-features (the EPP) of the matrix and embedded $\mathrm{T}^{0} \mathrm{~s}$, $\phi$-features of 'begin' and the matrix $\mathrm{T}^{0}$, the ergative Case feature of the embedded $\mathrm{T}^{0}$, and the absolutive Case feature of the matrix verb. ${ }^{20}$ Given the desired outcome that nothing forces the embedded subject to raise overtly into the matrix clause, there must be no strong feature in -oqa's clause. The D-feature of the matrix $\mathrm{T}^{0}$ must therefore be weak. We temporarily stipulate this, in (63), but will return to reject it in section 5.2 and replace it with a more principled analysis that is compatible with our assumptions above. With this stipulation there is only one strong feature in the derivation, the D -feature of the embedded infinitival $\mathrm{T}^{0}$ (italicized in (62)).
(63) The D-feature of $\mathrm{T}^{0}$ in -oqa's clause is weak.

The derivation proceeds as follows: the embedded $\mathrm{V}^{\prime}$ is formed and 'girl' merges with it to check the external $\theta$-role of 'feed'. 'Girl' then moves to the specifier of the embedded TP to check $\mathrm{T}^{0}$ 's

[^16]strong D-feature. In the infinitival subject position it also checks its ergative Case feature, as is evident from the morphology. This infinitival is then merged with 'begin' as its complement. The verb phrase headed by 'begin' then merges with the finite $\mathrm{T}^{0}$ to form the matrix clause. This is the end of the overt derivation. In the Spell-Out representation in (62), the overt subject is still in the embedded clause, as we showed in section 2.4.

The empirical effects of the empty category are achieved at LF, as shown in (64).
(64) $L F$


The covert derivation continues, to check the remaining weak features. The DP 'girl' moves to the matrix Spec,VP and checks the external $\theta$-role feature, Case feature, and $\phi$-features of 'begin'. It then moves to the matrix Spec,TP to check the D- and $\phi$-features of $\mathrm{T}^{0}$. The derivation appears to converge with all features checked; however, an apparent instance of multiple Case checking in a single chain occurs. The DP checks ergative Case with the embedded $\mathrm{T}^{0}$ and absolutive Case with the control verb. Rather than develop a theory of multiple Case checking (see Massam 1985, McCreight 1988, Harbert 1989, Yoon 1996, and Bejar and Massam 1999), we propose that there
is no second instance of Case checking. Control -oqa does not actually have a Case feature to check.
(65) Control -oqa does not have an absolutive Case feature.

Supporting this lexical stipulation is the observation that -oqa cannot be used in any configuration in which it would have to check an absolutive argument (Polinsky, to appear).

b. *say b-oq-si
treatment.III.ABS III-begin-PAST.EVID
('The treatment began.')
If -oqa does not have a Case feature, there is straightforwardly no multiple-Case-checking difficulty and the derivation converges.

In the remainder of the article we point out the advantages of the movement analysis of BC over the PRO analysis from section 3, show how it accounts for the full range of empirical observations from section 2, and address the EPP issue above. The characteristics to be accounted for are repeated in (67).
(67) Characteristics of Tsez BC
a. The subject of -oqa is thematic.
b. The subject of -oqa must be nonovert.
c. The overt subject is in the embedded clause.
d. The subject of -oqa is obligatorily coindexed with its complement clause subject.

First, having -oqa check an external $\theta$-role straightforwardly captures the claim in (67a) that -oqa has a thematic subject. Even though the $\theta$-role feature is not checked until the covert derivation, it nonetheless represents a semantic role, by definition. Like the PRO analysis, our analysis of BC also explains (67b), why the subject of -oqa is nonovert. -oqa has no Case feature, the lexical property in (65), so an overt DP in its clause will be impossible. The only DP that could surface in the matrix clause is the embedded controller, which has already checked its Case in the embedded clause. Nevertheless, FC is also unavailable. In the movement analysis (67c) and the impossibility of FC are a consequence of the fact that there are no strong features in -oqa's clause. An FC derivation would violate Procrastinate. As a result, the overt subject is in the lower clause at Spell-Out. The analysis also accounts for (67d). The obligatory referential dependency between the two external arguments follows because a noncoindexed DP would not be able to check its Case feature. (67d) is a characteristic not captured in the PRO analysis. We pointed out above that, minimally, one expects an arbitrary reference interpretation of the PRO matrix subject.

In summary, the movement analysis of BC successfully accounts for all of the construction's characteristics, (67a-d). In addition, the movement analysis does not face the Condition C problem
that arises if the empty category in (61) is PRO. Since the empty category is actually the head of an A-chain, there are no binding theory violations.

With the analysis in place, we return to more precise discussions of the data presented in section 2. Case marking, complement ellipsis, scrambling, event quantification, and clitic placement facts presented in section 2.4 argued that the overt subject in the BC construction is in the embedded clause. The central observations are summarized in (68).
(68) a. The complement clause with control -oqa may elide.
b. The overt subject shows case marking appropriate to the embedded clause.
c. Adverb placement and interpretation identify clause boundaries.
d. Second-position clitics treat the complement clause as a constituent.
e. The complement clause scrambles as a unit.

We delay an analysis of the complement ellipsis data until section 5.2. The observation that the overt subject shows the morphological case appropriate to its surface syntactic position follows because this is the only position in which the DP checks Case. Any other case would be unexpected. Little more needs to be said about the adverb and second-position clitic data from sections 2.4.3 and 2.4.4. The reader can verify that the clausal organization in (62) correctly captures the relationship between adverb position and interpretation in the data in (27) and (28). Likewise, the secondposition clitic will identify the complement TP in the Spell-Out representation (62) as the leftmost constituent. Only the scrambling facts are of interest within the context of our analysis. To account for the scrambling data, repeated in ( $69 \mathrm{a}-\mathrm{b}$ ), two assumptions are necessary: scrambling is movement and movement is copy and delete. Given these assumptions, the structural representation of (69b), in which the embedded clause has scrambled to the right, is (69c) after Spell-Out on the way to LF. Since the representation in (69c) is what is sent to LF, raising out of the complement position can still take place, yielding the LF representation in (69d).
(69) a. ћuł [kid-bā ziya bišr-a] yoq-si (control) yesterday girl-ERG cow.abs feed-INF begin-PASt.Evid 'Yesterday the girl began to feed the cow.'
b. ћuł yoqsi [kidbā ziya bišra] yesterday began girl.ERG cow feed
c. ћuł [ ${ }^{2}$ [TP kidbā ziya bišra] yoqsi] [TP kidbā ziya bišra]
d. ћuł [TP kidbā [vp[те kidbā ziya bišřa] yoqsi] [TP kidbā ziya bišra]]

In section 2.5 we used reflexivization, depictive interpretation, and agreement facts to argue in favor of an empty category subject for -oqa. (70) summarizes the observations.
(70) a. The matrix verb agrees with the embedded clause subject.
b. The embedded clause subject can bind a reflexive in the matrix clause.
c. The embedded clause subject can bind a depictive in the matrix clause.

These facts follow from the claim that at LF, (64), -oqa does have a syntactic subject. $\Delta$ in the
earlier presentation can now be concretely understood as an LF copy of the embedded subject, which can naturally participate in LF syntax. Agreement is feature matching between the verb and the DP controller when the latter moves through Spec, VP and checks -oqa's external $\theta$-role and $\phi$-features at LF. Given that there is no level of representation of surface structure in the minimalist architecture, LF is, by default and necessity, the level at which binding theory and other principles of interpretation also apply (Chomsky 1995). Licensing of reflexives and depictive interpretation in particular must be done at LF. The reflexive example, repeated in (71a), has the LF representation in (71b), where the reflexive is transparently bound. Likewise, the clause-initial depictive in (72a) is c-commanded by an antecedent at LF, (72b).
(71) a. nesā nesir ${ }_{\mathrm{i}}{ }_{\mathrm{TP}}$ irbahin- $\overline{\mathrm{a}}_{\mathrm{i}}$ halma $\gamma$-or $\gamma u$ utku rod-a] $\emptyset$-oq-si REFL.I.DAT Ibrahim.I-ERG friend-dat house.ABS make-INF I-begin-PAST.EVID 'Ibrahim began, for himself, to build a house for his friend.'
b. irbahin- $\overline{\mathrm{a}}_{\mathrm{i}} \quad$ nesā nesir ${ }_{i}$ [irbahin- $\overline{\mathrm{a}}_{\mathrm{i}}$ halmayor futku roda] oqsi
(72) a. sisxoli [kid-bā ziya bišr-a] yoq-si
alone girl-ERG cow.ABS feed-INF begin-PAST.EVID
'The $\operatorname{girl}_{i}$ alone $_{i}$ began to feed the cow.'
b. [IP kid-bā [sisxoli [kid-bā ziya bišra] yoqsi]]
girl-ERG alone girl-ERG cow feed began
A consequence of the analysis is that covert A-movement clearly creates new binding possibilities. Earlier debate over this issue had focused on two constructions, raising to object and there-insertion, but neither was conclusive. Since Postal 1974 it has been known that raising to object licenses binding possibilities that are unavailable without it. Lasnik and Saito (1991) initially argued that raising to object is covert movement of the infinitival subject to Spec,AgroP in the matrix clause. If that analysis is correct, then it is evidence that covert A-movement creates new binding options. More recently, however, it has been argued that raising to object is overt (Johnson 1991, Koizumi 1993, Lasnik 1995b, Runner 1998). If these arguments are correct, raising to object does not inform the debate. In contrast, expletive replacement in there-insertion sentences does not license new binding possibilities (Lasnik and Saito 1991, Den Dikken 1995, Lasnik 1996). This construction, however, less clearly involves A-movement. Either the associate does not move (Den Dikken 1995) or the covert movement is nonsubstituting adjunction. The latter, Chomsky (1995) argues, does not create the correct structural configuration for binding. In the case of covert control movement, however, substitution of a phrase into a specifier clearly takes place, which unambiguously creates the right structural configuration for binding. We conclude that if BC is analyzed as covert movement, then a necessary consequence is that such covert Amovement creates new binding relations.

In summary, the movement analysis of BC accounts for all of the introduced facts. In the next section we conclude our analysis by eliminating the stipulation in (63) that the D-feature in -oqa's clause is weak.

### 5.2 Backward Control and the EPP

An apparent anomaly in the BC derivation is that the Spell-Out representation in (62) does not have a subject in the main clause TP. This would seem to violate a well-known crosslinguistic generalization, formulated as (the second clause of) the EPP, that all clauses must have subjects. To account for this behavior, we stipulated (73), that the D-feature of -oqa's clause is weak. However, this is conceptually unsatisfactory, and we would like to pursue alternatives.
(73) The D-feature of $\mathrm{T}^{0}$ in -oqa's clause is weak.

One might hypothesize that Tsez does not obey the EPP: it is a relatively free word order language and there is no immediate evidence that a subject must raise to Spec,TP from a VPinternal position. This cannot be correct, however, given the obligatory movement with raising -oqa in (74).
(74) a. t'ont'oћu $u_{i}$ [ $t_{i}$ buq bac'-a] boq-xo
darkness.III.ABS sun.ABS eat-INF begin-PRES
'The sun has begun to eclipse.'
b. *[t'ont'oћ- $\bar{a}$ buq bac'-a] boq-xo
darkness.III-ERG sun.ABS eat-INF begin-PRES
('The sun has begun to eclipse.')
The motivation for the movement could be either to check Case or to satisfy the EPP. Given the observation that infinitive subjects can be assigned Case in their own clause and the theory-internal assumption that Case features are weak and do not drive overt movement, the ungrammaticality of (74b) must be due to a violation of the EPP. We thus conclude that the EPP holds in Tsez and so there must be some other element satisfying the EPP in the matrix clause in the BC example.

We propose that the verb -oqa itself serves this purpose. Alexiadou and Anagnostopoulou (1998) suggest that the EPP is a strong D-feature in all languages but crosslinguistic parameterization is such that the D-feature may be checked by a DP in Spec, TP or by a verb raising to $\mathrm{T}^{0}$. In Tsez, verbs are generally incapable of satisfying the EPP, and we have been tacitly assuming that, in general, verbs do not raise overtly to a head-final TP. The EPP requires a DP in Spec, TP to check $\mathrm{T}^{0}$ 's strong D-feature. -oqa 'begin' and -iča 'continue' are exceptional in their ability to raise to $\mathrm{T}^{0}$ and check this strong D-feature, satisfying the EPP without any movement to Spec,TP. Benmamoun (1999) argues for a similar state of affairs in Arabic. Formally, we follow Benmamoun in saying that -oqa 'begin' is specified as $\mathrm{V}^{0}[+\mathrm{V},+\mathrm{D}]$ while all other verbs are simply $[+\mathrm{V}]$. The $[+\mathrm{D}]$ specification on control -oqa permits it to raise to $\mathrm{T}^{0}$ and check $\mathrm{T}^{0}$, s strong D-feature (the EPP). A full lexical entry for control -oqa is presented in (75). Under this modification the Spell-Out representation for BC is (76).

$$
\begin{equation*}
-o q a, \mathrm{~V}^{0}[+\mathrm{V},+\mathrm{D},- \text { Case }],\left[\_\mathrm{TP}\right] \tag{75}
\end{equation*}
$$

(76) Spell-Out (final)


The D-feature in $\mathrm{T}^{0}$ attracts a matching feature on either a DP or $\mathrm{V}[+\mathrm{D}]^{0}$. Since -oqa is the closest matching element, it moves to $\mathrm{T}^{0}$ and the embedded subject remains in situ. The proposal thus has the desirable consequence of eliminating (73) in favor of a specific morphosyntactic property of -oqa. FC remains impossible because the closest D-feature capable of satisfying the EPP is on the verb -oqa. The embedded DP controller will therefore not move, even though it could also check the matrix $\mathrm{T}^{0 \text { ' }}$ s D-feature, because it would violate the Minimal Link Condition restriction on Attract (Chomsky 1995:296-297).

Although the proposal requires further investigation, we offer some observations that support its plausibility. First, the proposal resonates with current understanding of the English verb-raising pattern. In English, auxiliaries undergo $\mathrm{V}^{0}$-to- $\mathrm{T}^{0}$ raising while main verbs do not. The Tsez situation with -oqa 'begin' and -iča 'continue' is similar. These two aspectual verbs are the auxiliary verbs in Tsez and likewise exceptionally undergo verb raising.

There is also syntactic evidence that control -oqa is structurally higher than non-BC verbs. Recall the complement ellipsis data from section 2.4.5, repeated in (77).
(77)
a. kid-bā ziya bišr-a bay-inč'i-fin girl-ERG cow.ABS feed-INF must-NEG-though 'Although the girl didn't have to feed the cow,'
b. hudun [kid-bā ziya bišr-a] yoq-si

It is widely recognized that such ellipsis is subject to syntactic licensing requirements, and Potsdam (1998) proposes the VP-Ellipsis Licensing Condition in (78), building on observations and analyses in Bresnan 1976 and Lobeck 1995. (78) is intended to capture the claim that an auxiliary in $\mathrm{T}^{0}$ is a necessary condition for VP-ellipsis. It accounts for the required presence of the auxiliary in (79).
(78) VP-Ellipsis Licensing Condition

An elided VP must be c-commanded by an overtly realized inflectional head.
(79) John left because Bill *(did) łeave.

Given this condition on ellipsis and the claim that control -oqa raises to $\mathrm{T}^{0}$, we can make full sense of the grammaticality of (77b). The hypothesized structure is (80), and the auxiliary in $\mathrm{T}^{0}$ licenses the ellipsis.


Furthermore, our assumptions predict that a similar pattern of ellipsis will not be found with other verbs that take TP infinitival complements but do not raise to $\mathrm{T}^{0}$. This is correct. We have found only two verbs that permit this complement ellipsis pattern: control -oqa 'begin' and control -iča 'continue' (which, as we indicated, behaves syntactically like -oqa). The verb-raising hypothesis thus desirably connects two exceptional properties of these verbs: their ability to license complement ellipsis and their ability to appear in a clause that has no surface subject. Furthermore, it explains why complement ellipsis is not possible with raising -oqa.
(81) *hudun $\operatorname{kid}_{i}$ [ti ziya bišr-a] yoq-si
(raising)
nevertheless girl.abs cow.abs feed-INF begin-Past.evid
('she/the girl nevertheless began.')
Like other verbs in Tsez, raising -oqa is not specified as [ +D ] and does not raise to $\mathrm{T}^{0}$ where it could license ellipsis. Raising -oqa has the lexical entry in (82), which should be contrasted with the lexical entry for control -oqa in (75).
(82) -oqa, $\mathrm{V}^{0}[+\mathrm{V}]$, $\qquad$ TP]
(raising)〈EVENT〉

A second piece of evidence for (75) comes from negation: the familiar BC example in (83a) cannot be negated, (83b).

| a. kid-bā ziya bišr-a yoq-si |  |
| :--- | :--- | :--- |
| girl-ERG cow.ABS feed-INF begin-PAST.EVID | (control) |
| 'The girl began to feed the cow.' |  |
| b. *kid-bā ziya bišr-a yoq-inč'u |  |
| girl-ERG cow.ABS feed-INF begin-NEG.PAST.EvID | (control) |
| ('The girl didn't begin to feed the cow.') |  |

We suggest that this restriction has an explanation in terms of the familiar Head Movement Constraint (Travis 1984) that requires a head to move to the closest c-commanding head. For Tsez we assume that negation is represented by NegP between VP and TP, as in (84).

'Begin' in (84) must move to $\mathrm{T}^{0}$ to check the strong D-feature of $\mathrm{T}^{0}$. It cannot do so, however, because $\mathrm{Neg}^{0}$ intervenes and the intermediate move to $\mathrm{Neg}^{0}$ would be unmotivated, hence disallowed by Last Resort. We know from the hypothesized lack of verb raising with non-BC structures that there are no strong features in the inflectional domain triggering overt verb raising. Thus, $\mathrm{Neg}^{0}$ introduces an intervention effect, with the consequence that -oqa cannot be negated when it must move to $\mathrm{T}^{0}$. As expected, raising -oqa can be negated because it does not move to $\mathrm{T}^{0}$.
(85) kid ziya bišr-a yoq-inč'u
(raising)
girl.abs cow.abs feed-INF begin-NEG.PAST.EVID
'The girl didn't begin to feed the cow.'
The ellipsis and negation facts support the proposal that control -oqa is exceptional in undergoing overt movement to $\mathrm{T}^{0}$ and in doing so satisfying the EPP in its clause. If this proposal is on the right track, it both solves the EPP problem in the BC derivation and supports earlier
proposals that the EPP, whatever its ultimate source, can be satisfied via verb raising (Alexiadou and Anagnostopoulou 1998, Benmamoun 1999).

## 6 Conclusion

In this article we have argued that the Tsez verbs -oqa 'begin' and -iča 'continue' participate in a backward subject control structure. A series of empirical arguments supported the central claims of our analysis: (a) the subject of -oqa's complement clause is overt and (b) its own subject is a coindexed thematic empty category.

A central question raised by our analysis is whether syntactic theory should allow BC. Fairly deep assumptions within the $\mathrm{P} \& \mathrm{P}$ framework rule it out. If those assumptions are adhered to, our discussion of the Tsez structure must be viewed as a misanalysis. On the other hand, if our description of Tsez is on the right track, then it argues for a syntactic theory that permits BC. We suggest that a minimalist architecture in which movement may take place overtly or covertly in conjunction with a movement analysis of control such as Hornstein's (1999) that permits movement from one $\theta$-position to another successfully accounts for BC . The construction thus provides interesting evidence for incorporating a movement analysis of control into the theory.

Our specific analysis of BC posits the existence of verbs that assign an external $\theta$-role, like control verbs in general, but do not require an overt subject in their clause because they are specified as $[+D]$ and can satisfy the EPP without the presence of a clausemate subject. In the larger picture, then, our analysis allows parametric variation in (a) whether or not a verb assigns an external $\theta$-role and (b) whether or not it is specified as [ +D ] and is able to satisfy the EPP. This yields a simple typology of subject-subject movement relation constructions: A verb that assigns an external $\theta$-role and is not [ +D ] (cannot satisfy the EPP on its own) yields an FC configuration (e.g., English or Tsez FC verbs). A verb that assigns an external $\theta$-role and is [ +D ] yields a BC structure (e.g., Tsez control -oqa and -iča). A verb that assigns no external $\theta$-role and is not $[+\mathrm{D}]$ yields a raising construction (e.g., English or Tsez raising -oqa and -iča). Finally, a verb that assigns no external $\theta$-role but is [ +D ] would yield a so-called backward raising structure. The latter would look superficially like an unaccusative extraposition structure but would show syntactic evidence that the embedded subject was also in the higher clause. We know of no cases of this sort, and we believe that there may be principled reasons why backward raising does not exist.

Assuming the existence of BC, the question arises why this pattern does not occur more often in natural languages. Although more work is needed to answer this question in full, we offer two considerations. First, under our analysis the analytical requirements for the construction are somewhat restrictive. Two elements must be available in the language: (a) Case marking of subjects in control complements and (b) a mechanism independent from XP merge to satisfy the EPP. With respect to the former, such languages do exist and more work is necessary to determine if any exhibit BC. With respect to the latter, XP-movement seems to be a dominant mode for satisfying the EPP crosslinguistically, although languages do have other strategies, such as expletives or verb raising. We have suggested that Tsez BC exceptionally appeals to verb raising. Second, it is possible that BC does exist in other languages and simply has not been documented.

Aside from Tsez, we are aware of at least two other Nakh-Daghestanian languages where BC is attested, Tsaxur and Bezhta. There are also a number of languages outside the Nakh-Daghestanian family that may instantiate BC.

The final question is whether it is predictable which verbs in a language will participate in BC. We believe that the empirical data needed to definitively answer this question are not yet available, but initial indications are that the ability to license BC is at least partially idiosyncratic. If this is correct, our analysis desirably locates the syntactic idiosyncrasy in morphosyntactic features in the lexicon. Given the Tsez situation, two likely correlates of BC are the aspectual nature of the verbs and the control/raising ambiguity. Aspectual verbs often show the control/

Table 1
Crosslinguistic variation in backward subject control verbs

|  |  |  | Raising/ |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Language | Verbs | Backward <br> control | Aspectual | ambiguity | Source |

raising ambiguity (see Perlmutter 1970 and Ross 1972 on the well-known case of English begin and Lamiroy 1987 on French), and this is possibly derived from some deeper semantic property, for example, their semantic bleaching (Freed 1979, Aissen 1994, Langacker 1995, Pustejovsky and Bouillon 1995, Tenny 1995). However, it appears that neither of these is necessary or sufficient to predict the presence of BC. Table 1 summarizes our crosslinguistic findings for backward subject control (the predicates that license backward object control are verbs of causation-see footnote 15). Two groups of predicates that recur in this language sample are aspectuals and verbs of motion; the latter are sometimes reanalyzed as aspectuals (e.g., French aller 'go' or English going to). However, even if one were to unify verbs of motion and aspectual verbs, there are still languages with BC verbs that do not fall into this set (Tsaxur, Japanese, Jemez). There are also languages in which BC verbs do not show a raising/control ambiguity (Tsaxur, Bezhta, Malagasy, Japanese, Jacaltec). At this point it is unclear what, if any, principled lexical class or semantic features determine why some verbs show BC or control/raising ambiguities, while other verbs do not. We hope that the recognition of BC as a theoretical option will lead to its discovery in other languages and to a clearer picture of the underlying lexical semantics.

## References

Aissen, Judith. 1994. Tzotzil auxiliaries. Linguistics 32:657-690.
Alexiadou, Artemis, and Elena Anagnostopoulou. 1998. Parametrizing AGR: Word order, V-movement and EPP checking. Natural Language \& Linguistic Theory 16:491-539.
Anderson, Stephen. 1976. On the notion of subject in ergative languages. In Subject and topic, ed. by Charles N. Li, 1-23. New York: Academic Press.

Anderson, Stephen. 1996. How to put clitics in their place, or why the best account of second-position phenomena may be something like the optimal one. The Linguistic Review 13:165-191.
Bejar, Susana, and Diane Massam. 1999. Multiple case checking. Syntax 2:65-79.
Benmamoun, Elabbas. 1999. The featural structure of functional categories: A comparative study of Arabic dialects. Oxford: Oxford University Press.
Bobaljik, Jonathan David. 1993. Nominally absolutive is not absolutely nominative. In Proceedings of the Eleventh West Coast Conference on Formal Linguistics, ed. by Jonathan Mead, 44-60. Stanford, Calif.: CSLI Publications.
Bobaljik, Jonathan David. 1995. Morphosyntax: The syntax of verbal inflection. Doctoral dissertation, MIT, Cambridge, Mass.
Bobaljik, Jonathan David, and Höskuldur Thráinsson. 1998. Two heads aren’t always better than one. Syntax 1:37-71.
Bošković, Željko. 1994. D-Structure, Theta-Criterion, and movement into theta-positions. Linguistic Analysis 24:247-286.
Bresnan, Joan. 1976. The form and functioning of transformations. Linguistic Inquiry 7:3-40.
Brody, Michael. 1993. $\theta$-theory and arguments. Linguistic Inquiry 24:1-23.
Chomsky, Noam. 1981. Lectures on government and binding. Dordrecht: Foris.
Chomsky, Noam. 1993. A minimalist program for linguistic theory. In The view from Building 20: Essays in linguistics in honor of Sylvain Bromberger, ed. by Kenneth Hale and Samuel Jay Keyser, 1-52. Cambridge, Mass.: MIT Press. [Also published in Noam Chomsky, The Minimalist Program, 167-217. Cambridge, Mass.: MIT Press, 1995.]
Chomsky, Noam. 1995. Categories and transformations. In The Minimalist Program, 219-394. Cambridge, Mass.: MIT Press.

Chomsky, Noam. 2000. Minimalist inquiries: The framework. In Step by step: Essays on minimalist syntax in honor of Howard Lasnik, ed. by Roger Martin, David Michaels, and Juan Uriagereka, 89-155. Cambridge, Mass.: MIT Press.
Chomsky, Noam, and Howard Lasnik. 1993. The theory of principles and parameters. In Syntax: An international handbook of contemporary research, ed. by Joachim Jacobs, Arnim von Stechow, Wolfgang Sternefeld, and Theo Vennemann, 506-569. Berlin: Mouton de Gruyter. [Also published in Noam Chomsky, The Minimalist Program, 13-128. Cambridge, Mass.: MIT Press, 1995.]
Comrie, Bernard. 2000. Valency-changing derivations in Tsez. In Changing valency: Case studies in transitivity, ed. by Robert M. W. Dixon and Alexandra Y. Aikhenvald, 360-374. Cambridge: Cambridge University Press.
Craig, Colette G. 1974. A wrong-cyclical rule in Jacaltec? In Papers from the Tenth Regional Meeting, Chicago Linguistic Society, ed. by Michael W. La Galy, Robert A. Fox, and Anthony Bruck, 103-116. Chicago: University of Chicago, Chicago Linguistic Society.
Craig, Colette G. 1977. The structure of Jacaltec. Austin: University of Texas Press.
Culicover, Peter, and Ray Jackendoff. 2001. Control is not movement. Linguistic Inquiry 32:493-512.
Dikken, Marcel den. 1995. Binding, expletives, and levels. Linguistic Inquiry 26:347-354.
Dixon, Robert M. W. 1979. Ergativity. Language 55:59-138.
Farkas, Donka. 1988. On obligatory control. Linguistics and Philosophy 11:27-58.
Farrell, Patrick. 1995. Backward control in Brazilian Portuguese. In Proceedings of the Eleventh Eastern States Conference on Linguistics, ed. by Janet M. Fuller, Ho Han, and David Parkinson, 116-127. Ithaca, N.Y.: Cornell University, Department of Modern Languages and Linguistics.
Freed, Alice. 1979. The semantics of English aspectual complementation. Dordrecht: Reidel.
Hale, Kenneth, and Samuel Jay Keyser. 1993. On argument structure and the lexical expression of syntactic relations. In The view from Building 20: Essays in linguistics in honor of Sylvain Bromberger, ed. by Kenneth Hale and Samuel Jay Keyser, 53-109. Cambridge, Mass.: MIT Press.
Halpern, Aaron L. 1995. On the placement and morphology of clitics. Stanford, Calif.: CSLI Publications.
Halpern, Aaron L., and Arnold M. Zwicky, eds. 1996. Approaching second: Second position clitics and related phenomena. Stanford, Calif.: CSLI Publications.
Hankamer, Jorge, and Ivan Sag. 1976. Deep and surface anaphora. Linguistic Inquiry 7:391-426.
Harada, S.-I. 1973. Counter equi-NP-deletion. University of Tokyo Research Institute of Logopedics and Phoniatrics. Annual Bulletin 7:113-147.
Harbert, Wayne. 1989. Case attraction and the hierarchization of case. In Proceedings of the Sixth Eastern States Conference on Linguistics, ed. by Ken de Jong and Yongkyoon No, 138-149. Columbus: Ohio State University Press.
Hornstein, Norbert. 1999. Movement and control. Linguistic Inquiry 30:69-96.
Jackendoff, Ray. 1972. Semantic interpretation in generative grammar. Cambridge, Mass.: MIT Press.
Johnson, Kyle. 1991. Object positions. Natural Language \& Linguistic Theory 9:577-636.
Kennedy, Christopher. 1997. Antecedent-contained deletion and the syntax of quantification. Linguistic Inquiry 28:662-688.
Kibrik, Alexander E., ed. 1999. Elementy caxurskogo jazyka v tipologičeskom osveščenii (Aspects of Tsaxur grammar from a crosslinguistic perspective). Moscow: Nasledie.
Koizumi, Masatoshi. 1993. Object agreement phrases and the Split VP Hypothesis. In Papers on Case and agreement I, ed. by Jonathan David Bobaljik and Colin Phillips, 99-148. MIT Working Papers in Linguistics 18. Cambridge, Mass.: MIT, Department of Linguistics and Philosophy, MITWPL.
Kuroda, S.-Y. 1965. Generative grammatical studies in the Japanese language. Doctoral dissertation, MIT, Cambridge, Mass. [Published New York: Garland, 1979.]
Kuroda, S.-Y. 1978. Case marking, canonical sentence patterns, and Counter Equi in Japanese (a preliminary survey). In Problems in Japanese syntax and semantics, ed. by John Hinds and Irwin Howard, 30-51. Tokyo: Kaitakusha.

Kuroda, S.-Y. 1999. Tokoro-setsu (Tokoro-clauses). In Kotoba-no kaku to suen. Nihongo to erigo-no aida (Principles and parameters: Between Japanese and English), ed. by S.-Y. Kuroda and Masaru Nomura, 105-162. Tokyo: Kurosio.
Lamiroy, Beatrice. 1987. The complementation of aspectual verbs in French. Language 63:278-298.
Landau, Idan. 1999. Elements of control. Doctoral dissertation, MIT, Cambridge, Mass.
Langacker, Ronald W. 1995. Raising and transparency. Language 71:1-62.
Larson, Richard K. 1991. Promise and the theory of control. Linguistic Inquiry 22:103-139.
Lasnik, Howard. 1995a. Case and expletives revisited: On Greed and other human failings. Linguistic Inquiry 26:615-633. [Also published in Howard Lasnik, Minimalist analysis, 74-96. Oxford: Blackwell, 1999.]

Lasnik, Howard. 1995b. Last Resort. In Minimalism and linguistic theory, ed. by Shosuke Haraguchi and Michio Funaki, 1-32. Tokyo: Hituzi Syobo. [Also published in Howard Lasnik, Minimalist analysis, 120-150. Oxford: Blackwell, 1999.]
Lasnik, Howard. 1996. On certain structural aspects of anaphora. Paper presented at the Linguist List OnLine Conference on Geometric and Thematic Structure in Binding. [Also published in Howard Lasnik, Minimalist analysis, 175-193. Oxford: Blackwell, 1999.]
Lasnik, Howard. 1999. On feature strength: Three minimalist approaches to overt movement. Linguistic Inquiry 30:197-218.
Lasnik, Howard, and Mamoru Saito. 1991. On the subject of infinitives. In CLS 27, ed. by Lise M. Dobrin, Lynn Nichols, and Rosa M. Rodríguez, 324-343. Chicago: University of Chicago, Chicago Linguistic Society.
Lidz, Jeffrey, and William J. Idsardi. 1998. Chains and Phono-Logical Form. In Proceedings of the 22nd Annual Penn Linguistics Colloquium, ed. by Alexis Dimitriadis, Hikyoung Lee, Christine Moisset, and Alexander Williams, 109-125. University of Pennsylvania Working Papers in Linguistics 5.1. Philadelphia: University of Pennsylvania, Penn Linguistics Club.
Lobeck, Anne. 1995. Ellipsis: Functional heads, licensing, and identification. Oxford: Oxford University Press.
Manzini, M. Rita, and Anna Roussou. 1999. A minimalist theory of A-movement and control. In UCL working papers in linguistics 11, ed. by Corinne Iten and Ad Neeleman, 403-440. London: University College London, Department of Phonetics and Linguistics.
Massam, Diane. 1985. Case theory and the Projection Principle. Doctoral dissertation, MIT, Cambridge, Mass.
McCreight, Katherine L. 1988. Multiple Case assignments. Doctoral dissertation, MIT, Cambridge, Mass.
Miller, D. Gary. 2001. Nonfinite structures in theory and change. Oxford: Oxford University Press.
Newmeyer, Frederick J. 1975. English aspectual verbs. The Hague: Mouton.
O'Neil, John. 1995. Out of control. In NELS 25, ed. by Jill N. Beckman, 361-371. Amherst: University of Massachusetts, GLSA.
Perlmutter, David. 1970. The two verbs begin. In Readings in English transformational grammar, ed. by Roderick Jacobs and Peter Rosenbaum, 107-119. Waltham, Mass.: Blaisdell.
Polinsky, Maria. 2000. Variation in complementation constructions: Long-distance agreement in Tsez. In Complementation, ed. by Kaoru Horie, 59-89. Amsterdam: John Benjamins.
Polinsky, Maria. 2001. Raising and control in Bezhta. Ms., University of California, San Diego, and MaxPlanck Institute.
Polinsky, Maria. To appear. Tsez beginnings. In Proceedings of the 25th Annual Meeting of the Berkeley Linguistics Society. Berkeley: University of California, Berkeley, Berkeley Linguistics Society.
Polinsky, Maria, and Eric Potsdam. 2001a. Backward control: Evidence from Malagasy. Paper presented at the Eighth Annual Meeting of the Austronesian Formal Linguistics Association.

Polinsky, Maria, and Eric Potsdam. 2001b. Long-distance agreement and topic in Tsez. Natural Language \& Linguistic Theory 19:583-646.
Postal, Paul. 1974. On raising: One rule of English grammar and its theoretical implications. Cambridge, Mass.: MIT Press.
Potsdam, Eric. 1998. Syntactic issues in the English imperative. New York: Garland.
Pustejovsky, James, and Pierrette Bouillon. 1995. Aspectual coercion and logical polysemy. Journal of Semantics 12:133-162.
Radford, Andrew. 1997. Syntactic theory and the structure of English: A minimalist approach. Cambridge: Cambridge University Press.
Rosenbaum, Peter. 1967. The grammar of English predicate complement constructions. Cambridge, Mass.: MIT Press.
Ross, John Robert. 1972. More on begin. Foundations of Language 8:574-577.
Runner, Jeffrey T. 1998. Noun phrase licensing and interpretation. New York: Garland.
Tenny, Carol. 1995. How motion verbs are special: The interaction of semantic and pragmatic information in aspectual verb meaning. Pragmatics and Cognition 3:31-73.
Travis, Lisa deMena. 1984. Parameters and effects of word order variation. Doctoral dissertation, MIT, Cambridge, Mass.
Yoon, James. 1996. Ambiguity of government and the Chain Condition. Natural Language \& Linguistic Theory 14:105-162.
(Polinsky)
Department of Linguistics, 0108
University of California, San Diego
9500 Gilman Drive
La Jolla, California 92093-0108
polinsky@ling.ucsd.edu
(Potsdam)
Program in Linguistics
University of Florida
P.O. Box 115454

Gainesville, Florida 32611-5454
potsdam@ufl.edu


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[^1]:    ${ }^{1}$ We use the following abbreviations in glossing the examples: ABS-absolutive, COMP-complementizer, DAT-dative, ERG-ergative, EVID-evidential, IMPER-imperative, INF-infinitive, INSTR-instrumental, NEG-negative, NMLZ-nominalizer, NONEVID-nonevidential, obL-oblique, PAST-past, PL-plural, PRES-present, REFL-reflexive, vAL-validator, I-IV-noun class.

[^2]:    ${ }^{2}$ In Polinsky and Potsdam 2001b we present evidence that ergativity in Tsez is a surface-oriented, morphological phenomenon. The ergative noun phrase asymmetrically c-commands the absolutive object and passes a variety of subjecthood diagnostics (Anderson 1976, Dixon 1979, Bobaljik 1993). In what follows we do not assume any syntactic difference between ergative and absolutive subjects.
    ${ }^{3}$ We will illustrate solely with -oqa 'begin' from here on. The syntactic behavior of -iča 'continue' is identical.

[^3]:    ${ }^{4}$ This is a simplification. The two constructions show the typical semantic differences found between raising and control crosslinguistically. The control construction is incompatible with subjects and other elements that would violate the selectional restrictions imposed by the control verb. In contrast, the raising construction has no such restrictions. See section 2.3 and footnote 7 for specific illustrations of the contrast. The subject of control -oqa is not otherwise restricted and may be quantificational in addition to referential. A more literal translation of (8) would thus be 'It began that the girl was feeding the cow'.

[^4]:    ${ }^{5}$ The contrast in surface case is not seen when the embedded verb is intransitive．Despite the surface ambiguity， all the distinguishing diagnostics apply（Polinsky，to appear）．

[^5]:    ${ }^{6}$ A traditional diagnostic for an external thematic role is (in)compatibility with idiom chunks. As is well known, only raising verbs allow idiom pieces as their subjects. (ia) illustrates a subject idiom chunk in Tsez. (ib-c) demonstrate that the idiom is incompatible with control -oqa but available with raising -oqa. Although the data are independently accounted for under the assumption that control -oqa requires an intentional agent, which 'darkness' is not, we include them because idioms have historically been taken as an independent diagnostic. Other traditional diagnostics, the distribution of expletives and synonymy of active/passive pairs, cannot be applied in Tsez because the language does not have a passive or overt expletives.
    (i) a. t'ont'oћ- $\overline{\mathrm{a}}$ buq bac'-xo darkness-ERG sun.ABS eat-PRES (lit. 'Darkness eats the sun.') 'The sun has eclipsed.'
    b. *t'ont'oћ- $\bar{a}$ buq bac'-a boq-xo (control) darkness-erg sun.abs eat-INF begin-Pres ('The sun has begun to eclipse.')
    c. t'ont'ohu $\mathrm{u}_{\mathrm{i}}$ [ $\mathrm{t}_{\mathrm{i}}$ buq bac'-a] boq-xo
    (raising)
    darkness.abs sun.abs eat-INF begin-Pres
    'The sun has begun to eclipse.'

[^6]:    ${ }^{7}$ An interpretive contrast between (19b) and (19c) further supports the analysis. While the raising example in (19c) simply means that the girl began to perceive the sound of the father's story, the control example in (19b) has the additional meaning that the girl heeded the father's story and became consciously aware of it. Such semantic differences between raising and control uses are rather commonly attested, with the control use typically having a "richer'" meaning (Langacker 1995).
    ${ }^{8}$ (20b) is only marginally acceptable because the embedded verb is largely incompatible with the intentional agent role imposed by control -oqa.

[^7]:    ${ }^{9}$ The data additionally demonstrate that Tsez does have canonical forward control structures.

[^8]:    ${ }^{11}$ With the raising construction, the expectation is that the complement clause will elide, leaving the raised subject; however, complement ellipsis is impossible with raising -oqa.
    (i) *hudun $\quad \operatorname{kid}_{\mathrm{i}} \quad\left[\mathrm{t}_{1}\right.$ ziya bišr-a] yoq-si (raising) nevertheless girl.abs cow.abs feed-INF begin-Past.Evid ('she/the girl nevertheless began.')
    We account for this fact in section 5.
    ${ }^{12}$ Following Hankamer and Sag (1976), we offer an argument in support of identifying the phenomenon in (32b) as ellipsis/deletion (Hankamer and Sag's 'surface anaphora') and not null complement anaphora (Hankamer and Sag's 'deep anaphora'"). Deletion, and not null complement anaphora, normally requires parallelism between the antecedent expression and the missing material. Example (i) shows that the Tsez construction requires such formal parallelism. In (ia) the potential antecedent is an imperative clause, not an infinitive, and the infinitival complement of -oqa must be expressed, (ib). Deletion is not possible in this case, (ic).
    (i) a. eniy-ā kid-beqor [ziya bišer- $\lambda i n]$ e $\lambda i-z a \lambda$
    mother-ERG girl-obl cow.abs feed.IMPER-COMP say-because
    'Because the mother told the girl to feed the cow,'
    b. kid-bā ža bišr-a yoq-si
    girl-ERG it.ABS feed-INF begin-PAST.EVID
    'the girl began to feed it.'
    c. *[kid-bā ža bišr-a] yoq-si girl-ERG it.ABS feed-INF begin-PAST.EVID

[^9]:    ${ }^{13}$ We assume that c-command corresponds to left-to-right linear order in these examples.

[^10]:    ${ }^{14}$ (i) confirms that null elements, specifically pro, may support a depictive. We argue in section 3 that $\Delta$ is nevertheless not pro.
    (i) pro sisxoli ziya bišersi
    alone cow fed
    'She/He/They alone fed the cow.'

[^11]:    ${ }^{15}$ Backward subject control is also documented in Tsaxur (Kibrik 1999) and Bezhta (Polinsky 2001), both of which belong to the same language family as Tsez. In these languages BC predicates include 'begin', 'stop', 'come', 'go', 'hurry', and 'dread'. Outside of Nakh-Daghestanian, BC has been proposed for Japanese potential predicates (Kuroda 1965, 1978), Jacaltec aspectuals (Craig 1974), Sayula Popoluca and Zoque (Rich Rhodes, personal communication), and Malagasy aspectual verbs (Polinsky and Potsdam 2001a). Ken Hale (personal communication) suggested that it might also exist in Jemez and Kadiwew. Backward object control has been proposed for Japanese causatives and, possibly, tokoro-clauses (Harada 1973, Kuroda 1965, 1978, 1999), Brazilian Portuguese causatives (Farrell 1995), and Sayula Popoluca causatives (Rich Rhodes, personal communication).

[^12]:    ${ }^{16}$ The ungrammaticality of (52a) on the arbitrary interpretation is not due to the unavailability of $\mathrm{PRO}_{\text {arb }}$ in Tsez. When the structural conditions are met, $\mathrm{PRO}_{\text {arb }}$ is possible.
    (i) $\left[\mathrm{PRO}_{\text {arb }}\right.$ t'ek t'et'r-a] rigu yoł
    book.ABS read-InF good be.PRES
    'To read a book is good.'
    ${ }^{17}$ Tsez is a subject pro-drop language, but the empty category in (42) also cannot be pro, a null pronominal. A probased analysis would provide no account of the obligatorily nonovert subject of -oqa or the obligatory control interpretation, the properties in (46b,d). Regarding the former, in languages that allow pro, including Tsez, it typically alternates with an overt noun phrase; however, an overt matrix subject is completely impossible in BC . Regarding the latter, there is no mechanism to force the coindexed interpretation. Only Condition B of the binding theory restricts the coreference options

[^13]:    of a (null) pronominal, and it cannot force a pronominal to receive a particular referent. Finally, the pro analysis does not eliminate the Condition $C$ violation inherent in the configuration in (42).

    An anonymous reviewer suggests a second alternative account in which there is no empty category in control -oqa's clause at all and the verb exceptionally assigns its external $\theta$-role downward to the complement clause subject, similar to Case assignment in exceptional Case marking. Such an analysis faces two challenges: First, it must explain why $\theta$ role assignment can work in this otherwise unattested manner in just this case. Second, it must confront the facts in section 2.5, which demonstrated that control -oqa has a syntactic subject. Agreement, depictive licensing, and reflexive binding would have to be accounted for in lexical semantic or argument structural terms, rather than configurationally. Space considerations prevent us from developing and evaluating such a theory here.

[^14]:    ${ }^{18}$ We adopt $\theta$-role features for concreteness and make no claims about any semantic content of such features. The analysis is compatible with a more conventional conception of $\theta$-roles as being assigned in structural configurations (Hale and Keyser 1993). The crucial assumption is that a chain can receive a $\theta$-role via Move, in addition to Merge.

[^15]:    ${ }^{19}$ There are well-known empirical inadequacies with the MDP (see, e.g., Jackendoff 1972, Farkas 1988, Larson 1991, Landau 1999). To the extent that the MDP is an incorrect generalization, it is undesirable that it follows from the movement analysis of control. Cases that contradict the MDP thus constitute a problem for Hornstein's analysis that we will not pursue here. In general, our analysis inherits all the challenges for Hornstein's analysis (Landau 1999, Culicover and Jackendoff 2001, Miller 2001) and we make no attempt to address them.

[^16]:    ${ }^{20}$ We follow Bobaljik (1993) in assuming that absolutive Case is uniformly assigned by $\mathrm{V}^{0}$.

