

draft

Expanding the scope of control and raising*

Maria Polinsky and Eric Potsdam

University of California, San Diego and University of Florida

1. Introduction

The relationship between linguistic theory and empirical data is a proverbial two-way street, but it is not uncommon for the traffic in that street to move only in one direction. The study of raising and control is one such case, where the empirical lane has been running the risk of becoming too empty, and much theorizing has been done on the basis of English and similar languages. A statement in a recent paper is quite telling in that regard: “Our impression from the literature ... is that control behaves cross-linguistically in much the same fashion [as in English]...” (Jackendoff and Culicover 2003: 519). If indeed all languages structure control in ways similar to English, cross-linguistic investigation might not be expected to have much to offer, so there is not been much impetus for pursuing them.

This paper offers a new incentive to pursue empirical data on control and raising. For these phenomena, recent results from both theoretical and empirical work have coalesced in a promising way allowing us to expand the boundaries of a familiar concept. This in turn provides a stronger motivation for the development of raising/control typologies.

2. Innovations in linguistic theory and their consequence for control and raising

Two main innovations in linguistic theory allow us to predict a greater range of variation in control and raising: the unification of control and raising under a single analysis as movement. and the compositional view of movement.

Control is a dependency between two argument positions in which the referential properties of the overt controller determine the referential properties of the silent (zero) controllee (Bresnan 1982 and many others):

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

Raising is a cross-clausal dependency between two argument positions in which the higher argument plays no role in the embedded predication introduced by the higher verb, which is why the higher argument can easily alternate with an expletive subject:

- (2) Bradley_i seemed [____i to cut in line]
 RAISED ARGUMENT EMBEDDED SUBJECT

*Acknowledgments:

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

In traditional approaches to control within the Principles and Parameters framework, control and raising have been derived via very different mechanisms. While raising is produced by movement, in control structures the silent controllee is represented as a base-generated category PRO which is subject to a number of syntactic constraints (Chomsky and Lasnik 1993). In non-derivational frameworks, the silent controllee is typically determined on argument structure and is subject to condition C, which allows for its adequate interpretation.¹

In a more recent approach to control, researchers have proposed to analyze control as movement from one argument position to another (O’Neill 1995; Hornstein 1999, 2003, and many others). On this view, the sentence in (1) is derived in the following way: *Bradley* is generated in VP of the the embedded clause, where it receives a θ -role, moves to the embedded [Spec, IP], moves further to the matrix [Spec, vP], where it gets another θ -role, and finally reaches the matrix [Spec, IP].²

(3) [IP Bradley [_{vP} Bradley try [IP Bradley to [_{vP} cut in line]]]]

Object control structures are derived in a similar way, the only difference being the landing site of the controller in the matrix clause.

One of the immediate consequences of this approach is that the contrast between control and raising becomes much less prominent. Both structures are now derived via movement, and the only remaining difference is that the landing site of A-movement under control is associated with a thematic position, whereas the landing site for a DP undergoing raising is non-thematic. Compare:

(4)	a.	[IP Bradley [_{vP} Bradley try [IP Bradley to [_{vP} cut in line]]]]	SUBJECT CONTROL
		θ -role	
	b.	[IP Bradley [_{vP} Bradley seem [IP Bradley to [_{vP} cut in line]]]]	SUBJECT RAISING

Traditional derivational approaches have long insisted on treating control and raising as structurally distinct phenomena,³ but the idea that they could actually be unified has been around for quite a while. It was proposed early on by Bolinger (1961, 1967) and then developed further by Langacker (1995) in the framework of cognitive grammar. Despite apparent theoretical differences, cognitive grammar and minimalism actually arrive at very similar results with respect to the unified treatment of

¹ There are other approaches to control, which do not recognize the second argument position at all (Predication Theory, as outlined in Napoli 1989; see also Wurmbrandt 2003 for a restructuring approach). We cannot do justice to all the various theoretical approaches here, and for our purposes it is significant that they all converge on having a structurally higher controller determine the referential interpretation of a lower expression, be it PRO, null pronominal, or “invisible” semantic argument. A good overview of different syntactic approaches can be found in Walenski (2002: ch. 1) and Davies and Dubinsky (2004: ch. 1, 2).

² We set aside the motivation for the movement in each pass. Case licensing plays a large but highly disputed role in such movement; some aspects of case-licensing are discussed in Boeckx and Hornstein (this volume).

³ See Davies and Dubinsky (2004: ch. 1, 2) for an historical overview

control and raising. More recently, the idea that control and raising may be closer than they seem has received support from experimental studies. Both cross-modal priming (Walenski 2002) and neuroimaging (Featherson et al. 2002) have shown that raising and control evoke similar processing responses.⁴

Another innovation in syntactic theory that has proven crucial for the analysis of control is the re-introduction of the compositional view of movement (Chomsky 1995 and many others) as an alternative to trace analysis. The trace theory of movement is based on the idea that an expression starts out in a particular structural position and then literally moves to the position where it is pronounced; there is just one instance of an expression that undergoes this movement process, and a separate category (trace) fills the starting position. On the compositional (copy-and-delete) view, highly reminiscent of the approach popular in the 1970s, there can be two or more positions which include a copy of the expression that undergoes movement. The positions form a copy chain, and in that chain one or several of the elements may get deleted. A trace is no longer a distinct category; rather a link in the copy chain, where deletion has taken place, is replaced by ‘silence’.

With a trace no longer necessary, conditions determining the positions where traces (i.e., silences) can appear are also removed. As a result, the potential range of possibilities in the chain also expands, as deletion may in principle now target any position in the chain. In theory, the following three options are possible for copies showing a hierarchical relationship (higher—lower):

- (5) a. [Higher copy ~~Lower copy~~] ANAPHORA
 b. [~~Higher copy~~ Lower copy] CATAPHORA
 c. [Higher copy Lower copy] RESUMPTION

Assuming that control and raising both involve a chain of copies, the range of predicted variation in these constructions is thus as follows:

(6) Typology of control and raising

Higher copy pronounced	Lower copy pronounced	Resulting structure
✓	✗	forward (anaphoric) control/raising
✗	✓	backward (cataphoric) control/raising
✓	✓	copy (resumptive) control/raising

⁴ Featherson et al. in fact try to argue for the two phenomena being qualitatively different, but their ERP results are hardly compatible with their own interpretation—the difference between German subject raising and subject control appears to be only quantitative. The ERP response to raising turns out to be of greater amplitude simply because the matrix verb *scheinen* ‘seem’ has more complementation options than the control comparison, so that subjects have to do more “guesswork” when they encounter *scheinen*. Moreover, the use of only a single lexical verb for each condition makes the results less reliable.

A number of recent empirical discoveries support this expanded typology, and a timely concurrence of theory and data allows us to recognize (or reconsider) patterns in raising and control—backward and copy patterns—that have heretofore been marginalized because they did not fit the theory, and to use new empirical evidence to push the theory further.

In the remainder of the paper, we will develop the typology of control and raising outlined in (6). In section 3, we present an overview of empirical evidence supporting the new typology. The empirical data converge with the theoretical results in establishing the need to recognize not only the familiar forward pattern but also backward and copy patterns in raising/control. Section 4 shows what type of languages are good candidates for backward and copy patterns. Section 5 offers a preliminary discussion of factors that motivate backward and copy patterns and offers some hypotheses as to why these patterns are rather rare. Section 6 summarizes the conclusions reached here, and presents some outstanding questions posed by the new typologies.

3. *Evidence for backward and copy patterns*

The goal of this section is to provide a brief overview of empirical findings on the backward and copy patterns in raising and control. As this is intended as a summary only, many of the arguments for particular constructions will be mentioned without much detail. The interested reader should consult the primary sources for the particular languages mentioned below.

To our knowledge, Japanese was the first language for which it was proposed to analyze its structures in terms of backward control, under the name Counter-Equi (Kuroda 1965, 1978). Backward object control was proposed for clauses with the complementizer *tokoro* (Harada 1973, Kuroda 1965, 1978) and causatives (Kuroda 1965), and potential predicates and some psych-verbs (e.g., *kowai* ‘be afraid’) were analyzed as involving backward subject control (Kuroda 1965).⁵ Farrell (1995) proposed that Brazilian Portuguese had backward object control. In our view, these proposals did not receive as much attention as they deserved, probably because they did not fit the theoretical assumptions of the time. Likewise, copy patterns, copy raising in particular, although noticed by many researchers (Rogers 1974, Joseph 1976, Perlmutter and Soames 1979, to name just a few early publications on this topic), were typically forced into the existing movement assumptions, often with quite a bit of work put into making language-specific adjustments that would allow these patterns (Moore 1998, Ura 1998, 2000). It probably did not help that backward patterns are not attested in English or most other familiar languages, and that the copy pattern, although found in constructions like (6), is quite rare (Rogers 1974, Lappin 1984, Heycock 1994, Potsdam and Runner 2001).

(7) Richard seems like he is in trouble

In each particular case where a backward or copy pattern is identified, several major analytical components are involved. First, the construction in question needs to be identified as involving control vs raising, based on such familiar diagnostics as

⁵ Miyagawa (1999) presents a number of arguments against Kuroda’s “Counter-Equi” analysis of causatives, but many of his arguments crucially rely on a constraint against two NPs being marked with the accusative suffix *-o* (“Double-o Constraint”). Not all of the backward configurations in Japanese involve double accusatives (subject control does not). Unfortunately, in constructions without the double accusative, the evidence for backward control is much weaker and is obscured by scrambling and verb raising. The adjunct clauses with the complementizer *tokoro* remain the strongest backward pattern in Japanese.

selectional restrictions, availability of pleonastic subjects, or passive/active synonymy. Next, evidence that the construction is biclausal, with the control/raising verb as matrix is needed. Another analytical component consists of proof that the lower element in the chain is pronounced. Finally, for the backward pattern, it needs to be shown that the higher copy, although deleted, has structural effects in the higher clause.

3.1 Backward control

Aside from Japanese and Brazilian Portuguese, backward object control has been attested in Kabardian (Kumaxov and Vamling 1998: 287-293) and Korean (Monahan 2003, 2004). Korean has the following productive alternation in object control:

- (8) a. Chelswu-ka Yenghi_k-lul [~~Yenghi_k-ka~~ hakkyo-lul ttena-tolok] seltukhayssta
 Chelswu-NOM Yenghi-ACC school-ACC quit-COMPL persuaded
 ‘Chelswu persuaded Yenghi to quit school.’
- b. Chelswu-ka ~~Yenghi_k-lul~~ [Yenghi_k-ka hakkyo-lul ttena-tolok] seltukhayssta
 Chelswu-NOM Yenghi-NOM school-ACC quit-COMPL persuaded
 ‘Chelswu persuaded Yenghi to quit school.’

The bracketing and the gaps in (8a, b) show the proposed constituency. While the construction in (8a) instantiates familiar forward object control, the construction in (8b) is more unusual: the controller is downstairs, as suggested by its case assignment, and the higher copy of this DP in the matrix clause is deleted. Monahan offers a convincing analysis of this construction, supplementing case marking evidence with data from scrambling and NPI licensing to show that the lower copy of the control chain indeed remains overt in (8b). The higher copy is deleted, but prior to deletion, it participates in a number of clause-bound syntactic operations—it can license honorific agreement on the matrix verb, bind clause-mate reflexives, and as (9) shows, determine the case of post-nominal quantifiers (‘all’ in the example below) stranded by deletion:

- (9) sensayngnim-un [hakupwumotul-i canyetul-kwa te mahnun sikan-ul
 teacher-TOP students’ parents-NOM children-with more much time-ACC
 ponay-tolok] ~~hakupwumotul-ul~~ motwu-lul seltukhayssta
 spend-COMP students’ parents-ACC all-ACC persuade
 ‘The teacher persuaded the students’ parents to spend more time with their children.’

In addition to some putative instances in Japanese (see fn. 5), backward subject control can be observed in several Nakh-Dagestanian languages (Tsez –Polinsky 2000; Polinsky and Potsdam 2002; Bezhta--Polinsky 2002a, and Tsaxur--Kibrik 1999: 499-504; Polinsky 2002b), in Abkhazo-Adyghean (Kabardian--Kumaxov and Vamling 1998; Adyghe--Say 2004a, b), in Malagasy (Polinsky and Potsdam 2003, 2005), and more tentatively, in Jakaltec (Craig 1974; 1977: 323-325). Tsez offers the most compelling case of subject control, as summarized briefly below.

Tsez is an ergative, pro-drop, head-final language. The ergative DP is structurally higher than the absolutive; agreement in noun class is always with the absolutive, cf. (10) (Polinsky and Comrie 1999; Polinsky and Potsdam 2001).

- (10) a. kid y-ik'is
 girl.CLII.ABS II-went
 ‘The girl went.’
- b. kid-bā čorpa b-oys
 girl.ERG soup.III.ABS III-made
 ‘The girl made soup.’

At least two verbs, however, show unusual agreement—the higher verb in (11a, b) must agree with the ergative DP:

- (11) a. kid-bā čorpa b-od-a y-oqsi/*b-oqsi
 girl.ERG soup.III.ABS III-make-INF II-began/*III-began
 ‘The girl began to make soup.’
- b. kid-bā čorpa b-od-a y-ičis/*b-ičis
 girl.ERG soup.III.ABS III-make-INF II-continued/*III-continued
 ‘The girl continued to make soup.’

Evidence from event quantification, placement of the root clause clitic, and null complement anaphora shows that the sentences in (11a, b) are biclausal, with the verbs *oqa* ‘begin’ and *iča* ‘continue’ as matrix. These verbs impose selectional restrictions on their argument, which is consistent with their status of control predicates. They also show typical properties of obligatory control predicates, for example, in not allowing pronominal paraphrase:

- (12) *kid [nefā čorpa b-od-a] y-oqsi
 girl.ABS she.ERG soup.III.ABS III-make-INF II-began
 (‘The girl began to make soup.’)

There is ample evidence that the subject of the complement verb (‘the girl’ in our examples) stays in the lower clause: its case marking is determined by the lower verb; it scrambles with other constituents of that clause but not with the constituents of the higher clause; the entire embedded clause, including the subject, behaves as a single constituent. Given the evidence that the ergative DP is in the embedded clause and the construction is biclausal, the problem of unusual agreement in (11) becomes even more problematic—not only is the agreement trigger in the “wrong” case but it is also outside the agreement domain of the probe. Crucially, Tsez offers evidence that the higher copy in the control chain, although deleted, plays a role in the matrix clause. Prior to deletion, the higher copy licenses a depictive and, as (13) shows, binds a clause-mate reflexive:

- (13) [yesi žek'ā ʔagarawyo-r γutku roda] nesā nesir oqsi
 this man.I.ERG relative-DAT house.ABS build.INF REFL.DAT began

‘The man began for himself (~for his own sake), to build a house for his relative.’

The verbs *oqa* ‘begin’ and *iča* ‘continue’ take an absolutive subject and a sentential complement. The deleted absolutive argument then determines agreement in a standard local fashion, and the two verbs are no different from other agreeing verbs in Tsez:

- (14) ~~kid~~ [kid-bā čorpa bod-a] y-oqsi
 girl.ABS girl.ERG soup.III.ABS III-make-INF II-began
 |_____ Agree _____|

‘The girl began to make soup.’

There are two copies of the DP ‘girl’ in (14), forming an A-chain. The higher, not the lower copy is deleted (we will discuss the reasons for this below), and the construction thus instantiates backward subject control. The difference between forward and backward control again boils down to the choice of the lower vs higher copy for deletion:

- (15) a. kid-bā [~~kid-bā~~ čorpa bod-a] hakarat nelsi FORWARD CONTROL
 girl-ERG girl-ERG soup.ABS make-INF attempt gave
 |___A-chain___|
 ‘The girl tried to make soup.’
- b. ~~kid~~ [kid-bā čorpa bod-a] y-oqsi BACKWARD CONTROL
 girl.ABS girl.ERG soup.ABS make-INF II-began
 |___A-chain___|
 ‘The girl began to make soup.’

Unlike Korean, Tsez does not allow an alternation between the forward and backward pattern with one and the same matrix predicate. The two verbs presented here are obligatorily backward control predicates.

3.2 Backward subject raising

Evidence for backward raising is scant; so far we are aware of its existence in Adyghe (Say 2004a, b). Despite the preliminary nature of the Adyghe evidence, the facts are worth reviewing.

The tentative backward raising construction in Adyghe involves the aspectual verbs ‘begin’ (several lexical items) and possibly the verb ‘be inclined to, want’.⁶ To follow the examples below, the reader needs to know that Adyghe has an absolutive/ergative case system (syncretic for first and second person). A verb can agree with up to three arguments, subject, object, and indirect object. Word order in root clauses is free, but embedded clauses must be verb-final.

⁶ The data are courtesy of Sergey Say and Yakov Testelets (pers. comm.); see also Say (2004a, b).

(16a-c) illustrates three options available with the intransitive matrix verb *jež'en* 'begin', which agrees with its sole absolutive argument; the embedded clause contains the psychological verb 'appear to smb; be fancied', which takes the absolutive subject (stimulus) and the indirect object experiencer. Note the non-volitional semantics of the embedded predicates, which is consistent with the status of *jež'en* as a raising verb.

- (16) a. [se axe-r ∅-qə-s-ŝ_weŝə-n-x-ew] ∅-jež'e
 1SG.OBL 3PL-ABS 3SG.SUBJ-DIR-1SG.IO-appear-IRR-3PL-CONV 3SG.SUBJ-begin.PRES
- b. [se ~~axe-r~~ ∅-qə-s-ŝ_weŝə-n-x-ew]
 1SG.OBL 3PL.ABS 3SG.SUBJ-DIR-1SG.IO-appear-IRR-3PL-CONV
 ∅-jež'e-x axe-r
 3SG.SUBJ-begin.PRES-PL 3PL-ABS
- c. [se axe-r ∅-qə-s-ŝ_weŝə-n-x-ew] ~~axe-r~~
 1SG.OBL 3PL-ABS 3SG.SUBJ-DIR-1SG.IO-appear-IRR-3PL-CONV 3PL.ABS
 ∅-jež'e-x
 3SG.SUBJ-begin.PRES-PL
 'They begin to appear to me (as in a dream).'

(16a) shows the baseline construction, where the verb agrees with the sentential complement or expletive null subject (default third singular agreement).⁷ In (16b) and (16c) the matrix verb agrees with the raised stimulus DP (expressed by third person plural pronoun); however, the overt agreement trigger is in two different positions. In (16b), which instantiates forward raising, the agreement trigger appears after the matrix verb, thereby indicating its membership in the matrix clause. In (16c), the agreement trigger seems to be in the embedded clause; the entire bracketed clause can be scrambled as a single constituent. But the embedded pronoun still determines the agreement on the matrix verb, which suggests backward raising. If this analysis is on the right track, the verb *jež'en* participates in the forward/backward alternation. In the backward raising construction, the overt copy in the argument chain is expressed in the embedded clause, but the deleted higher copy still has syntactic presence in its clause.

As evidence for this syntactic presence, the raised DP can take wide scope over matrix clause negation. Thus, in the example below, the wide scope reading (i) would not be possible if the higher copy were not present in the matrix clause.⁸

- (17) [č'ale-xe zeč'e-m-jə pjəsmə-r ∅-a-txə-new] ~~č'ale-xe~~ ~~zeč'e-r-jə~~
 boy-PL all-ERG-CONJ letter-ABS 3SG.OBJ-3SUBJ-write-INF boy-PL all-ABS-CONJ

⁷ There is not enough data to distinguish between these two options.

⁸ The negation facts would also be hard to explain if we maintained the featural analysis proposed for Greek by Alexiadou and Anagnostopoulou (1999); see also below.

mə-∅-jež'e-x

NEG-3SG.SUBJ-begin.PRES-PL

'All the boys did not begin to write a letter.'

- (i) 'All the boys are such that they did not begin to write a letter.' (*all boys* > NEG)
 (ii) 'Not all the boys began to write a letter.' (NEG > *all boys*)

Similarly, the construction presented here permits ambiguous scope readings, just as in familiar forward raising. In (18) below, the DP 'five boys' can take either wide or narrow scope. If the embedded quantified DP were not represented in the matrix clause the scope ambiguity would be puzzling.

- (18) [txə pšaše-xe-m pjəsmə-r ∅-a-txə-new] ∅-jež'e-x
 five girl-PL-ERGletter-ABS 3SG.OBJ-3SUBJ-write-INF 3SG.SUBJ-begin.PRES-PL
 'Five girls began to write a letter/letters.'
 (i) There were five girls that began to write a letter
 (ii) Five girls were such that they began to write a letter

These initial observations on backward raising set the stage for future explorations into the nature of this phenomenon. Given that backward raising is a true empirical option, to what extent can it be found in natural languages and how does it interact with forward and copy raising? The limits of the existing empirical coverage prevent us from drawing any generalizations, but we believe that at least a partial answer to this question lies in the interaction between the discourse function of raising and the clausal architecture of the complement embedded under a raising predicate.

3.3 Copy raising and copy control

The copy option in raising and control is available under the assumption that the lower element in the chain can be spelled out via a resumptive pronoun. The resumptive pronoun can then be thought of as a partially phonetically realized link of the chain, as opposed to silence (cf. Engdahl 1985 where she proposes to treat a resumptive pronoun as a "phonetically realized trace"). Recent work suggests that resumption may not be a uniform phenomenon (Aoun and Choueri 1996; McCloskey 2005). The main distinction is between resumption associated with movement ("true" resumption in Aoun and Choueri's term) and base-generated ("apparent") resumption.⁹ Assuming the movement analysis of control and raising, not all constructions involving resumption in the lower clause necessarily instantiate "true" copy raising or copy control. If properties typically associated with A-dependency are independently obvious, then the presence of a resumptive pronoun can be taken as evidence of copy raising or copy control. By contrast, if a resumptive pronoun occurs in constructions that resist a movement analysis, then it is more likely that it is not an instance of a spelled-out lower element in an A-chain but a base-generated element.

⁹ Incidentally, most work on distinguishing two types of resumption has relied on A'-movement. We assume that the distinction remains valid for A-movement.

Copy raising has been documented quite extensively. In addition to English, the construction occurs in Hebrew (Lappin 1984), Kipsigis (Jake and Odden 1979), Turkish (Moore 1998), Xhosa (du Plessis 1989) and other Bantu languages (Ura 1994, 1998), Haitian Creole (Deprez 1992), Samoan and other Polynesian languages (Chung 1978; Moyses-Faurie 1997), Madurese (Davies and Dubinsky 2004: 244-247), Tagalog (Kroeger 1993), and Modern Greek (Joseph 1976; Perlmutter and Soames 1979). Among the languages on this list, the first distinction one could draw is between languages where the construction affects only complement subjects (Greek, Turkish) and those where it admits all kinds of constituents in the complement clause (Austronesian languages). Next, although data for some of the languages listed here are lacking, at least Austronesian copy raising is not subject to movement constraints (Davies and Dubinsky 2004: 247-253), which suggests that it does not involve “true” resumption. So far, the likeliest candidates for copy raising involving an A-dependency are Modern Greek and Turkish. Incidentally, Modern Greek does not have standard forward raising (but see section 3.4 for a different type of raising in Greek).

Copy control presents an interesting theoretical parallel to the slightly better-documented copy raising. To our knowledge, only two cases of copy control have been attested, in San Lucas Quiavini Zapotec (Lee 2003, Boeckx et al. 2005, Pamela Munro, pers. comm.) and in Tongan (Chung 1978). The Zapotec case seems more compelling. Copying is found in both subject and object control:¹⁰

- (19) a. r-càaa'z Gye'eihlly g-auh (Gye'eihlly) bxaady
 HAB-want Mike IRR-eat Mike grasshopper
 'Mike wants to eat grasshopper.'
- b. r-quii'lly Jwaany Gye'eihlly cùù'u'b (Gye'eihlly) marigwa'ann
 HAB-tempt Juan Mike IRR.smoke (Mike) marijuana
 'Juan tempts Mike to smoke marijuana.'

As these examples show, Zapotec has an alternation between forward control and copy control; moreover, the copy option involves a fully pronounced DP, not a resumptive pronoun at the end of a chain. As Pamela Munro informs us, only nouns allow for this alternation; pronouns *require* copy control. At this point there are insufficient data to tell why pronouns and nouns differ in this regard; we can hypothesize that pronouns may actually be agreement forms rather than free constituents, which would explain the pattern.

A more uncertain construction is found in Tongan with verbs of volition or effort—Chung (1978: 197-199) describes this as zero-pronominalization Equi. In Chung's data, the presumed controllee, expressed by a pronominal copy or deleted, can fill any type of NP role in the embedded clause, from subject to an oblique argument, which casts doubt on the control nature of the dependency. According to our consultant, however, only a complement subject can be copied:

- (20) 'oku sai'ia 'a Sione ke (ne) tā 'a e kakai fefiné
 PROG like ABS John SUBJ 3SG hit ABS DET people woman

¹⁰ Lee (2003) and Boeckx et al. (2005) show that these are cases of obligatory control: they trigger sloppy readings under ellipsis and block bound pronouns.

‘John likes (for himself) to hit the woman.’

At this point we simply do not have sufficient information to determine whether the Tongan case instantiates obligatory control, as in Zapotec.

The overall conclusion is that all the theoretically possible options are indeed attested, which supports the unified analysis of control and raising and the compositional conception of movement outlined above. However whenever promising empirical support for any new analysis appears, it is tempting to start looking for more evidence a bit too eagerly. We would like to conclude this section with a cautionary note by examining several imposters of the unusual patterns.

3.4 *Imposters*

We have addressed false copy raising and copy control in passing—these would be instances where the appearance of a copy is not restricted by constraints on movement (as in Austronesian copy raising) or by limiting the lower copy to the subject of embedded clause.

In a number of cases, there turns out to be no reason to posit a structure involving the deletion of a higher copy, despite some evidence, usually from agreement. Several such cases share the same property—the matrix verb shows agreement with a DP that does not immediately qualify as an agreement trigger. The most obvious case is that of plural agreement in English expletive constructions with the matrix raising predicate. Some naturally occurring examples (from a Google search):

- (21)
- a. Well, there appear to be some errors on the page
 - b. There appear to be two major ways of learning
 - c. In every era there seem to live people who think freely and independently
 - d. There are likely to be locational cost differences

In these and many other cases (Sobin 1997, Schütze 1999, Bobaljik 2002) the agreement is determined by the phi-features of the associate. At first blush, this seems not at all different from the Tsez or Adyghe cases discussed above. An analysis that seems possible invokes backward raising:

- (22) [_{IP} ~~two major ways of learning~~ appear [_{IP} ~~two major ways of learning~~ [_{VP} to be two major ways of learning]]]

There are several problems with this analysis, however. First, if the structure presented in (21) were correct, the raised DP should be able to take wide scope over negation, the way this works in Adyghe. But this prediction is wrong:

- (23) There do not appear to be two major ways of learning (*NEG* > *two ways*; **two ways* > *NEG*)

Similarly, matrix clause adverbials invariably take wide scope over the raised DP; meanwhile the structure in (21) predicts scopal ambiguity:

(24) There always appear to be two major ways of learning (*always* > *two ways*; **two ways* > *always*)

These empirical facts argue against the backward raising analysis. Rather, in the absence of a deleted higher copy, the explanation for the agreement facts lies in the observation that the subject position is invisible to the probe for the checking of agreement features (Schütze 1999, Bobaljik 2002). The probe accordingly looks “down” to the closest relevant DP, which in this case is the associate.¹¹ Altogether, this is another case of agreement that calls for a dissociation of agreement and movement (see Bobaljik and Wurmbrandt 2004 for similar observations).

As the English example shows, false cases of backward raising are likely to involve agreement with an element below the subject position. In English this is driven by a particular combination of the strong EPP and the ‘defective’ nature of the expletive subject with respect to agreement features; this combination forces the probe to look for agreement features in the lower associate. Extrapolating from English, the impression of backward raising may arise when the raising predicate agrees with a non-local, lower constituent that otherwise has no representation in the upper clause—it does not scopally interact with the matrix clause constituents and does not license any clause-mate constituents in that clause. Most likely, such cases of false raising are not themselves uniform. Two main possibilities include long-distance agreement with a constituent at the left periphery of the embedded clause, or feature movement.

Long-distance agreement with a constituent at the left periphery of the embedded clause has been documented for Tsez (Potsdam and Polinsky 1999; Polinsky and Potsdam 2001) and some Algonquian languages (Bruening 2001; Branigan and McKenzie 2002). More generally, long-distance agreement includes the ability of a probe to look ‘downward’ in its c-command domain for an agreement trigger and a locality condition that limits the search for the trigger to the accessible periphery of the embedded clause. Because of the locality condition, long-distance agreement is quite restricted and constitutes only a subset of cases when the probe “looks downward”.

Percolation of agreement features is a less restrictive mechanism which may lead to the impression of backward raising (or control for that matter). Greek seems to be one such language, in which the matrix clause does not contain any copies of the embedded subject, deleted or not, but the matrix verb agrees with the embedded subject simply because this is the only and the closest DP that is available for agreement features (Alexiadou and Anagnostopoulou 1999). The verbs that participate in false backward raising are *arxizo* ‘start’ and *stamato* ‘stop’. In the examples involving idiomatic expressions, the nominative (‘fleas’, ‘lamps’) naturally depends on the lower verb for its interpretation and remains in the embedded clause, but both verbs, embedded and matrix must agree with it.

- (25) a. *stamatisan/arxisan* *na* *mou* *benun* *psili* *st’aftia*
 stopped.3PL/started.3PL SUBJ 1SG.DAT enter.3PL fleas.NOM.PL in the ears
 ‘I stopped being/started becoming suspicious.’ (lit.: ‘Fleas stopped/started entering my ears.’)
 b. *arxizoun* *na* *mou* *anavoun* *ta* *labakia*

¹¹ The agreement with the associate can be overridden or weakened by intervening material:

(i) *There appears/appear in this case to be at least two major ways of learning*

start.3PL SUBJ 1SG.DAT light up.3PL DET lamps
 ‘I am beginning to get pissed off.’ (lit.: ‘My lamps start lighting up.’)

Alexiadou and Anagnostopoulou show that this is not a control construction, that it cannot be reduced to restructuring, and they account for the agreement by appealing to features in covert derivation:

(26) stamatisan/arxisan [na mou benun psili st’aftia]
 stopped.3PL/started.3PL SUBJ 1SG.DAT enter.3PL fleas.NOM.PL in the ears
 ‘I stopped being/started becoming suspicious.’

As in English, the embedded subject cannot take wide scope over negation, which indicates that it is not represented in the matrix clause (27). In addition, quantifier float is impossible in the matrix clause, which is unexpected if the deleted copy is there—it should be able to license a quantifier as is attested in other Greek constructions.

(27) dhen stamatisan [na epenun ola ta afendika afto to sxedhio]
 NEG stopped.3PL SUBJ praise.3PL all DET boss.PL that DET plan
 ‘Not all the bosses stopped praising this plan.’ (*NEG* > *all bosses*)
 * ‘All the bosses did not stop praising this plan.’ (*all bosses* > *NEG*)

(28) *ola stamatisan [na epenun ta afendika afto to sxedhio]
 all stopped.3PL SUBJ praise.3PL ET boss.PL that DET plan
 (‘The bosses all stopped praising this plan.’)

The agreement is achieved via feature movement (Alexiadou and Anagnostopoulou 1999), but no actual movement of the DP in the embedded clause takes place and no higher copy is created. Thus despite the overall appearance of backward raising the Greek case is quite different from the raising attested in Adyghe.

4. *Establishing the distribution of backward and copy patterns*

The goal of this section is to examine independent language properties that allow a language to make use of the backward and copy options. It is our impression that constraints on the occurrence of the backward pattern are a bit clearer, and we will concentrate on them in this section. As the reader will see below, some of the constraints on embedded clauses are shared by backward and copy patterns. For the copy pattern, a crucial mechanism that needs to be in place has to do with the general grammar of resumption (McCloskey 2005). Starting with the backward pattern, at least two factors determine its availability: (1) the embedded complement must have certain properties that allow for the occurrence of an overt subject, and (2) the presence of the deleted copy in the higher clause must be visible, even after the deletion. In addition, assuming that anaphoric chains are preferable (Reinhart 1976; Boskovic 2002; Gordon and Hendrick 1997),¹² there should be some strong motivation for the deletion of the higher copy—an issue to which we will turn in section 5.

¹² “When the grammar permits both backward and forward [options] use the backward option only if you have a reason to do so” (Reinhart 1976).

4.1 *Properties of the embedded complement*

Starting with the first factor, a language must allow overt case-marked subjects in the clausal complements of raising and control verbs. This immediately explains why English cannot have backward raising or control. Among the languages examined here, all the languages that show the backward (and copy) constructions freely allow overt case-marked subjects of control/raising complements; Korean nominative case on infinitival subjects has been extensively discussed in the literature (Yoon 1996).¹³ A systematic inventory of languages whose clausal complements allow for a lower subject case assigned by the embedded T° has not yet been established (see Perlmutter and Moore 2002 for a discussion); the general possibility of the backward pattern makes such a typology essential.

This factor alone however is not sufficient for building a control/raising relation. Since the elements of a copy chain form an A-dependency, the complement clause must also be transparent to A-movement from the subject position. For a raising chain, transparency is not an issue since raising complements do not contain a CP. In cases of control, however, the issue of transparency is more complex.

The requirement of A-movement transparency is clearly satisfied by non-finite complement clauses, for example, in Tsez or in Korean. A growing body of research shows that A-movement from subject position is also possible out of some finite clauses in some languages (see Ura 1998, 2000 for subject-to-subject raising, Tanaka 2002 for subject-to-object raising, and Landau 2004 for object control out of finite clauses). Although the sample of relevant languages is still small, some generalizations have begun to emerge. Finite clausal complements that allow A-movement are always in subjunctive or irrealis mood, never indicative. In our view this is not accidental. A tension exists between the ability to license a case-marked subject and permeability to movement; the former requires finiteness, the latter some ‘deficiency’ in finiteness, which has to do with the featural content of the C° and T° (or I°) heads. Following a number of researchers, we propose that semantic tense is the main feature determining the transparency of an embedded complement.

Semantic tense defines the temporal boundaries of an event; it is essentially a referential expression (Partee 1973, 1984),¹⁴ whose function is to restrict an event, similar to the manner in which a determiner restricts an entity. The parallels between semantic tense and specificity/definiteness, as proposed by Partee (1984), have to do with their ability of the respective heads to delimit the boundaries of their dependent expressions. An expression carries semantic tense if it specifies whether the proposition has to be evaluated in the past, present or future (Enç 1996). On this approach, there is a crucial difference between semantic tense and morphological tense. Semantic tense licenses the tense domain of an event and appears to be a property of clausal heads; morphological tense overtly marks tense on some constituent of a clause, not necessarily on the clausal head, and does not always correspond to the semantic tense feature (Partee 1984; von Stechow 2002, and many others). Again the parallel with nominal determiners is quite striking: a nominal expression is semantically (in)determinate

¹³ The nature of the nominative case in Korean has been a vexing question for Korean syntax; we do not have anything to say on this subject and refer the reader to Yoon 1996 for a detailed discussion.

¹⁴ Semantic theories offer competing accounts of semantic tense, treating it either as an operator or as an argument (Stowell 1995). Since we are concerned here mainly with the syntactic repercussions of semantic tense, the differences between these accounts are not important.

by virtue of its relation to the domain of reference and discourse, while its morphosyntactic marking may vary across languages and even within a particular language. We therefore expect the possibility that a natural language may manifest various forms that have temporal reference, but are not morphologically tensed.

Building further on parallels with nominal reference, there are intermediate features in semantic tense (Greenberg and Kornfilt 1989, Enç 1987, 1989, and many others), just as there are intermediate features in definiteness. For our purposes, it is sufficient to establish a three-way contrast: (i) fully independent semantic tense; (ii) anchored or indefinite semantic tense, whose domain is determined via reference to another tense domain, but is still independent of it, and (iii) fully dependent or anaphoric tense, whose domain depends completely on another tense domain for reference. This contrast is reminiscent of the familiar three-way contrast in nominals, with (i) corresponding to lexically specified expressions, (ii) corresponding to pronominals, and (iii) corresponding to anaphors. Root clauses and some complement clauses have fully independent semantic tense, whereas many complement clauses are characterized by dependent or anaphoric semantic tense (see Landau 2004: 838-850, and this volume, for a recent discussion). The permeability of embedded clauses has to do with the three-way distinction sketched here; as long as a complement clause does not have fully independent semantic tense, it can be permeable to A-movement. Thus:

(29) Semantic tense and transparency

Fully independent tense	Indefinite semantic tense	Anaphoric tense
Opacity	Possible transparency	Transparency

Semantic tense is expressed in syntax by the feature [T] on phrasal heads. To sketch the analysis proposed here, we assume that C° and I° carry a [T] feature (at this point, we are not concerned with the other features on these heads). For embedded complements, the matrix verb may impose selectional restrictions on the complementizer, thus licensing the [T] feature on the head. If a matrix verb does not impose selectional restrictions on the embedded C° head, that head has the “fully independent” tense feature, thus forcing opacity.¹⁵ If the embedded C° head is subject to selectional restrictions imposed by the matrix verb, its semantic tense can either be fully dependent on the matrix tense (anaphoric tense) or remain *partially* independent of it, which is the case with irrealis complements, commonly found under finite control (Varlokosta 1993; Landau 2004) or in English *for*-complements, which are also irrealis (Bresnan 1982).

We follow Landau’s (2004; this volume) proposal concerning the scale of finiteness which in turn is tied to the expression of the [T] feature on the embedded C° head:

- (30) a. dependent tense: [+T] on C°
 b. anaphoric tense: [-T] on C°
 c. independent tense: [T] on C° not selected (∅)

¹⁵ Landau (2004) implements this property by assuming that such clausal heads carry no semantic tense (∅).

In the derivation involving a C° head with dependent tense, the subject of the embedded clause moves to [Spec, CP] position in the left periphery of the embedded clause, checking its EPP-feature (cf. Tanaka 2002 for a similar derivation); from there it can move to the subject or object position of the matrix clause.¹⁶

In sum, movement through the dependent tense complement head is allowed because of its valued [T] feature. If the lower copies in the chain are deleted, standard forward control occurs; if, however, something forces the deletion of the higher copy, backward control becomes possible. The occurrence of resumption in control complements, as in the Zapotec case above, does not require any additional movement mechanisms other than what is necessary for standard forward control; whatever mechanisms determine movement-based resumption in general are presumably in place there as well. Our understanding of these mechanisms is far from complete (cf. McCloskey 2002, 2005 for a discussion), and we hope that further work on copy raising and control may provide the empirical data needed to develop a consistent theory of resumption.

4.2 Characteristics of the matrix clause under backward control and raising

Let us start with the observation that in cases of complementation, the absence of a movement chain in fact appears to be the more common, more typical, or less restrictive case.¹⁷ If this observation is on the right track, the absence of the higher element in a movement chain is likely to force the reanalysis of the whole construction as not involving an A-chain at all. This reanalysis is likely to result in restructuring, where the higher and lower predicates simply share an argument. For our purposes, it is important to emphasize that in order to acquire a backward control/raising structure, a language learner needs strong and consistent evidence that the deleted null link of the chain is still there. Assuming that evidence for biclausality is independently available, agreement provides a strong indication that the deleted link is still present in the structure. It allows a language learner to generalize the pattern in such a way that the higher copy is assumed in the structure because it bears the phi-features necessary for agreement.

Indeed, as the empirical data presented above show, agreement with the deleted link of the chain is found in most languages that manifest the backward pattern (as well as in some imposters). As the “imposter” languages indicate, agreement can also be achieved by the movement of features alone, so this in turn shows that the availability of morphological agreement is not sufficient for the appearance of backward patterns. Nor is agreement actually necessary, as evidenced by Korean and Japanese: both have the backward pattern without any agreement signaling the presence of the deleted higher copy. (Korean and Japanese both have less regular and less stable honorific agreement that is found in the backward pattern, but no agreement in other phi-features takes place.) This indicates that the correlation between overt agreement and the occurrence of a backward pattern is only a preference, albeit an apparently strong one.

¹⁶ The proposal outlined here differs from Landau’s in several respects. Unlike Landau, we do not equate the presence of dependent tense with partial or non-obligatory control, and we do not take Agree to be the crucial operation defining all the relationships in the control chain.

¹⁷ Cf. Landau (2004: section 6) for similar observations, which boil down to the generalization that control and raising constitute a “marked” case, while the absence thereof represents the “baseline” case. Furthermore, it seems that at least raising is not particularly common cross-linguistically (Davies and Dubinsky 2004: Ch. 10; Bresnan and Kanerva 1989).

The second property needed for the backward pattern to hold has to do with the cases of subject control and subject-to-subject raising. In these cases, if the deleted copy is upstairs, there has to be an independent way of satisfying the EPP in the matrix clause. This divides languages into those that can only satisfy the EPP via DP movement and those where the EPP can be satisfied by means other than DP-movement, most notably by V- or VP-raising (cf. Alexiadou and Anagnostopoulou 1998; Massam 2000; Koizumi 1995).¹⁸ Only languages with weak EPP features can have backward subject control or backward subject-to-subject raising, which effectively limits the set of languages where this pattern can be found.

To summarize, the properties that make possible the occurrence of a backward or copy pattern include the availability of a case-marked overt subject in the control/raising complement and sufficient transparency of the embedded complement to allow for the formation of an A-chain. In our view, this transparency is keyed to the [T] feature of the clausal heads. Two additional properties discussed above include a language's having weak EPP, relevant for cases of subject-to-subject movement, and the presence of morphological agreement in the matrix clause. The latter, although neither necessary nor sufficient for the distribution of backward patterns, is still significant because it makes the deleted higher link of an A-chain more 'visible', thus preventing restructuring.

(31) Conditions on backward and copy patterns in raising and control

Language property	Backward pattern	Copy pattern
case-marked overt subject in the complement clause	✓	✓
licit A-movement out of the complement clause	✓	✓
weak EPP feature (relevant for the matrix clause)	✓ (subject-to-subject movement only)	✗

5. *Motivating backward and copy patterns*

This section addresses the reasons forcing the deletion of the higher copy in an A-chain or partial spell-out of the lower copy. There are still many unknowns in this area, so we limit ourselves to preliminary considerations only.

5.1 *What forces the deletion of the higher copy? Backward-only patterns*

Let us assume that a given language has all the properties, outlined in the previous section, which allow it to have a backward or copy pattern. This alone is still not enough to predict that such a pattern will occur. Since the forward pattern, which deletes lower links in a chain, is generally preferable, it seems that languages should have a strong reason to delete the higher element. For the backward pattern, we distinguish two separate situations in which such higher deletion can take place: as the only option for a particular verb or class of verbs, or in alternation with the forward pattern. Looking back at the

¹⁸ Languages that arguably lack the EPP (Russian, according to some accounts, e.g., Babby 1989; possibly Irish—McCloskey 2001) are also in this group.

empirical data presented above, the backward pattern is the *only option* for certain verbs in Tsez, Bezhta, Tsaxur, Malagasy, Brazilian Portuguese, and possibly Jakaltec. In all these languages, certain verbs occur only in the backward pattern, while other control or raising predicates only allow the forward pattern. The sample of languages with the backward-only pattern is extremely small, so it is probably premature to draw any generalizations based on it. The verbs that are limited to backward control are predominantly although not exclusively aspectual and causative predicates:¹⁹

(32) *Verbs licensing backward control*

LANGUAGE	VERBS	CONSTRUCTION TYPE
Tsez	begin, continue	Subject control
Bezhta	begin, continue, stop; anticipate	
Tsaxur	begin; dare, dread	
Jakaltec	begin	
Malagasy	begin, stop, accomplish (~finish)	
Brazilian Portuguese	force, make	Object control

Let us assume for a moment that the predominance of such verbs in the backward-only option is not accidental but rather a reflection of their specific properties. These properties are likely to be determined on the basis of semantic structure, but for our purposes, the crucial question is whether the specific semantics of backward-only predicates has repercussions for syntax. In terms of their semantics, all these verbs denote a point in a causal sequence leading to a particular intended event; most commonly, this seems to be the initial point in such a sequence, although the end point ('stop') or the absence of an end point ('continue') are also found. It has been noticed, especially in research on conceptual structure, that if the actual event of causation and the intended event are presented separately, the intended (controlled) event plays a more important role and is conceptually "foregrounded" (Talmy 1985; 2000: ch. 7; Jackendoff 1990: 130-150). The matrix predication in all the control cases corresponds to the event that sets a causal or temporal limit to the intended event. On the assumption that the intended event in the force-dynamic chain is "foregrounded", the matrix (framing) predication can be either left unexpressed (Talmy 2000: 421), or expressed by an auxiliary/light verb, or encoded by a verb with a minimal thematic structure, whose main function is to contribute information on the external boundaries of the complex event. Aspectual and causative light verbs are extremely common, as has been shown by extensive research on restructuring (Wurmbrandt 2003 and many others). Backward control aspectual and causative verbs seem to instantiate just another cross-linguistic variation on the general theme of foregrounding the intended activity within a force-dynamic chain and assigning the initial event in that chain a subsidiary role.

If that is the case, the next question is how their role in the force-dynamic semantic structure translates into syntactic properties of backward-only verbs. A possible way to make the impoverished semantics visible to syntax is via the [D] feature that has to be present on a verb. We therefore hypothesize that verbs requiring backward control have a defective [D] feature (D*), as a reflection of their particular semantic properties. This defective feature, presumably specified on particular lexical items, forces the deletion of the higher copy in the chain. Since all the thematic and phi-feature requirements are

¹⁹ Recall that backward *raising*, which is only attested in Adyghe, is also found with an aspectual verb. The Adyghe pattern, however, allows for an alternation.

already satisfied, the overall derivation is successfully completed, and the deletion of the higher copy is allowed. If we now recall the Tsez example (11a) above, the derivation proceeds as follows:

- (33) [CP [IP ~~girl~~-ABS began [CP [IP girl-ERG [VP ~~girl~~-ERG make soup]]]]
 EPP θ_{begin} EPP θ_{make}
 [D*] [+D]

Although this account is partially stipulative, it maintains the spirit of the current semantic analyses of aspectuals and causatives. It is also consistent with the conjecture that aspectual and causative verbs, whose own thematic requirements can be met via the thematic requirements of the downstairs predicate, can be further reanalyzed into non-thematic verbs. The two most common cases illustrating such a reanalysis involve the well-known raising/control ambiguity (cf. Perlmutter 1970) and the reanalysis into auxiliaries. An interesting comparison for the latter option is provided by the contrast between two related languages, Jakaltec, which seems to have backward control (Craig 1974), and Tzotzil, where comparable verbs behave more like auxiliaries (Aissen 1992).

5.2 What motivates the deletion of the higher copy? Forward-backward alternation

In those cases where the forward and the backward patterns alternate (Korean, Kabardian, Adyghe), the choice between the two options seems to be determined by the features of the clausal heads discussed earlier. We have proposed that the C° and I° heads of the clausal complement embedded under a control predicate (and the I° head of the raising complement) may show variation in the [T] feature associated with semantic tense. We hypothesize that the alternation between the forward and backward patterns has to do with the value of the [T] feature on the relevant clausal heads.

Starting with the control alternation, the crucial difference is in the value of the [T] feature on C°. The essence of the selectional restriction imposed by the matrix verb on the complementizer under control is that the semantic tense of the complement cannot be independent: the semantic tense of the embedded predication is defined with reference to the semantic tense of the matrix predication. This still leaves two options: either the semantic tense on C° is anaphoric, in which case it simply draws its value from the matrix semantic tense, or it is partially independent, [+T]. These two scenarios correspond to different degrees of dependence between the embedded event and matrix event. If the embedded predication has anaphoric tense, it is construed as less independent of the matrix event and crucially dependent on it for its evaluation. If the embedded predication has partially independent semantic tense, it is construed as more separate, independent from the control event. We propose that this difference plays a role in the choice between control constructions in the above alternation. Korean offers an important interpretive contrast supporting this distinction. The sentences below present an event of persuasion and an intended event. In one case (33a), the intended event must follow from the fact that persuading took place, and cannot be canceled in the subsequent discourse; this means that the control construction is properly implicative. In the other sentence (34b), the intended event can be canceled on its own, which indicates its independent construal:

- (34) a. Chelswu-ka Yenghi_k-lul hakkyo-lul ttena-tolok seltukhayssta.
 Chelswu-NOM Yenghi-ACC school-ACC leave-COMP persuaded
 #Kulentey_{pro_k} hakkyo-lul ttena-ci anh-ass-ta

- but school-ACC leave-INF NEG-PAST-DECL
 ‘Chelswu persuaded Yenghi_k to quit school, *but she_k did not quit school.’ (contradiction)
- b. Chelswu-ka Yenghi-ka hakkyo-lul ttena-tolok seltukhayssta.
 Chelswu-NOM Yenghi-NOM school-ACC leave-COMP persuaded
 Kulentey *pro* hakkyo-lul ttena-ci anh-ass-ta
 but school-ACC leave-INF NEG-PAST-DECL
 ‘Chelswu persuaded (urged) Yenghi_k to quit school, but she_k did not quit school.’ (no contradiction)

The implicative/non-implicative contrast between the forward and backward control examples suggests that the complement head of the embedded clause has different [T] features: [-T] in (33a), and [+T] in (33b). The [-T] feature on the C° head in (33a) does not allow for the expression of the controllee DP, whereas the [+T] feature forces the overt realization of the nominative DP. The higher copy, which satisfies the thematic requirements of the higher verb (‘persuade’) is then deleted, arguably for phonological reasons.

If this proposal is on the right track, it suggests an interesting difference between cases involving the backward-only pattern and cases where an alternation is observed. Unlike verbs that require the backward pattern, where the deletion of the higher copy is actually forced by the lexically specified feature of a particular verb, verbs with the forward/backward alternation seem to force the expression of the lower copy, so that the deletion of the higher copy is more of a side effect. This predicts that in a backward control structure, both DPs, the one in the matrix clause and the one in the embedded clause, can be expressed. In such a case, of course, there is too much redundancy (which ultimately leads to deletion), but the overt expression of both links in the A-chain is not impossible, although much more acceptable if the lower copy is an epithet (34b):

- (35) a. ?? maynige-ka Chelswul-lul ecey olayn tholon kkuth-ey [Chelswu-ka
 manager-NOM Chelswu-ACC yesterday long discussion end-DAT Chelwsu-NOM
 ku il-ey ciwonha-tolok] seltukhayssta
 this task-DAT apply-COMP persuaded
- b. maynige-ka Chelswul-lul ecey olayn tholon kkuth-ey [ku chenci-ka
 manager-NOM Chelswu-ACC yesterday long discussion end-DAT that idiot-NOM
 ku il-ey ciwonha-tolok] seltukhayssta
 this task-DAT apply-COMP persuaded
 ‘Yesterday, after a long discussion, the manager persuaded Chelswu to apply for this assignment.’

If both elements of the chain are expressed, we have the now-familiar case of copy control. If the difference between the forward and backward control is semantically realized as the implicative contrast, the same contrast should be expected for forward vs copy control: the former should be implicative, with the embedded event completely dependent on the matrix for interpretation, while the copy option should have a non-implicative reading (two events can be viewed as independent). In Zapotec, this prediction is partially confirmed, i.e. only for subject control structures (Pamela Munro, p.c.):

- (36) a. r-cààa'z Gye'eihlly [g-auh ~~Gye'eihlly~~ bxaady]
 HAB-want Mike IRR-eat grasshopper
 'Mike wants/intends to eat grasshopper.' (implicative)
- b. r-cààa'z Gye'eihlly [g-auh Gye'eihlly bxaady]
 HAB-want Mike IRR-eat Mike grasshopper
 'Mike desires/wishes to eat grasshopper.' (non-implicative)

In the object control cases presented above, there seems to be no difference regarding whether or not there is a second instance of 'Mike'; at this point, we have no explanation for this difference between subject and object control.

For backward raising, the data are still insufficient to draw any generalizations. Recall that the likeliest candidate for backward raising is found in Adyghe, where there is an alternation between the forward and backward option. If the analogy with control holds, we may hypothesize that the forward and backward raising constructions differ in terms of the relative independence between the matrix event and the embedded event. The prediction is that in forward raising, the embedded I° carries anaphoric tense only, while the backward option has [+T] on the embedded I° head, which allows the licensing of the overt subject. Further empirical investigation is needed to test this prediction.

6. Conclusions

This paper pursued two related goals, to present and analyze unusual patterns in raising and control, and to offer a syntactic account which would validate such patterns. On the empirical side, we have investigated the extent to which backward and copy patterns occur across languages. They seem more widespread than one would believe without looking. This indicates that these are not marginal constructions, contrary to what researchers may have concluded based on English or based on earlier theoretical approaches. On the theoretical side, assuming that these patterns have the right to exist, linguistic theory should be capable of analyzing these constructions and identifying conditions under which they would occur. These conditions can be divided in two classes: (a) independent properties of grammars that make it possible for a backward and copy pattern to occur, and (b) mechanisms that force the choice of these patterns over the forward pattern. The independent grammatical properties necessary but not sufficient for the appearance of the backward and copy patterns include overt case-marked subjects of infinitives, and for subject-to-subject movement, the EPP satisfied by means other than NP movement, but their full range is still awaiting investigation. It is less clear what exactly forces the deletion of the higher copy in A-chains discussed here and what motivates the resumption. We hypothesize that reasons for the deletion of the higher copy may not be uniform. In those cases where the backward option is the only one allowed, this deletion is forced by lexical properties of the matrix verb, for example, by the weak [D] feature, which has regular semantic corollaries. In cases of the forward-backward alternation, the deletion of the higher copy may be a PF-type side effect of the overt expression of the lower copy. The appearance of the lower copy is in turn connected to a higher degree of finiteness in the embedded clause that licenses such a copy. Syntactically, a stronger finiteness is tied to the presence of a non-anaphoric [T] feature on the head(s) of the embedded clause (C° and I°). Overall, these results indicate that the range of structures where the lower link of a copy chain is preserved is broader than has been proposed in the literature (Boškovic 2002, Bobaljik 2002), and cannot be accounted for exclusively by phonological considerations.

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