



# Backward Control

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## Abstract

Control refers to an obligatory referential dependency between an argument of a verb and the subject of the verb's clausal complement. In many languages, the direction of the control relation can only be forward, as it is the matrix argument that provides the referential identity of the silent embedded subject. A priori, however, there is no reason to rule out a backward control relation, where the matrix argument is silent and its identity depends on the overt embedded argument for its referent. In this article, we survey the evidence for backward control presented in the literature from four languages, Japanese (language isolate), Brazilian Portuguese (Romance), Tsez (Nakh–Daghestanian), and Malagasy (Austronesian), and discuss repercussions of the backward control data for the analyses of control developed based on forward control data. We also review and discuss four different analyses that have been proposed to account for backward control.

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## 1. Introduction

Control refers to an obligatory referential dependency between an argument of a verb and the subject of the verb's clausal complement. In English, the direction of the control relation can only be FORWARD, as it is the matrix argument that provides the referential identity of the silent embedded subject. The matrix argument that determines the referential identity of the embedded subject, or the controller, can be either a subject, as in subject control (1a), or an object, as in object control (1b):

- (1) a. The child<sub>i</sub> tried [\_\_\_\_<sub>i/\*j</sub> to sleep].  
b. The officer forced the suspect<sub>i</sub> [\_\_\_\_<sub>i/\*j</sub> to surrender].

In both (1a) and (1b), the referent of the matrix argument is the only possible referent for the silent embedded subject.<sup>1</sup> A priori, however, there is no reason to rule out a backward control relation, where the matrix argument is silent and its identity depends on the overt embedded argument for its referent.

- (2) a. \_\_\_\_<sub>i/\*j</sub> tried [the child<sub>i</sub> to sleep].  
b. The officer forced \_\_\_\_<sub>i/\*j</sub> [the suspect<sub>i</sub> to surrender].

This article surveys evidence presented to argue for the existence of backward control in the literature. It also discusses different analyses proposed to account for backward control. Section 2 surveys the evidence for backward control from four languages from four different families, Japanese (language isolate), Brazilian Portuguese (Romance), Tsez (Nakh-Daghestanian), and Malagasy (Austronesian). Section 3 briefly shows why backward control is problematic for the traditional analyses of control that were meant to account for forward control only. Section 4 surveys four different analyses proposed to account for backward control: the lexical binding analysis (Farrell 1995), the subsumption analysis (Sells 2006), the *pro* analysis (Cormack and Smith 2004), and the control-as-movement analysis (Polinsky and Potsdam 2002a; Monahan 2003; Potsdam 2006). Section 5 concludes the survey.

## 2. Evidence for Backward Control

In this section, we survey the data used to argue for the existence of backward control in four different languages: Japanese, Brazilian Portuguese, Tsez, and Malagasy.

### 2.1. JAPANESE CIRCUMSTANTIAL TOKORO-CLAUSE

One of the oldest data sets used to argue for the existence of backward control comes from an adverbial construction in Japanese called a *tokoro*-clause (Harada 1973; Kuroda 1978, 1999; Fujii 2004, 2006).<sup>2</sup>

- (3) Keisatsu-ga [sono-doroboo-ga nigeteiku-*tokoto*]-o tsukamae-ta.  
 Police-NOM [that-burglar-NOM escape-TOKORO]-ACC capture-PERF  
 ‘The police arrested the burglar<sub>i</sub> (as he<sub>i</sub> was) trying to escape.’  
 Harada 1973: 114, (7a)<sup>3</sup>

In (3), the direct object of the matrix verb, *tsukamae* ‘capture’, is obligatorily silent and is interpreted as the same individual as the subject of the *tokoro*-clause, as the English gloss indicates. Thus, the *tokoro*-clause appears to instantiate a backward object control configuration, as in (4):

- (4) Keisatsu-ga \_\_\_\_<sub>i</sub> [doroboo<sub>i</sub>-ga nigeteiku-*tokoto*]-o tsukamae-ta.  
 Police-NOM \_\_\_\_<sub>i</sub> [burglar<sub>i</sub>-NOM escape-TOKORO]-ACC capture-PERF  
 ‘The police arrested the burglar<sub>i</sub> (as he<sub>i</sub> was) trying to escape.’<sup>4</sup>

Harada (1973) argues that the silent matrix object in (4) is syntactically present but must remain silent due to a language-specific constraint called ‘double-o constraint’. The double-o constraint prohibits two accusative case marked elements in the domain of a verb (Harada 1973: 138).<sup>5</sup> Thus, it rules out the forward counterpart of (4), which would have two phrases marked with accusative case.

- (5) \*Keisatsu-ga doroboo<sub>i</sub>-o [<sub>i</sub>; nigeteiku-*tokoto*]-o tsukamae-ta.  
 Police-NOM burglar<sub>i</sub>-ACC [<sub>i</sub>; escape-TOKORO]-ACC capture-PERF

Harada argues that the silent matrix argument can be phonologically overt whenever a violation of the double-o constraint can be avoided. Cleft sentences and passive sentences are cases in point. The cleft presumably breaks up one sentence into two, avoiding a violation of the double-o constraint (6a). The passive also avoids a violation of the same constraint by reducing the number of accusative case marked elements in the sentence to one (6b).

- (6) a. [Keisatsu-ga **sono-dorobo<sub>i</sub>-o** tsukamae-ta-no]-wa  
 [Police-NOM that-burglar-ACC capture-PERF-NMLZ]-TOP  
 [(soitsu<sub>i</sub>-ga) nigeteiku]-tokoro-(o) da-tta  
 [(the guy-NOM) escape]-TOKORO-(ACC) COP-PERF  
 'It was as the burglar was escaping that the police captured him.'  
 Harada 1973: 117, (10a)

- b. **Sono-doroboo**-ga keisatsu-ni niget<sub>i</sub>-tokoro-o tsukamae-rare-ta  
 that-burglar-NOM police-BY escape-TOKORO-ACC capture-PASS-PERF  
 'That burglar was captured by the police as (he was) trying to escape.'  
 Harada 1973: 118, (12a)

Further evidence for the presence of the silent matrix object comes from selectional restrictions. Harada shows that a *tokoro*-clause cannot take as its subject a referent that could not serve as an appropriate object of the matrix verb, that is, an inanimate NP.

- (7) #Keisatsu-ga [**ame-ga** hutteiru-tokoro]-o tsukamae-ta  
 police-NOM [rain-NOM fall-TOKORO]-ACC arrest-PERF  
 '#The police arrested (someone) while it was raining.'  
 Harada 1973: 124, (30a)

Intuitively, (7) is unacceptable because the subject of the *tokoro*-clause, *ame* 'rain', is not an appropriate object for the matrix verb *tsukamae* 'capture'. However, this is puzzling because *ame* 'rain' is the embedded subject and matrix verbs normally do not select arguments of their embedded verbs. Harada argues that this puzzling selectional restriction can be accounted for if there is a silent matrix object in the matrix clause that is obligatorily co-referential with the embedded subject. In such a configuration, selectional restrictions can be imposed by the matrix verbs on the embedded subject indirectly, via co-reference between the silent matrix object and the overt embedded subject.

- (8)
- |   |                         |          |                    |             |                             |
|---|-------------------------|----------|--------------------|-------------|-----------------------------|
| * <td style="text-align: center; vertical-align: middle;">_____i</td> <td style="text-align: center; vertical-align: middle;">[amei-ga</td> <td style="text-align: center; vertical-align: middle;">hutteiru-tokoro]-o</td> <td style="text-align: center; vertical-align: middle;">tsukamae-ta</td> <td style="border-left: 1px solid black; padding-left: 5px; vertical-align: middle;">SELECTIONAL<br/>RESTRICTIONS</td> | _____i                  | [amei-ga | hutteiru-tokoro]-o | tsukamae-ta | SELECTIONAL<br>RESTRICTIONS |
|   | ↑                       | ↑        |                    |             |                             |
|   | OBLIGATORY CO-REFERENCE |          |                    |             |                             |

Another piece of evidence for the presence of the silent matrix object is presented in Fujii (2004). Fujii shows that when the subject of the *tokoro*-clause is an overt pronoun, such as *kare* ‘he’, it cannot have the matrix subject as its antecedent.

- (9) John<sub>i</sub>-ga [**kare**<sub>\*i/j</sub>-ga ochikonde-iru-tokoro]-o nagusame-ta  
 J<sub>i</sub>-NOM [he<sub>\*i/j</sub>-NOM disappointed-PRG-TOKORO]-ACC console-PERF  
 ‘John<sub>i</sub> consoled \_\_\_<sub>j</sub> [when he<sub>\*i/j</sub> was disappointed].’  
 Fujii 2004, (8)

This restriction is reminiscent of Condition B, which states that pronouns cannot be bound locally. In other words, the pronoun subject of the *tokoro*-clause in (9) behaves as if it is in the matrix clause, as a pronoun object in a simple clause cannot have the subject as its antecedent.

- (10) Taro<sub>i</sub>-ga kare<sub>\*i/j</sub>-o nagur -ta  
 T<sub>i</sub>-NOM he<sub>\*i/j</sub>-ACC hit -PERF  
 ‘Taro hit him/\*himself.’

The problem is that there should be no Condition B violation in (9) as the matrix subject and the embedded pronoun subject in (9) belong to the matrix and embedded clauses, respectively. Thus, the matrix subject should be able to serve as antecedent to the pronoun subject of the *tokoro*-clause. Nevertheless, this unexpected Condition B effect can be accounted for, if there is a silent matrix object that is obligatorily co-referential with the embedded pronoun subject.

- (11) Taro<sub>i</sub>-ga \_\_\_<sub>\*i/j</sub> [**kare**<sub>\*i/j</sub>-ga ochikonde-iru-tokoro]-o nagusame-ta  
 Taro<sub>i</sub>-NOM \_\_\_<sub>\*i/j</sub> [he<sub>\*i/j</sub>-NOM disappointed-PRG-TOKORO]-ACC console-PERF  
 ‘Taro<sub>i</sub> consoled \_\_\_<sub>j</sub> [when he<sub>\*i/j</sub> was disappointed].’

We have seen that the evidence presented by Harada (1973) and Fujii (2004) strongly suggests that there is a silent matrix object in a sentence containing a *tokoro*-clause. Thus, there is good evidence to suspect that *tokoro*-clauses involve backward object control.

## 2.2. BRAZILIAN PORTUGUESE PERIPHRASTIC CAUSATIVE CONSTRUCTION

Brazilian Portuguese has a periphrastic causative construction, as exemplified in (12).

- (12) A mulher fez o nenê dormir  
 the woman made the baby sleep  
 ‘The woman put the baby to sleep.’<sup>6</sup>

Given the causative meaning, an obvious analysis for the periphrastic causative construction is that it is an object control verb, as in (13).

- (13)   
 [[A mulher] fez[CAUSER, CAUSEE] [o nenê]i [[\_\_i dormir[SLEEPER]]]]

However, Farrell (1995) argues that the object control analysis is untenable for the following reasons. First, the causee argument, *o nenê* ‘the baby’, does not passivize:

- (14) \*O nenê foi feito dormir  
 the baby was made sleep  
 ‘The baby was made to sleep (intended).’  
 Farrell 1995: 121, (11a)

Second, when the causee argument is a first person pronoun, it can be in the nominative form, *eu*, as in (15a). Nonetheless, *eu* is ungrammatical as the object of an uncontroversial object control verb, such as *proibir* ‘prohibit’ (15b).

- (15) a. A professora fez *eu* apagar o quadro  
 the professor made I erase the board  
 ‘The professor made me erase the board.’  
 Farrell 1995: 121, (14a)
- b. \*A professora proibiu *eu* de apagar o quadro  
 the professor prohibited I from erase the board  
 ‘The professor prohibited me from erasing the board.’  
 Farrell 1995: 121, (14b)

Third, the causee argument can optionally determine the agreement on the embedded verb, or it can also be realized as an object clitic on the matrix verb, but it may not do both (16a). In contrast, object control verbs allow the object controller to both be realized as an object clitic in the matrix clause and to determine the agreement on the embedded verb at the same time (16b).

- (16) a. \*O professor *os* fez estudar-em mais  
 the professor 3.MAS.PL made study-3.PL more  
 ‘The professor made the students study more.’  
 Farrell 1995: 122, (15b)

- b. O professor *os* forçou estudar-em mais  
 the professor 3.MAS.PL forced study-3.PL more  
 ‘The professor made the students study more.’  
 Farrell 1995: 122, (15a)

Farrell tentatively assumes that in (16b) the object controller (assumed to be the null pronominal *pro*) is realized as the object clitic in the matrix clause, while the silent subject in the embedded clause determines the inflection on the embedded verb. However, if the periphrastic causative construction is also an object control verb, the ungrammaticality of (16a) is unexpected. Fourth, when certain unaccusative verbs are embedded in the periphrastic causative construction, they can be found between the matrix verb and the causee argument. Unlike many other Romance languages, Brazilian Portuguese allows for a post-verbal subject only with certain unaccusative predicates with inanimate subjects, as in (17).

- (17) Saiu [muito sangue]<sub>Subj</sub> [do corpo do ferido]  
 come [lot blood] [of body of wounded]  
 ‘There came out a lot of blood from the body of the wounded.’  
 Farrell 1995: 122, (17b)

The post-verbal subject word order in (17) is maintained if the verb is embedded in the periphrastic causative construction.

- (18) Aquilo fez [sair [muito sangue] [do corpo do ferido]]  
 that made [come [lot blood] [of body of wounded]]  
 ‘That made (there) come out a lot of blood from the body of the wounded.’

Farrell 1995: 123, (20a)

If *muito sangue* ‘a lot of blood’ belongs to the matrix clause, as it would have to be under the object control analysis, the fact that the embedded verb *sair* is in-between the matrix verb and *muito sangue* ‘a lot of blood’ in (18) would be difficult to explain.

All the evidence reviewed so far suggests that the causee argument cannot be the matrix object. If the construction cannot be an instance of (forward) object control, a reasonable alternative is that the verb *fazer* ‘make’ selects a clausal complement only, as illustrated in (19):

- (19)
- 
- [[A mulher] fez]<sub>[CAUSER, EVENT]</sub> [[o nenê] dormir]<sub>[SLEEPER]]</sub>

Under this analysis, crucially, *o nenê* ‘the baby’ is the embedded subject and is associated with only one thematic role, the *sleepers*. However, Farrell argues that this line of analysis cannot be maintained either. First, the structure in (19) predicts that passivizing the embedded clause should not make any difference in the interpretation of the whole sentence, assuming that an active sentence and its passive counterpart are truth-conditionally equivalent. Nonetheless, the construction with an active and a passive complement fails to exhibit the expected synonymy.

- (20) a. Eu fiz o médico examinar a minha filha  
 I made the doctor examine to my daughter  
 ‘I made the doctor examine my daughter.’  
 Farrell 1995: 119, (5a)
- b. Eu fiz a minha filha ser examinada pelo médico  
 I made to my daughter be examined by the doctor  
 ‘I made my daughter be examined by the doctor’. (20a) ≠ (20b)  
 Farrell 1995: 119, (5b)

Moreover, if the embedded subject is the argument only of the embedded verb, any subject that is compatible with the embedded verb should be acceptable. Nevertheless, a sentential subject is ungrammatical with this construction (21a), as is an expletive subject (which is null in Brazilian Portuguese) (21b), even though they are appropriate subjects of the embedded verbs.

- (21) a. \*O maracujá tem algum componente que faz  
 the passion fruit has some component that make  
 [[tomar muito do suco dele] dar sono]  
 [[drink lot of its juice] give drowsiness]  
 ‘Passion fruit has something in it that makes drinking  
 a lot of the juice makes one drowsy (intended).’  
 Farrell 1995: 119, (7b)
- b. \*Aquilo faira **pro<sub>expl</sub>** ser óbio que eu sou forte  
 that would make it be obvious that I am strong  
 ‘That would make it obvious that I am strong (intended).’  
 Farrell 1995: 119, (7c)

Both (20) and (21) strongly suggest that the embedded subject in the periphrastic causative construction is not just the subject of the embedded verb but is also governed by selectional restrictions imposed by the matrix causative verb. Thus, the analysis in (19) appears untenable.

The evidence presented in Farrell (1995) convincingly shows that neither the object control analyses nor the clausal complement analysis is appropriate for the periphrastic causative construction. Brazilian Portuguese periphrastic causative construction presents the same paradox observed in the Japanese *tokoro*-clause: the matrix verb apparently imposes selectional restrictions on an embedded subject. As was argued for *tokoro*-clauses by Harada (1973), Farrell argues that Brazilian Portuguese periphrastic causative constructions instantiate backward object control, in which the causee argument syntactically belongs to the embedded clause (i.e. the embedded subject) yet receives a causee thematic role from the matrix causative verb, in addition to the thematic role it receives from the embedded verb, *dormir* ‘sleep’.<sup>7</sup>



### 2.3. TSEZ ASPECTUAL VERBS

Tsez is a Nakh-Daghestanian language spoken in the mountains of the northeast Caucasus. It is a morphologically ergative language with agreement. While Tsez matrix verbs generally only agree with an absolutive argument, Polinsky and Potsdam (2002a) (henceforth P&P) show that two aspectual verbs, *oqa* ‘begin’ and *iča* ‘continue’, apparently agree with an ergative argument (23a), although the canonical agreement pattern is also possible (23b).

- (23) a. kid-bā      ziya      b-išr-a      y-oq-si  
**girl.II.ERG** COW.III.ABS III.feed-INF II-begin-PAST.EVID  
 ‘The girl began/continued to feed the cow.’<sup>8</sup>  
 P&P 2002a: 247, (7)

- b. kid      ziya      b-išr-a      y-oq-si  
**girl.II.ABS** COW.III.ABS III.feed-INF II-begin-PAST.EVID  
 ‘The girl began/continued to feed the cow.’  
 P&P 2002a: 247, (8)

Rather than treating these verbs as exceptions to the agreement pattern, P&P argue that the matrix aspectual verb in (23a) is still agreeing with an absolutive argument as expected, but this absolutive argument is not phonologically overt. According to this analysis, the ergative NP, *kid-bā* ‘girl’, cannot be the matrix subject. In fact, P&P claim that it is the embedded subject, which is obligatorily co-referential with the silent matrix subject. In other words, (23a) instantiates a backward subject control configuration.

- (24) \_\_\_\_<sub>i</sub> [kid-ba<sub>i</sub> ziya b-išr-a] y-oq-si  
 II.ABS [girl.II.ERG COW.III.ABS III.feed-INF] II-begin-PAST.EVID  
 'The girl began to feed the cow.'

P&P present evidence for the two crucial assumptions behind the backward subject control analysis of Tsez aspectual verbs. First, the ergative subject is the embedded subject. Second, there is a silent matrix subject that is obligatorily co-referential with the ergative embedded subject. The first argument for the claim that the ergative NP, *kid-bā* 'girl', is the embedded subject comes from word order permutations or 'scrambling'. In Tsez, scrambling is only possible within a clause, whether it is finite or non-finite. Therefore, scrambling of neither an argument nor adjunct is possible from the complement of a control verb *šul'i* 'forget':

- (25) a. uži-r [\_\_\_\_<sub>i</sub> t'ek magazin-yāy yis-a] šul'i-s  
 boy<sub>i</sub>-DAT [\_\_\_\_<sub>i</sub> book-ABS store-from take-INF] forget-PAST.EVID  
 'The boy forgot to buy a book from the store.'  
 b. \*t'ek uži-r [\_\_\_\_<sub>i</sub> magazin-yāy yis-a] šul'i-s  
 book-ABS boy<sub>i</sub>-DAT [\_\_\_\_<sub>i</sub> store-from take-INF] forget-PAST.EVID  
 'A book, the boy forgot to buy from the store.'  
 c. \*magazin-yāy uži-r [\_\_\_\_<sub>i</sub> t'ek yis-a] šul'i-s  
 store-from boy<sub>i</sub>-DAT [\_\_\_\_<sub>i</sub> book-ABS take-INF] forget-PAST.EVID  
 'From the store, the boy forgot to buy the book.'
- P&P 2002a: 253, (22)

If the ergative NP *kid-bā* 'girl' in (23a) is the embedded subject, it is predicted to be able to switch its position only with other elements in the embedded clause. In fact, the ergative NP cannot switch its position with an adverb *ħul* 'yesterday' modifying the matrix verb (26b), but it can switch its position with the embedded verb's object, *ziya* 'cow' (26c).

- (26) a. ħul [kid-bā ziya b-išr-a] y-oq-si  
 yesterday [girl.II.ERG COW.III.ABS III.feed-INF] II-begin-PAST.EVID  
 'The girl began to feed the cow yesterday.'  
 b. \*kid-bā ħul [ziya b-išr-a] y-oq-si  
 girl.II.ERG yesterday [COW.III.ABS III.feed-INF] II-begin-PAST.EVID  
 'Yesterday the girl began to feed the cow.'
- P&P 2002a: 254, (23a) and (23b)
- c. [ziya kid-bā b-išr-a] y-oq-si  
 [COW.III.ABS girl.II.ERG III.feed-INF] II-begin-PAST.EVID  
 'The girl began to feed the cow.'
- P&P 2002a: 254, (24a)

Moreover, the hypothesized infinitive complement as a whole can also scramble as a unit.

- (27) *ħuɫ*      *y-oq-si*                      [**kid-bā**    **ziya**            **b-išr-a**]  
 yesterday II-begin-PAST.EVID [girl.II.ERG COW.III.ABS III.feed-INF]  
 ‘The girl began to feed the cow yesterday.’  
 P&P 2002a: 254, (25b)

These observations are expected if the ergative NP belongs to the embedded clause (as indicated with the brackets above).

Another argument for the embedded subject analysis of the ergative NP comes from the distribution of the so-called ‘second-position clitic’ *-uy* ‘indeed’. P&P show that *-uy* always follows the first element in the matrix clause (28a). It is restricted to the matrix clauses, as it is ungrammatical in an embedded clause even if it is the second element (28b).

- (28) a. (\*buy) *kid-bā*    **buy** *ziya*            (\*buy) *b-išr-si*            (\*buy)  
 (\*VAL) girl.II.ERG VAL COW.III.ABS (\*VAL) III-feed-PAST.EVID (VAL)  
 ‘The girl *indeed* fed the cow.’  
 P&P 2002a: 256, (29b)
- b. *eni-r*            [*kid-bā*    (\*buy) *ziya*            *b-išr-a*]    *reti-x*  
 mother-DAT [girl.II.ERG (\*VAL) COW.III.ABS III-feed-INF] want-PRES  
 ‘The mother wants the girl to (\*indeed) feed the cow.’  
 P&P 2002a: 256, (30a)

When the aspectual verbs in question have an ergative NP, as in (29), the only position where *-uy* can occur is following the entire embedded clause. Once again, this word order is expected if the ergative NP belongs to the embedded clause.

- (29) [*kid-ba*    *ziya*            *b-išr-a*]    **yuy** *y-oq-si*  
 [girl.II.ERG COW.III.ABS III.feed-INF] VAL II-begin-PAST.EVID  
 ‘The girl *indeed* began to feed the cow.’  
 P&P 2002a: 256, (31a)

On the other hand, if the ergative NP is the matrix subject, it should be possible for *-uy* to occur following the ergative NP, contrary to fact.

So far, we have seen that there is good evidence that the ergative NP in (23a) is the embedded subject. The other crucial argument is that there is a silent matrix subject in (23a), which is obligatorily co-referential with the embedded subject. The first piece of evidence for the presence of a silent matrix subject comes from a depictive element *sixxoli* ‘alone’. P&P first show that *sixxoli* requires the modified element to c-command it.

- (30) a. *kid-bā*            *ziya*                      **sixxoli**    *b-išer-si*  
 girl.II.ERG            COW.III.ABS            alone            II.feed-PAST.EVID  
 ‘The girl<sub>i</sub> alone<sub>i</sub> fed the cow.’ or ‘The girl fed the cow<sub>i</sub> alone<sub>i</sub>.’

- b. kid-bā            **sisxoli**            ziya                    b-išer-si  
 girl.II.ERG        alone                cow.III.ABS        II.feed-PAST.EVID  
 ‘The girl<sub>i</sub> alone<sub>e</sub> fed the cow.’ but ‘\*The girl fed the cow<sub>i</sub> alone<sub>e</sub>.’
- c. \***sisxoli** kid-bā        ziya                    b-išer-si  
 alone        girl.II.ERG        cow.III.ABS        II.feed-PAST.EVID
- P&P 2002a: 258–9, (35)

Assuming that the *c*-command corresponds to left-to-right word order, the assumption that the depicted element must *c*-command *sisxoli* accounts for the differences in the interpretation of *sisxoli* in (30). In (30a), *sisxoli* is *c*-commanded by both the subject and the object, and two interpretations are available. In (30b), only the subject *c*-commands *sisxoli*; the interpretation in which the object is depicted is not available. Finally, (30c) is ungrammatical because there is no NP that *c*-commands *sisxoli*, which is a clause initial element. Given the *c*-command requirement of *sisxoli*, it is unexpected that *sisxoli* is licensed in (31) below, in which it is also the first element of the sentence.

- (31) **sisxoli** kid-bā        ziya                    b-išr-a            y-oq-si  
 alone    girl.II.ERG        cow.III.ABS        III.feed-INF        II-begin-PAST.EVID  
 ‘The girl alone began to feed the cow.’
- P&P 2002a: 259, (36a)

P&P suggest that the presumed silent matrix subject provides an explanation for the grammaticality of (31), for it *c*-commands *sisxoli*.

- (32) \_\_\_<sub>i</sub> **sisxoli**<sub>i</sub> kid-bā        ziya                    b-išr-a            y-oq-si  
 \_\_\_<sub>i</sub> alone<sub>i</sub> girl.II.ERG        cow.III.ABS        III.feed-INF        II-begin-PAST.EVID
- P&P 2002a: 256, (36b)

A similar argument can be made with reflexive binding. Reflexives in Tsez must have a local and *c*-commanding antecedent. Thus, in (33), only the embedded subject can be an antecedent of the reflexive element, *nesā nesir*:

- (33) babi-r<sub>i</sub>        [už-ā<sub>j</sub>        **nesā nesir**<sub>i/j</sub>        γutku        rod-a]        reti-n  
 father.I-DAT [boy.I-ERG REFL.I.DAT        house.ABS build-INF] want-PAST.NONEVID  
 ‘The father wanted the boy to build a house for himself.’
- P&P 2002a: 259, (37a)

However, in (34) below, *nesā nesir* is licensed and interpreted to be co-referential with the ergative NP, despite the fact that it is the reflexive that appears to *c*-command the ergative NP.

- (34) **nesā nesir**<sub>i</sub> irbahin-ā<sub>i</sub>        halmaγ-or        γutku        rod-a        Ø-oq-si  
 REFL.I.DAT Ibrahim.I-ERG friend-DAT house.ABS build-INF I-begin-PAST.EVID  
 ‘Ibrahim began, for himself, to build a house for his friend.’
- P&P 2002a: 260, (38)

Once again, assuming that there is a silent matrix subject would account for the licensing of the reflexive element, because the silent matrix subject would c-command the reflexive and be co-referential with the ergative NP.

- (35) \_\_\_<sub>i</sub>        **nesā nesir**<sub>i</sub>    irbahin-ā<sub>i</sub>        halmaγ-or    γutku  
 \_\_\_<sub>i</sub>        REFL.I.DAT    Ibrahim.I-ERG    friend-DAT    house.ABS  
 rod-a        Ø-oq-si  
 build-INF    I-begin-PAST.EVID  
 'Ibrahim began, for himself, to build a house for his friend.'  
 P&P 2002a: 260, (38)

The last argument that we introduce from P&P for the presence of a silent matrix subject comes from long-distance agreement phenomena. Under long-distance agreement, a matrix verb exceptionally agrees with an absolutive argument in an embedded clause:

- (36) eni-r            [kid-bā    ziya            b-išerxosi-li]    b-iy-x  
 mother-DAT    [girl-ERG    cow.III.ABS    III-fed-NMLZ]    III-know-PRES  
 'The mother knows that the girl is feeding the cow.'  
 P&P 2002a: 260, (39)

In (36), the matrix verb *iy* 'know' shows agreement with the absolutive argument, *ziya* 'cow'. Long-distance agreement can only cross a single clause boundary. Thus, it is not possible for the matrix verb to agree with an absolutive argument inside a complement in its own complement.

- (37) \*babir [eni-r            [kid-bā    ziya            b-išerxosi-li]  
 father [mother-II [girl.II-ERG    cow.III.ABS    III-fed-NMLZ]  
 tāqru-li]        b-iy-x  
 heard-NMLZ]    III-know-PRES  
 'The father knows that mother heard that the girl is feeding the cow.'  
 P&P 2002a: 260, (40)

Given the single clause boundary restriction, it is surprising that the matrix verb agrees with the ergative NP in the most deeply embedded clause in (38):

- (38) dār [[kid-bā    ziya            b-išr-a]        yāqru- li]        y-ik-x  
 me [[girl.II-ERG    cow.III.ABS    III-feed-INF]    began-NMLZ]    II-know-PRES  
 'I know that the girl began to feed the cow.'  
 P&P 2002a: 260, (41a)

What is crucial to note here is that the intermediate verb is an aspectual verb *oqa* 'begin'. P&P argues that if the intermediate clause has a silent subject, (38) is no longer an exception to the single clause boundary restriction, as the matrix verb can agree with the silent subject.

- (39) dār [ \_\_\_\_<sub>i</sub> [kid<sub>i</sub>-bā ziya b-išr-a] yāqru- hi] y-ik-x  
 me [ABS.II [girl.II-ERG cow.III.ABS feed-INF] began-NMLZ] II-know-PRES  
 ‘I know that the girl began to feed the cow.’

P&P 2002a: 260, (41b)

We have seen that the distributions of the depictive element *sixxoli* ‘alone’, the reflexive element *nesā nesir*, and the phenomena of long-distance agreement all receive an account if there is a silent matrix subject with Tsez aspectual verbs under discussion. In fact, if there is no silent subject in the key examples above [(31), (34), and (38)], the fact that these elements are licensed in these examples would be difficult to account for. In sum, P&P provide convincing arguments for the analysis that the ergative NP in (23a) belongs to the embedded clause, and there is a silent matrix subject that agrees with the matrix aspectual verb.

#### 2.4. MALAGASY OBJECT CONTROL VERBS

The last set of evidence for backward control that we review comes from Malagasy, an Austronesian language. Potsdam (2006) argues that Malagasy object control verbs instantiate backward object control.<sup>9</sup> Malagasy object control verbs are a particularly interesting case to discuss, as they arguably allow for optionality between forward control (40a) and backward control (40b):

- (40) a. tranon’ iza no naneren’ i Mery ahy<sub>i</sub> [hofafana \_\_\_\_<sub>i</sub> ]?<sup>10</sup>  
 house who FOC force.CT Mary me<sub>i</sub> [sweep.TT \_\_\_\_]  
 b. tranon’ iza no naneren’ i Mery \_\_\_\_<sub>i</sub> [hofafa- ko<sub>i</sub> ]?  
 house who FOC force.CT Mary \_\_\_\_<sub>i</sub> [sweep.TT I<sub>i</sub>]  
 ‘Whose house did Mary force me to sweep?’

Potsdam 2006: 20, (23)<sup>11</sup>

(40b) is an example of backward object control. It has no overt matrix object, and the pronoun subject of the embedded verb, *ko* ‘I’, is phonologically and morphologically bound to the embedded verb, a clear indication that it belongs to the embedded clause.

Potsdam’s claim that (40b) is a case of backward object control is based mainly on the following arguments. The first argument comes from extraction facts. In almost all Malagasy clauses, one constituent must be dislocated to the right periphery, or ‘externalized’, and it is interpreted as the topic of the clause.<sup>12</sup> This externalization of a constituent creates different word orders from the underlying word order, which Potsdam assumes to be VSO. The basic VSO order surfaces when the externalized constituent is an oblique, as in (41).

- (41) n-i-vidi-anan' i Paoly akoho i Mery  
 PAST-AT-buy-CT Paul chicken Mary  
 'Paul bought Mary a chicken.'  
 Potsdam 2006: 5, (5a)

From the basic VSO order, VOS order obtains, for instance, when the subject is externalized. Interestingly, Malagasy verbs bear different morphology depending on the grammatical role of the externalized constituent. When the subject is externalized, the verb bears ACTOR TOPIC (AT) morphology. When the direct object is externalized, the verb bears THEME TOPIC (TT) morphology. When it is an oblique that is externalized, as in (41) above, the matrix verb bears circumstantial topic (CT) morphology (in which a verb is framed by AT and CT). When an embedded constituent is externalized, the embedded verb bears the appropriate morphology for the grammatical role of the externalized constituent in the embedded clause, while the matrix verb bears the appropriate morphology for the grammatical role of the clause from which the constituent is externalized. Thus, the TT morphology on the embedded verb in the example (40b) [which is repeated as (42) below] shows that the questioned externalized element *tranon'iza* 'whose house' is the theme of the embedded verb, whereas the CT morphology on the matrix verb shows that *tranon'iza* 'whose house' has been externalized from an oblique embedded clause.

- (42) tranon' iza no naneren' i Mery \_\_\_i [hofafa- ko<sub>i</sub>]?  
 house who FOC force.CT Mary \_\_\_i [sweep.TT I<sub>i</sub>]  
 'Whose house did Mary force me to sweep?'  
 Potsdam 2006: 20, (23b)

This obligatory externalization creates an interesting asymmetry between subject control verbs and object control verbs. When an embedded object in the complement of a subject control verb is externalized and then questioned, the matrix verb's morphology must be TT and not CT.

- (43) tranon' iza no eken'/\*aneken' i Mery hofafana?  
 house who FOC agree.TT/agree.CT Mary sweep.TT  
 'Whose house does Mary agree to sweep?'  
 Potsdam 2006: 26, (30)

This shows that the clausal complement of a subject control verb is the direct object. In contrast, in the examples of the object control verbs in (40b), the object of the embedded verb is externalized, yet the matrix object control verbs must bear CT morphology. This suggests that the clausal complement of object control verbs is syntactically oblique, whether there is a direct object overtly present or not. This, in turn,

suggests that there must be a silent matrix object that occupies the direct object position in (40b).

The second argument involves selectional restrictions on the embedded subject imposed by the matrix verb. As seen with the Japanese *tokoro*-clause and Brazilian Portuguese periphrastic causative construction, the embedded subject under the object control verb ‘force’ in (40b) appears to be governed by selectional restrictions imposed by the matrix verb.

- (44) #trano inona no nanere- ko [hianjeran’ ny vato]?  
 house what FOC force.CT I [fall.CT the rock]  
 ‘#Which house did I force the rock to fall on?’  
 (Eric Potsdam, personal communication)<sup>13</sup>

The third argument comes from the distribution of a floating quantifier *daholo* ‘all’. *Daholo* requires a c-commanding antecedent, much like the Tsez depictive element *sixxoli* ‘alone’ and the reflexive element *nesā nesī* discussed earlier. Assuming that right-to-left word order corresponds to c-command, the following example shows that only an NP c-commanding *daholo* can be associated with it.

- (45) a. namaky ilay boky **daholo** ny mpianatra  
 read that book all the students  
 ‘The students all read the book.’  
 b. %nanasa **daholo** ny lovia ilay ramatoa<sup>14</sup>  
 wash all the dish that woman  
 ‘That woman washed all the dishes.’  
 c. ??nanasa ny lovia **daholo** ilay ramatoa  
 wash the dish all that woman  
 (‘That woman washed all the dishes.’)  
 Potsdam 2006: 27, (32)

Potsdam assumes that *daholo* is adjoined at the position that is c-commanded by the externalized constituent ‘the student’ in (45a) and the rightward shifted object ‘the dish’ in (45b) but not by the in situ object ‘the dish’ in (45c). (46) illustrates his assumption about the positions of these DPs with respect to the position of *daholo*:

- (46) [IP [vP’ [vP’ [vP’ DP<sub>SUBJ</sub>] [vP’ V DP<sub>OBJ</sub>]]] *daholo*] DP<sub>SHIFTED-OBJ</sub>] DP<sub>EXTERNALIZED</sub>]

Given the c-command restriction, it is surprising that *daholo* is licensed in (47), despite the fact that ‘the student’ fails to c-command it:

- (47) inona no nanere- ko **daholo**<sub>i</sub> hovidian’ ny mpianatra<sub>t</sub>?  
 what FOC force.CT I all<sub>i</sub> buy the student<sub>t</sub>  
 ‘What did I force all the students to buy?’  
 (Eric Potsdam, personal communication)

However, if there is a silent matrix object which c-commands *daholo* in (47), the grammaticality of (47) is no longer unexpected.

- (48) inona no nanere- ko **daholo**<sub>i</sub> \_\_\_<sub>i</sub> [hovidian' ny mpianatra]<sub>i</sub>?  
 what FOC force.CT I all<sub>i</sub> \_\_\_<sub>i</sub> [buy the student]<sub>i</sub>  
 'What did I force all the students to buy?'  
 (Eric Potsdam, personal communication)

The fourth and last argument that we discuss involves a Condition B effect, which was also observed with the Japanese *tokoro*-clauses earlier. Potsdam shows that the subject of the embedded clause under Malagasy object control verbs cannot be co-referential with the matrix subject.

- (49) inona no naneren' i Paoly [hoatao- ny]?  
 what FOC force.CT Paul<sub>i</sub> [do.TT he<sub>\*i/j</sub>]  
 'What did Paul force him to do?'  
 Potsdam 2006: 31, (38a)

As was argued for the case of Japanese *tokoro*-clause, invoking a silent matrix object that is obligatorily co-referential with the embedded subject enables us to account for (49) as an uncontroversial case of a Condition B violation.

- (50) inona no naneren' i Paoly \_\_\_<sub>i</sub> [hoatao- ny]?  
 what FOC force.CT Paul<sub>i</sub> \_\_\_<sub>i</sub> [do.TT he<sub>\*i/j</sub>]  
 'What did Paul force him to do?'  
 Potsdam 2006: 31, (38b)

In sum, Potsdam presents evidence from the selectional restrictions on the embedded subject, extractions out of the embedded clause and the verbal morphology, the distribution of the floating quantifier *daholo*, and a Condition B effect with the matrix and the embedded subject to argue that Malagasy object control verbs selects a matrix object even when it is not overt. Thus, there is good evidence that Malagasy object control verbs instantiate backward object control as well as forward object control.

### 3. Challenges from Backward Control to the Traditional Analyses of Control

Although backward control as an empirical possibility was explored as early as the 1960s (Kuroda 1965), it was the publication of Polinsky and Potsdam (2002a) that started the recent discussions of backward control and its theoretical implications. The theoretical impact of backward control has been significant, as it has forced us to change the way we perceive the phenomenon of control.

In the transformational grammar framework, the theoretical framework of Harada (1973), control was accounted for by postulating a rule that deletes an NP under identity with another NP, or Equi-NP-deletion. Although the forward directionality of the control relation was not a consequence of any of the assumptions under the transformational grammar, Harada pointed out that there was a general agreement in the literature that identity deletion transformation such as Equi-NP-deletion are subject to a principle that can be stated as (51):

- (51) When a deletion transformation operates on a pair of identical elements, one asymmetry commanding the other, it is the commanded, rather than the commanding, element that is deleted by that transformation.

Harada 1973: 113, (1)

In other words, the direction of deletion appears to be always forward. Harada argued that this is not necessarily the case given that the data from the Japanese *tokoro*-clause reviewed earlier, and he proposed Counter-Equi-NP-deletion as a part of Japanese grammar.<sup>15</sup> Simplified somewhat, Counter-Equi-NP-deletion operates in order to prevent a violation of a language specific constraint, the double-o constraint, which prohibits two accusative case marked elements in a single clause. While Counter-Equi-NP-deletion was a novel transformation, it did not have repercussions for transformational grammar in general, because the transformational rules were language and construction specific. What was observed in Japanese was not necessarily assumed to hold in other languages.

Under government and binding theory, construction-specific transformational roles were abandoned in favor of universal principles, or Universal Grammar. In government and binding theory, control is accounted for by postulating a special type of NP called PRO, which is always phonologically null. PRO was argued to have a unique referential property, that it is locally bound by a c-commanding antecedent except when there is no such antecedent. In other words, when it finds an antecedent that is local and c-commands it, this antecedent is the only referential possibility for PRO (obligatory control) (52a). However, when it does not find such an antecedent, it is capable of being interpreted as having a generic or discourse-relevant referent (non-obligatory control) (52b).

- (52) a. The child<sub>i</sub> tried [PRO<sub>i/\*j</sub> to win the game]  
 b. [PRO to smoke around babies] is dangerous.

As pointed out by Farrell (1995) as well as by Polinsky and Potsdam (2002a), backward control has significant implications for the PRO analysis, because the PRO analysis has no way of capturing backward control. If the silent matrix element was PRO, it would not be c-commanded by its antecedent in the embedded clause. The PRO analysis of control, therefore,

predicts that either the silent matrix argument is not licensed or it has an arbitrary interpretation, contrary to fact. More recent PRO-based analyses of control are faced with similar problems, as they restrict the distribution of PRO to be the subject of a complement clause in one way or another (Chomsky and Lasnik 1993; Landau 2000; Martin 2001, among others).

Backward control is also problematic for analyses of control in which the grammatical relation between the controller and the controllee is crucial. In Sag and Pollard's (1991) head-driven phrase structure grammar (HPSG) analysis of control, control is analyzed as the result of interactions between general binding principles and lexical entailments imposed by individual control verbs. While the semantic role of the controller is determined by the lexical entailment of a given control verb, the relation between the controller and the controllee is an instance of a local o(bliqueness)-command relation, which is defined as (53):

- (53) A locally o-commands B just in case the content of A is a referential parameter and either
- a. A precedes B on a SUBCAT list, or
  - b. A locally o-commands some C that subcategorizes for B.
- Sag and Pollard 1991: 81, (57)

SUBCAT list specifies the complements of a give head, and the order of the elements on the SUBCAT list corresponds to relative 'obliqueness' among the complements, which more oblique elements appearing later than less oblique elements. Following the traditional assumptions, Pollard and Sag assume that objects are more oblique than subjects, and PP, VP, and S complements are more oblique than NP objects when both occur (Sag and Pollard 1991: 72). Therefore, the analysis of control based on o-command entails that the controller is a referential expression that is less oblique than the controllee. In backward control, however, it is the controllee that is referential and less oblique (assuming that an embedded subject is more oblique than a matrix object).

Clearly, the problem with the traditional analyses of control in light of backward control is that they are meant to capture forward control only, in which the controller is always structurally and grammatical functionally higher than the controllee. In what follows, we survey four different analyses of backward control, which attempts to overcome this shortcoming of the traditional analyses of control.

#### 4. Four Analyses of Backward Control

##### 4.1. LEXICAL-BINDING (FARRELL 1995)

Farrell (1995) proposes a backward control analysis of the Brazilian Portuguese periphrastic causative construction in which a matrix object is

bound by an embedded subject argument in lexical conceptual structure (LCS) (Jackendoff 1990).

(54) Causative Binding Condition:

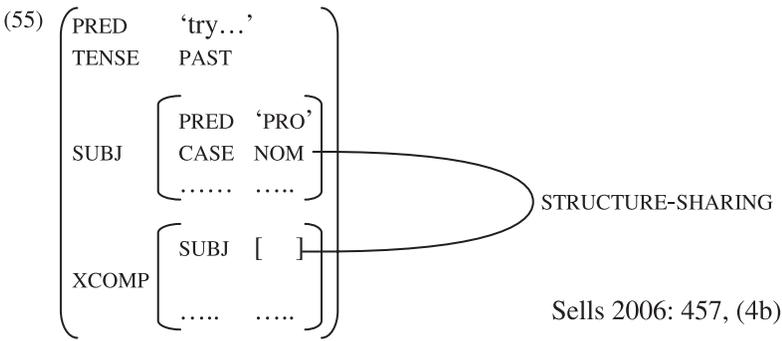
Given a causative verb with a patient argument  $p$  and an event argument  $e$ , a binding relation exists between  $p$  and an entity in  $e$ .  
(Farrell 1995: 124)

The causative binding essentially intransitivizes the matrix causative verb. As a result, the direct object position is not syntactically projected (Farrell 1995: 118). Farrell argues that the conceptual binding approach overcomes the problems that the theories of control for which the structural or grammatical hierarchical relation between the controller and the controllee is crucial (i.e. the PRO analysis and the o-command analysis of control), as the notions such as c-command and o-command are irrelevant to the lexical conceptual structure.

As for the difference between the forward control verbs and the backward control verbs, Farrell suggests that the difference is conceptually motivated. According to Farrell, the only difference between the backward object control verbs and the forward object control verbs in Brazilian Portuguese is that the former lacks resistance on the part of the patient (causee). In the forward object control verbs, the patient is 'more intricately involved in the causative action' than in the case of the backward object control verbs (Farrell 1995: 125). Farrell's analysis suggests a potential semantic classification of object control verbs into ones that are expected to instantiate forward control and ones that are expected to instantiate backward control. An interesting case to investigate with this hypothesis is Malagasy object control verbs that allow for both forward and backward control. If differences in conceptualization of the causative event motivate two directions of control relation, one would expect to find differences in interpretation of causative events under Malagasy object control verbs depending on the direction of control.

#### 4.2. SUBSUMPTION (SELLS 2006)

Sells (2006) proposes an analysis of backward control in the lexical functional grammar (LFG) framework.<sup>16</sup> In LFG, control is analyzed as an instance of structure sharing between a matrix argument and the embedded subject, imposed by lexical properties of control verbs. In the traditional LFG analysis, such as Bresnan (1982), the f(unctional)-structure of control verbs (the LFG equivalent of a SUBCAT list in HPSG) requires an argument of a control verb and the subject of its complement clause to share a structure. For instance, an English subject control verb 'try' has (55) as its f-structure representation:



Sells argues that the fact that the direction of the control relation is always forward in English is a by-product of a c(onstituent)-structural requirement of English control verbs, that they take a VP complement without an embedded subject (which corresponds to xCOMP in f-structure). Importantly, the structure sharing is an equal relation, allowing either direction of the control relation to be possible depending on c-structure. In other words, if English control verbs selected a complement with an embedded subject, they could allow backward control.

Thus, the LFG analysis of control has no difficulty in accounting for the cases where both forward and backward directions are possible, as in the case of Malagasy object control verbs. Rather, the issue for the LFG analysis of control is accounting for the cases in which the direction of control is restricted to only one of the two directions. In order to account for the cases where the direction of structure sharing is so restricted, Sells proposes a theory of structure sharing based on the SUBSUMPTION relation as proposed by Zaenen and Kaplan (2002).

(56) Subsumption:

- a. SUBJ subsumes XCOMP SUBJ: Information only flows down from SUBJ.
- b. XCOMP SUBJ subsumes SUBJ: Information only flows up to SUBJ.

Sells 2006: 464, (21)

With the subsumption relation in (56a), SUBJ (the matrix subject) must be expressed. Otherwise, xCOMP will be incomplete (i.e. without the information about its subject) because the information only flows downward. With the subsumption relation in (56b), it is xCOMP SUBJ that must be expressed, as there is no information flowing down from SUBJ. An apparent challenge to the LFG analysis of control via subsumption is accounting for what appears to be purely syntactic evidence for the presence of a silent matrix argument observed in some of the backward control phenomena. For instance, Tsez' second-position clitic *-uy* appears to be constrained by a purely syntactic condition, that is, word order. If the silent matrix subject of Tsez' aspectual verbs is suppressed, as in the LFG analysis of backward control, the distribution of the second position clitic has to be accounted for without relying on word order.

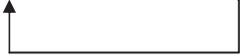
## 4.3. PRO ANALYSIS

Cormack and Smith (2004) propose an analysis of backward object control in Korean and Japanese, in which the silent matrix object is the null pronoun *pro*, as in (57):<sup>17</sup>

(57) [John [[*pro*<sub>i</sub>] [[Mary<sub>i</sub> to leave] persuaded]]]

There are two immediate problems for the *pro* analysis. First, in (57), the null pronoun *pro* c-commands the referential embedded subject, a violation of Condition C. Second, unlike PRO or an NP trace, *pro* does not require a local antecedent. Therefore, it is not clear how the obligatorily co-reference between the silent matrix object and the embedded subject can be captured under the *pro* analysis. For the potential Condition C violation, Cormack and Smith argue that obligatory local scrambling creates the structure in which Condition C is satisfied.

(58) [John [[Mary<sub>i</sub> to leave]<sub>j</sub> [[*pro*<sub>i</sub>] [ t<sub>j</sub> persuaded]]]]



The obligatory co-reference relation between *pro* and the embedded subject is accounted for by means of a Meaning Postulate imposed by the matrix control verb:

(59) Meaning Postulate for ‘persuade’

For all  $s, x, y$ , if ‘PERSUADE  $s \ y \ x$ ’ holds then  $y$  is Agent in Event  $s$  ( $s$  is the Event argument of PERSUADE,  $y$  the persuadee,  $x$  the persuader, where  $x$  and  $y$  are individuals).

Cormack and Smith 2004: 69, (20)

The *pro* analysis of backward object control is particularly well-motivated for languages with a null object pronoun and scrambling, such as Korean and Japanese. As Cormack and Smith show, in both Korean and Japanese, a Condition C violation can be remedied by scrambling:

- (60) a. #Mary-nun ku-ekey [Bill-i sihem-ey hapkyek  
 M-TOP he-DAT [B-NOM exam-ACC pass  
 ha-yss-ta]-ko malha-yss-ta  
 do-PAST-DE] -COMP tell-PAST-DE  
 ‘Mary told Bill<sub>i</sub> that he<sub>i</sub> passed the exam.’
- b. Mary-nun [Bill-i sihem-ey hapkyek  
 M-TOP [B-NOM exam-ACC pass  
 ha-yss-ta]-ko ku-ekey malha-yss-ta  
 do-PAST-DE] -COMP he-DAT tell-PAST-DE  
 ‘Mary told Bill<sub>i</sub> that he<sub>i</sub> passed the exam.’

Cormack and Smith 2004: 71, (25a) and (26a)

One may question the applicability of the *pro* analysis to backward control constructions in languages that lack null pronominals or scrambling. In fact, Potsdam (2006) argues against a *pro* analysis of Malagasy object control verbs by arguing that Malagasy is not a *pro*-drop language. He also shows that the silent matrix object and the embedded subject must be in a c-command relation in Malagasy object control.

Nonetheless, the *pro* analysis seems an attractive one to consider for backward control phenomena in languages that have null pronominals and scrambling, such as Japanese. In fact, evidence that the *pro* analysis may be an appropriate analysis for *tokoro*-clause can be found in Fujii (2006). Fujii shows that the silent matrix object does not have to be in a local and c-command relation with the overt embedded argument. First, a co-referential relation may hold between the silent matrix object and an embedded INTERNAL argument, with the matrix subject intervening between them.

- (61) Mary-wa \_\_\_<sub>i</sub> [gunshu-ga sono-kashu<sub>i</sub>-ni akushu-o  
M-TOP \_\_\_<sub>i</sub> [crowd-NOM that-singer<sub>i</sub>-DAT shake.hand-ACC  
motome teiru tokoro]-ni hanataba-o watashi -ta  
ask.for PROG TOKORO]-DAT bouquet-ACC hand -PAST  
'Mary handed a bunch of flowers to the singer while the  
crowds were trying to shake hands with him/her.'  
Fujii 2006: 211, (116)

Second, a long-distance referential dependency is also possible with *tokoro*-clause:

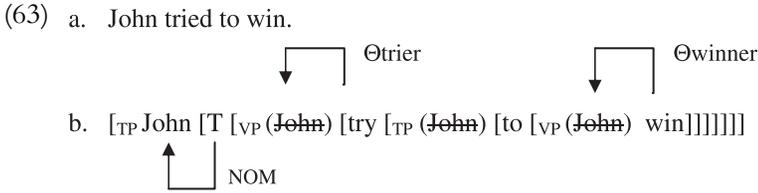
- (62) Yakuza-wa \_\_\_<sub>i</sub> [terorisuto-ga [hitojichi<sub>i</sub>-ga bujina  
Y-TOP \_\_\_<sub>i</sub> [terrorist-NOM [hostages<sub>i</sub>-NOM safe  
koto]-o kakuninshi -ta-tokoro]-o kyushitushi -ta  
fact]-ACC make-sure -PAST-TOKORO]-ACC save -PAST  
'Yakuza saved \_\_\_<sub>i</sub> as the terrorists made sure that the  
hostages<sub>i</sub> are safe.'<sup>18</sup>  
Fujii 2006: 212, (118)

Although a careful reanalysis of *tokoro*-clauses is clearly necessary before one concludes whether the *pro* analysis is the right analysis, the fact that the silent matrix object and the overt embedded argument do not have to be in a c-command relation not only suggests that the *pro* analysis may be the right analysis, but also eliminates any analyses that assume a syntactic dependency between the silent matrix object and the embedded argument.<sup>19</sup>

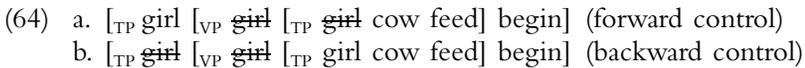
#### 4.3.1 Control-as-movement

Many of the recent analyses of backward control phenomena (Polinsky and Potsdam 2002a; Monahan 2003; Fujii 2004, 2006; Potsdam 2006)

argue that the movement analysis of control (O’Neil 1995; Hornstein 1999, 2003) offers an account for backward control. Under the movement theory of control, control is a consequence of NP-movement between two  $\theta$  positions, as illustrated in (63) below:

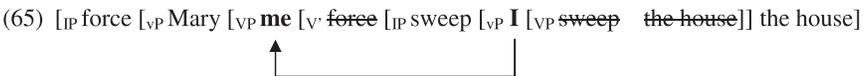


As first suggested in Monahan (2003) for bi-directional object control in Korean, the movement theory of control can provide a way to account for backward control with a copy theory of movement (Chomsky 1995). Under the movement theory of control via copying, backward control can be analyzed as a result of pronouncing the embedded copy of the moved DP, as opposed to the matrix copy.



Importantly, under the movement theory of control via copying, neither the silent argument nor the overt argument has to be structurally higher than the other, as long as their relation respects locality of NP movement and has an appropriate structural relation, that is, c-command relation.

More recently, Potsdam (2006) has proposed a control-as-movement analysis that accounts for optionality in the direction of the control relation witnessed with Malagasy object control verbs. Adopting ‘chain reduction principles’ (Nunes 2004), which require that a copy of a given chain with the fewest features be pronounced, Potsdam argues that the optionality in the direction of control arises when two copies in a chain have the same number of unchecked features. In the case of Malagasy object control verbs, the relevant feature is case. In a derivation of object control, the moving DP receives case twice: nominative case in the embedded clause and accusative case in the matrix clause.



Assuming that a case value can be overridden by another case value in a derivation, there is no difference in the number of unchecked features of the moving DP, whether it is pronounced in the embedded subject position or the matrix object position, all else being equal. Therefore, either copy can be pronounced, allowing for the optionality in the control direction.

As pointed out by Potsdam himself as well as by Sells (2006), a problem with this analysis is that it must somehow prevent forward control from taking place in the cases where only the backward configuration is possible. As Potsdam shows, the fact that Japanese *tokoro*-clauses only allow for backward configuration is not a problem, as it has a language-specific explanation (the double-*o* constraint). Besides, Fujii's (2006) arguments discussed earlier suggest that the control-as-movement analysis is not appropriate for *tokoro*-clauses. However, there does not seem to be an obvious reason why forward control is blocked in the cases of the Brazilian Portuguese periphrastic causative constructions and Tsez aspectual verbs. Therefore, accounting for the restricted directionality in these cases remains a challenge to the control-as-movement analysis.

### 5. Conclusion

In this survey, we reviewed the data that motivate backward control phenomena in four different languages: (i) Japanese *tokoro*-clauses, (ii) Brazilian Portuguese periphrastic causative constructions, (iii) Tsez aspectual verbs, and (iv) Malagasy object control. We also discussed why backward control is problematic to the traditional analyses of control. Finally, we surveyed four different analyses proposed to account for backward control.

As for backward control data that were not discussed in this short survey, aside from Tsez, backward subject control has been attested in several other Nakh-Dagestanian languages, Northwest Caucasian, Malagasy, Jakaltec (see Polinsky and Potsdam 2006 for the references), and Romanian (Alboiu 2004, 2007). As for backward object control, Kabardian and Korean have also been argued to have the phenomenon, in addition to Japanese, Brazilian Portuguese, and Malagasy (Monahan 2003; Polinsky and Potsdam 2006).

As can be seen, the number of languages for which the existence of backward control has been proposed is still small. Moreover, even from our very brief survey of the data, it appears constructions that have been called backward control in each of these languages may in fact be distinct phenomena. More data from more languages on backward control are clearly necessary. However, it is important to note that the languages for which backward control has been argued represent different language families as well as different language types (i.e. head-initial vs. head-final), which seems to suggest that there is something basic that is present in languages from different families and types that allow for a backward configuration to emerge. As discussed in Polinsky and Potsdam (2006), there appear to be prerequisites for a language to have backward control or backward control-like constructions. For instance, in order for the backward control configuration to obtain, the language must have a way to have an overt subject in non-finite clausal complements.<sup>20</sup>

Another interesting question is whether lexical semantics of verbs plays any role in licensing of backward control. In Tsez, backward subject

control is attested only with two aspectual verbs and not with quintessential subject control verbs, such as 'try'. It turns out that only certain aspectual verbs allow backward subject control in several other languages as well (Polinsky and Potsdam 2002a). Likewise, in Brazilian Portuguese, backward object control is attested only with two causative verbs, *fazer* 'make' and *mandar* 'have', and not with prototypical object control verbs, such as 'force'. Also in Spanish, similar constructions are restricted to a causative verb, *hacer* 'make' (Moore 1997). In fact, in our brief survey, Malagasy backward object control is the only case in which prototypical control verbs participate in backward control. Why do we find aspectual verbs and causative verbs licensing backward control in different languages? Why do prototypical control verbs allow backward control in certain languages, but not in others? With more and more languages with different typological and genealogical background being examined by researchers and projects specifically devoted to cross-linguistic investigations of control phenomena,<sup>21</sup> we may soon reach a better understanding of the prerequisites for backward control.

As for the analyses of backward control, our survey shows that the analyses proposed for backward control are as diverse as the data that motivated them. It may be the case that some of the analyses are more appropriate for particular data sets, while others are more appropriate for others. This is, of course, an empirical question. There is no doubt that the discovery of backward control phenomena has made analysis of control in general more complicated and challenging. Now that we know that the control relation may go two directions, whenever we find a 'control' verb in a language, we now have to ask ourselves whether it allows for only one of the two possible directions or both and why. Needless to say, this is a welcome complication, as we now know more about control verbs specifically as well as about non-finite complementation in general. After all, the discovery of backward control is just another example that reminds us of the importance of cross-linguistic investigations, in order to deepen and widen our understanding of linguistic phenomena.

### *Acknowledgements*

I would like to thank Grant Goodall, Laura Kertz, John Moore, Maria Polinsky, Eric Potsdam, two anonymous reviewers, and the section editor David Basilico for their generous help with the preparation for this article. Needless to say, all the remaining errors and shortcomings are my own responsibility. The work on this project was supported in part by National Science Foundation grants BCS-0131993 and BCS-0131946.

### *Short Biography*

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### Notes

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<sup>1</sup> In the literature, this control relation is called 'obligatory control' as opposed to 'non-obligatory control', in which the controller does not have to have a particular syntactic relation with the controllee (Williams 1980; Hornstein 1999, 2003). In the rest of this article, I use 'the control relation' to refer to obligatory control.

<sup>2</sup> According to Harada, *tokoro* marks 'a complement that refers to a physically perceptible state of affairs which indicate the situation in which the event referred to by the matrix sentence takes place' (Harada 1973: 115).

<sup>3</sup> For the Japanese examples, the following abbreviations are used: TOP, topic; NOM, nominative; ACC, accusative; DAT, dative; PERF, perfective; PROG, progressive; COP, copula; PASS, passive; NMLZ, nominalizer.

<sup>4</sup> Although Japanese is known to allow for multiple nominative NPs, the second nominative NP, *doroboo* 'burglar', in (4) cannot be analyzed as belonging to the matrix clause, as *tsukamae* 'capture' is not one of the predicates which license multiple nominative NPs.

<sup>5</sup> The constraint is so named because the accusative case is pronounced as 'o'.

<sup>6</sup> The following abbreviations are used with the Brazilian Portuguese examples: 3, third person; MAS, masculine; PL, plural.

<sup>7</sup> Moore (1997) analyzes similar constructions in Spanish and proposes a different analysis.

<sup>8</sup> The following abbreviations are used with the Tsez examples: I, II, III, noun classes; NOM, nominative; ACC, accusative; DAT, dative; ERG, ergative; ABS, absolutive; INF, infinitive; PAST, past; PRES, present; EVID, evidential; NONEVID, non-evidential; NMLZ, nominalizer; VAL, validator.

<sup>9</sup> Backward subject control has also been attested in Malagasy (Polinsky and Potsdam 2002b).

<sup>10</sup> For Malagasy examples, the following abbreviations are used: AT, actor topic; TT, theme topic; CT, circumstantial topic; PAST, past; FOC, focus marker.

<sup>11</sup> Most of the examples presented in this section are questions, because their statement counterparts, both forward and backward, are degraded in acceptability due to independent reasons that are discussed in Potsdam (2006). Based on findings from recent data collection, Eric Potsdam informed me that the degree of degradation varies from mild to severe among speakers. Therefore, only fully acceptable examples (i.e. questions) are presented in this section.

<sup>12</sup> The externalized constituent must denote a referent that is necessarily 'given', and is thus required to be formally definite. It is also the participant of which the rest of the clause is predicated (Pearson 2005: 385).

<sup>13</sup> The original example used to support this argument in Potsdam (2006) is the statement version of (44). The original example has been replaced with (44) due to the reason discussed in footnote 11.

<sup>14</sup> '%' has been added to the original example to indicate that not all speakers allow *daholo* to be licensed by an object (Eric Potsdam, personal communication). This argument is based on data from speakers who do.

<sup>15</sup> As Harada notes, Kuroda (1965) proposes a transformational role that deletes a matrix object under identity with an embedded subject for Japanese causative constructions.

<sup>16</sup> Sells (2006) also discusses backward raising, which is beyond the scope of this survey.

<sup>17</sup> Korean object control verbs such as 'persuade' are argued to license backward object control in Monahan (2003), in which a control-as-movement analysis of the constructions is proposed.

<sup>18</sup> This example has been minimally modified from its original.

<sup>19</sup> See Hale and Kitagawa (1977) for a *pro* analysis of *tokoro*-clauses. Fujii (2006) suggests that the *tokoro*-clause is a special type of relative clause, following Kuroda (1978). See Fujii (2006) for the details of the relative clause analysis of *tokoro*-clauses.

<sup>20</sup> For a discussion of possible typological prerequisites for backward control, see Polinsky and Potsdam (2006).

<sup>21</sup> Some examples of such projects are the questionnaire on control predicates created by Barbara Stiebels of ZAS ([http://www.zas.gwz-berlin.de/index.html?publications\\_zaspil](http://www.zas.gwz-berlin.de/index.html?publications_zaspil)) and the on-line database for control predicates created by Variation in Control Structures project conducted by Maria Polinsky and Eric Potsdam (<http://accent.ucsd.edu/>).

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