

Expanding the scope of control and raising*

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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 has 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

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Abbreviations: ABS—absolute, ACC—accusative, COMP—complementizer, CONJ—conjunctive form, DAT—dative, DECL—declarative, DET—determiner, ERG—ergative, GEN—genitive, HAB—habitual, INF—infinitive, INSTR—instrumental, IRR—irrealis, NEG—negation, NOM—nominative, PL—plural, POSS—possessive, PRES—present, PROG—progressive, PRT—participle, REFL—reflexive, SG—singular, SUBJ—subjunctive, SUP—supine, TOP—topic. Roman numerals in glosses show noun class agreement (e.g., II means ‘class II agreement’).

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 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. 2000) have shown that raising and control evoke similar processing responses.⁴

The second innovation in syntactic theory that has proven crucial for the analysis of control once we adopt a control-as-movement analysis is the re-introduction of the compositional view of movement (Chomsky 1995 and many others) as an alternative to the 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 distinct category (trace) fills the starting position. On the compositional (copy-and-delete) view, there can be two or more positions which contain copies 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

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

⁴ Featherson et al. 2000 in fact try to argue for the two phenomena being qualitatively different. On close inspection, however, their event-related potential (ERP) results are hardly compatible with their own interpretation—the difference between German subject raising and subject control appears to be only quantitative, with the response to the raising condition involving a higher amplitude than the response to the control condition. 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 overall results less reliable.

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

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 discusses what types of languages are good candidates for backward and copy patterns. Section 5 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 a backward control analysis, under the name Counter-Equi (Kuroda 1965, 1978), was proposed. 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 because they did not fit the theoretical assumptions of the time. It probably did not help that backward patterns are not attested in English or most other familiar languages. Likewise, copy patterns, most notably English copy raising in (7), 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).

(7) Richard seems like he is in trouble

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.

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 selectional restrictions, availability of pleonastic subjects, or passive/active synonymy. Next, evidence that the construction is biclausal, with the control/raising verb as the matrix predicate is needed. Another analytical component consists of proof that the lower element in the chain is pronounced if this is not made clear by the word order. 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; Minor 2005) and Korean (Monahan 2003, 2004; Kwon and Polinsky 2006). 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-COMP 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-COMP 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, whose case must match the case of the deleted accusative DP).

- (9) sensayngnim-un ~~hakpwumotul-ul~~ [hakpwumotul-i canyetul-kwa te mahnun sikan-ul
 teacher-TOP students’ parents-ACC students’ parents-NOM children-with more much time-ACC
 ponay-tolok] motwu-lul seltukhayssta
 spend-COMP all-ACC persuade
 ‘The teacher persuaded all 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 Northwest Caucasian (Kabardian--Kumaxov and Vamling 1998; Adyghe--Say 2004a,

b), in Malagasy (Polinsky and Potsdam 2003, 2005), and more tentatively, in Jakalteq (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.II.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 (Polinsky and Potsdam 2002):

- (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 root clause clitics, 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 as control predicates—as (12b) shows, the idiomatic reading of (12a) is lost when it is embedded under such a verb:

- (12) a. ak'za-xosi hah-ā rig γιγixosi yoł
 sharpen-PRES.PRT mill-ERG well grind-PRES.PRT is
 ‘S/he thinks clearly.’ (lit.: a well-sharpened mill grinds well)
- b. ak'za-xosi hah-ā rig γιγ-a roq-si
 sharpen-PRES.PRT mill-ERG well grind-INF began
 *‘S/he began to think clearly.’
 OK: ‘A sharp mill began to grind well.’

They also show typical properties of obligatory control predicates, for example, in not allowing two referentially disjoint subjects:

- (13) *kid [nefā/pro čorpa b-od-a] y-oqsi
 girl.ABS she.ERG soup.III.ABS III-make-INF II-began
 ('The girl began to have her/someone 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; and 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 not in the same clause as the verb. 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 (14) shows, binds a clause-mate reflexive:

- (14) [yesi žek'ā 'agarawyo-r yutku 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:

- (15) ~~kid~~ [kid-bā čorpa b-od-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 (15), 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:

- (16) 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 Northwest Caucasian, mainly in Adyghe. Despite the preliminary nature of the Adyghe evidence, the facts are worth reviewing.

The tentative backward raising construction in Adyghe involves the aspectual verbs ‘stop’, ‘continue’, ‘begin’, and the verbs *χ_wən* ‘become, turn out to’ and *qəçeç’ən* ‘happen to’ (all intransitive). To follow the examples below, the reader needs to know that Adyghe has an absolutive/ergative case system (syncretic for first and second person); with specific DPs, both cases have overt marking (*-m* for ergative, *-r* for absolutive). A verb can agree with up to four arguments: subject, object, indirect object, and applied object (cf. Colarusso 1992: 74, 132-135; O’Herin 2002: 49-69 for agreement in the closely related Kabardian and Abaza). Word order in root clauses is free, but embedded clauses must be verb-final. The language has extensive subject and object *pro*-drop, and in the examples below subject pronouns are shown in parentheses.

The verb *qəçeç’ən* ‘happen to’ is shown in (17), with idiom chunks, suggesting that it is indeed a raising verb and not a control verb (the same pattern is observed for all the other verbs listed above):

- (17) a. jə-pe hozə-r Ø-qərexə
 POSS-nose smoke-ABS 3SG.ABS-blows
 ‘S/he is furious.’ (lit.: smoke blows from his/her nose)
- b. [jəpe hozə-r Ø-qərexjə-new] Ø-qəçeç’əᵛ
 POSS-nose smoke-ABS 3SG.ABS-blow-SUP 3SG.ABS-happened
 ‘S/he happened to be furious.’ (lit.: smoke happened to blow from his/her nose)

There is sufficient evidence, based on independent event modification, negation and NPI licensing, that these verbs form biclausal structures with their complements. We will not present the actual empirical data here and will simply assert that constructions such as (17b) are biclausal. (18a-b) illustrate two agreement options available with these verbs when they appear with a clausal complement.

- (18) a. jələesəm əç’weç [šh_wenč’əm-ç’e (se) sə-we-new] Ø-qəçeç’əᵛ
 this year gun-INSTR 1SG.ABS 1SG.ABS-shoot-SUP 3SG.ABS-happened
 ‘This year it so happened that I shot my gun.’
- b. jələesəm əç’weç [šh_wenč’əm-ç’e sə-we-new] (*se) sə-qəçeç’əᵛ
 this year gun-INSTR 1SG.ABS-shoot-SUP 1ABS 1SG.ABS-happened
 ‘This year I happened to shoot my gun.’

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.⁷ 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 an 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.

Copy raising has been documented quite extensively. In addition to English (Rogers 1974, Lappin 1984, Heycock 1994, Potsdam and Runner 2001, Asudeh 2004), the construction potentially 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; Moyse-Faurie 1997), Madurese (Davies and Dubinsky 2004: 244-247), Tagalog (Kroeger 1993), and Modern Greek (Joseph 1976; Perlmutter and Soames 1979).⁸ 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 and hence is not raising, as Davies 2005 concludes.

Copy control presents an interesting theoretical parallel to the slightly better-documented copy raising. To our knowledge, only three cases of copy control have been attested, Assamese (Haddad 2006), San Lucas Quiavini Zapotec (Lee 2003, Boeckx et al. 2005, Pamela Munro, pers. comm.), and Tongan (Chung 1978).

In Assamese, subject copy control seems to occur in infinitival adjuncts, as in (21a). The pattern is clearly that of obligatory control (obviation is impossible with this particular infinitival complement), (21b).

- (21) a. [ram-e dukh kor-i] *(tar) bhagar log-il
 ram-ERG sorrow do-INF he.GEN exhausted feel-PAST
 ‘Having made himself sad, Ram felt exhausted.’
- b. *[ram-e dukh kor-i] Proxad-or bhagar log-il
 ram-ERG sorrow do-INF Prakhad-GEN exhausted feel-PAST
 (‘Ram made himself sad and Prakhad felt exhausted.’)

⁷ Incidentally, most work on distinguishing two types of resumption has relied on A’-movement. We assume that the distinction remains valid for A-movement.

⁸ The overall issue of raising in Greek is not uncontroversial. Copy raising described by Joseph seems to be subject to dialectal variation (Felix 1989: 117, 132). In general, some researchers suggest that raising out of subjunctive complements is possible (Rivero 1990; Philippaki-Warbuton 1987), while others reject it (Ingria 1981; Felix 1989; Motapanyane 1991; Sabine Iatridou, pers. communication).

Although the data are still quite preliminary, some generalizations emerge. First, the adjunct clause always precedes the matrix clause, and the overt DP is in that adjunct clause, while the pronoun is in the matrix clause. The reverse order of full NP and pronoun is ungrammatical but it is unclear if it is ruled out by structural factors or by the avoidance of cataphoric reference. Second, the preference for copy control over non-copy patterns varies depending on the case marking of the matrix and embedded subject: when one of the subject positions is filled by a non-nominative DP, the copy pattern is preferred.

Zapotec also seems to have 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. This use of a referential expression for copying is quite unusual but it seems to be consistent with the otherwise anaphoric behavior of referential expressions in Zapotec documented by Lee (2003). Copying in Zapotec is found in both subject and object control:⁹

- (22) 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-qui'ily 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 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:

- (23) 'oku sai'ia 'a Sione ke (ne) tā 'a e kakai fefiné
 PROG like ABS john SUBJ 3SG hit ABS DET people woman
 '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 and Assamese.

⁹ Lee (2003) and Boeckx et al. (2005) show that these are cases of obligatory control in that they trigger sloppy readings under ellipsis. They also require an exact copy in the lower subject position, arguing for a "true" resumption analysis involving movement and ruling out an "apparent" resumptive pronoun analysis.

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

In a number of cases, there turns out to be no reason to posit a structure involving a deleted 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 a matrix raising predicate. Some naturally occurring examples (from a Google search):

- (24)
- 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 except that the matrix subject contains an expletive. An analysis that seems possible invokes backward raising:

- (25) [_{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, as pointed out in den Dikken 1995, Schütze 1999, Lasnik 1999 among others for the monoclausal, non-raising *there* construction. First, if the structure presented in (25) were correct, the raised DP should be able to take wide scope over negation, the way this works in Adyghe (see above). But this prediction is wrong:

- (26)
- a. There do not appear to be two major ways of learning prevalent *NEG > two ways*;
 - b. #Two major ways of learning are such that they do not appear to be prevalent *two ways > NEG*

Similarly, matrix clause adverbials invariably take wide scope over the raised DP; meanwhile the structure in (25) predicts scopal ambiguity:

- (27) There always appear to be two major ways of learning prevalent (*always > two ways*; **two ways > always*)

In addition, the DP in the lower clause in these constructions is invariably indefinite, consistent with the definiteness effect (Milsark 1974). In the meantime, forward raising constructions do not show the (in)definiteness effect. So that's another surprising fact unaccounted for under the alternation between forward and backward raising. 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 matrix 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.¹⁰ Altogether, this is another case of agreement that calls for a dissociation of agreement and movement (see Bobaljik and Wurmbrand 2004 for similar observations).

Greek seems to be another 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 closest DP that is available for agreement features (Alexiadou and Anagnostopoulou 1999). The verbs that participate in this false backward raising pattern 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.

- (28) 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*
 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 and that it cannot be reduced to restructuring:

- (29) *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 (30). 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.

- (30) *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*)
- (31) **ola stamatisan [na epenun ta afendika afto to sxedhio]*
 all stopped.3PL SUBJ praise.3PL DET boss.PL that DET plan
 (‘The bosses all stopped praising this plan.’)

¹⁰ 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*

Updating the analysis in Alexiadou and Anagnostopoulou 1999, the agreement is achieved via Agree 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.

As the English and Greek examples show, 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 identify 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. Many such cases of fake backward raising have been analyzed as involving long-distance agreement in which the matrix verb agrees with a constituent in its complement clause (Polinsky and Potsdam 2001; Bobaljik and Wurmbrand 2004; Bhatt 2005; Bruening 2001; Branigan and MacKenzie 2002).

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 these.¹¹ For this pattern, at least two factors determine its availability: (1) the complement clause must have certain properties and (2) the presence of the deleted copy in the higher clause must be syntactically or semantically visible, even after the deletion.

4.1 Properties of the complement clause

The first requirement in order to license a backward pattern is that the complement clause must be capable of licensing an overt subject. This immediately explains why English cannot have backward raising or control. Among the languages examined here, all that show the backward (and copy) constructions freely allow overt subjects of control/raising complements. A systematic inventory of languages whose clausal complements allow for an overt subject has not yet been established (see Perlmutter and Moore 2002 for a discussion) but the general possibility of the backward pattern makes such a typology essential.

Assuming that raising and control are analyzed as movement, a second requirement for the complement clause is that it be transparent for A-movement. The embedded subject must be able to move out of the complement clause and into the higher clause. Cross-linguistically, non-finite complement clauses are clearly transparent for A-movement. We see this in Tsez,

¹¹ We will have little to say specifically about the copy pattern although, as the reader will see below, some of the constraints on embedded clauses are shared by backward and copy patterns. For that construction, a crucial mechanism that needs to be in place has to do with the grammar of resumption (Boeckx 2003, McCloskey 2002, 2005, and others). We hope that further work on copy raising and control may provide empirical data to contribute to a theory of resumption.

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).

Korean, and English, for example.¹³ A growing body of research also documents A-movement from subject position of finite clauses in a number of languages (see Motapanyane 1995 for subject-to-subject raising in Romanian, Ura 1994 for subject-to-subject raising in numerous languages, Uchibori 1997 for A-scrambling in Japanese, Tanaka 2002 for subject-to-object raising in Japanese, Landau 2004 for object control with finite clauses in Hebrew, among others). Although the sample of relevant languages is still small, some generalizations have begun to emerge. Finite complements that allow A-movement are always in subjunctive or irrealis mood, not indicative. Thus, although such clauses are finite, there is some ‘deficiency’, which makes such clauses more permeable.

Finite clauses are usually structurally richer, with an overt CP projection dominating TP. We propose that finiteness has to do with the featural content of the C° and T° heads. Following a number of researchers, we propose that semantic tense is the main feature determining finiteness and the transparency of an embedded complement when it is a CP.¹⁴ The idea that tense defines a syntactic domain is not new. It appeared earlier in Chomsky’s (1973) Tensed S Condition and the theory of Subjacency. Rizzi 1982, for example, proposed that non-finite clauses, in contrast to finite clauses, were not bounding nodes for Subjacency because they lacked tense.

Semantic tense defines the temporal boundaries of an event; it is essentially a referential expression (Partee 1973, 1984),¹⁵ 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 the 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)definite 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 semantic 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,

¹³ The transparency of non-finite complements is sometimes a consequence of the fact that they are TPs, which do not constitute phases requiring cyclic movement. This is not the whole story, however, as some non-finite raising/control complements are clearly CPs, which are phases.

¹⁴ See Miller 2002 and Aygen 2004 for evidence that the relevant feature indicating finiteness is mood. We believe that our proposal can be recast in terms of mood if this hypothesis turns out to be correct.

¹⁵ 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.

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 transparent to A-movement. Thus:

(32) Semantic tense and transparency

Independent tense	Dependent semantic tense	Anaphoric tense
Opacity	Possible transparency	Transparency

To sketch our analysis, we assume that semantic tense is expressed in the syntax by the feature [T] on C° and T° (at this point, we are not concerned with other features on these heads). For complement clauses, the matrix verb may impose selectional restrictions on the complementizer's [T] feature. If a matrix verb does not impose selectional restrictions on the embedded C° head, that head has INDEPENDENT TENSE, corresponding to opacity. If the embedded C° is subject to selectional restrictions from the matrix verb, its semantic tense can either be the same as the matrix tense (ANAPHORIC TENSE) or remain *partially* independent of it (DEPENDENT TENSE). The latter is the case with irrealis complements, found under Hebrew finite control (Landau 2004) or in English *for*-complements (Bresnan 1982).

We follow Landau's (2004:839, this volume) proposal concerning the scale of finiteness which in turn is tied to the value of the uninterpretable [T] feature on the embedded C° head:

- (33) a. independent tense: no [T] on C° (\emptyset)
 b. dependent tense: [+T] on C°
 c. anaphoric tense: [-T] on C°

The binary [T] feature, either [+T] or [-T], is accompanied by an optional EPP feature which allows C° to have an A-specifier. In the derivation involving a C° head with dependent or anaphoric 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. In sum, movement out of a dependent or anaphoric tense complement is allowed because of its valued [T] feature and accompanying EPP feature. If the lower copies in the chain are deleted, standard forward pattern occurs. If, however, something forces the deletion of the higher copy, backward raising/control becomes possible.¹⁶

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.

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 evidence that the deleted higher 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 local phi-features 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 without movement, so this in turn shows that the availability of morphological agreement is not sufficient for a backward pattern. 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.¹⁸ This indicates that the correlation between overt agreement and the occurrence of a backward pattern is only a preference, albeit an apparently strong one.

In earlier work that did not adopt the copy theory of movement (Polinsky and Potsdam 2002), we proposed that the EPP, the requirement that all clauses have a filled spec,T at surface structure, was also a contributor to backward control patterns. In that work, we analyzed backward control as A-movement that did not take place until LF. Forward control results when control movement takes place overtly and backward control occurs when the control movement occurs covertly. The overt DP is pronounced in the lower clause and moves to the higher position only at LF. In this scenario, the EPP is relevant because the higher subject position is not filled at surface structure and so some other mechanism to satisfy the EPP must be available. Under a copy theory of movement, however, this issue does not arise.¹⁹ Each spec,T, in particular the higher one, is filled at the point at which it is spelled out. At LF, the only level of representation in the Minimalist Program, the EPP is satisfied. The copy that satisfies the EPP may be deleted at PF but this is irrelevant. We tentatively conclude that the EPP is not involved in licensing or ruling out backward patterns.

To summarize, the properties that make possible the occurrence of a backward or copy pattern include the availability of an overt subject in the control/raising complement and sufficient transparency of the embedded complement to allow for the

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).

¹⁸ 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.

¹⁹ We thank an anonymous reviewer for bringing this to our attention.

formation of an A-chain. In our view, this transparency is keyed to the [T] feature of the complementizer. An additional property discussed above is 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’ to the language learner.

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

Language property	Backward pattern	Copy pattern
licensing of an overt subject in the complement clause	✓	✓
licit A-movement out of the complement clause	✓	✓
resumptive pronoun strategy	✗	✓

5. Conclusions

This paper pursued two related goals, to present 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 raising/control 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 do exist, linguistic theory should be capable of analyzing them. We have presented mechanisms from the current Minimalist Program which we believe allow the attested variation.

The proposal raises a number of difficult questions, which we would like to mention here. The first is, under what conditions do the backward and copy patterns obtain, given that they seem to be less common. For the former, we suggested that an overt complement clause subject and evidence for a covert higher copy are necessary; however, this is certainly incomplete. More work is needed to determine what syntactic and semantic factors affect the availability of these new constructions. The second question concerns the mechanics that allow deletion of higher copies in the case of backward patterns, or the pronunciation of multiple copies in the case of copy patterns. The default pattern is that only higher copies are pronounced—an observation built into the trace theory of Principles and Parameters syntax. The variation in copy pronunciation has only recently begun to be investigated in the literature (Bošković 2002, Bobaljik 2002, Nunes 2004); the initial proposals accounted for such patterns by appealing to phonological considerations. It remains to be seen whether the spell-out of a lower copy (or of multiple copies) can be fully accounted for by the appeal to the phonological form. Whatever the solution to this problem, this paper has demonstrated that the spell-out of lower or multiple copies is more systematic and widespread than typically assumed in the theoretical literature.

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