

Experimental evidence of variation and gradience in the syntax and semantics of transitive subject control



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Abstract

This article explores transitive subject control phenomena using experimental syntax methodologies. Existing theoretical accounts of transitive subject control are problematic: syntactic theories either disregard transitive subject control or find it ungrammatical (e.g., Chomsky, 1980), while semantic theories cannot explain the structure's reduced acceptability (Postal, 1970), or its rarity as suggested by work on corpora (Egan, 2006). A set of three acceptability judgment task experiments explores these issues. Experiment 1a tests the acceptability of transitive subject control across a direct object. Experiment 1b tests acceptability of transitive subject control across a PP complement. Experiment 2 tests the effect of both syntactic and semantic violations in control. Although the experimental results demonstrate interspeaker variation, they do suggest that transitive subject control across either a direct object or a PP complement is of reduced acceptability and that violations of both syntactic and semantic constraints influence acceptability. It is argued that these results indicate that both syntactic and semantic strategies of interpreting transitive subject control are available simultaneously. The way the two strategies of interpretation interact may vary across speakers.

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1. Introduction

Transitive subject control (TSC) structures require a subject control verb to take both a direct object and a non-finite clause as complements, and display subject control across the object (Rosenbaum, 1967). Only a few English verbs exhibit transitive subject control. Examples of such verbs include *promise* as seen in (1), *threaten* as seen in (2) and *ask* and *beg* under conditions of control shift as seen in (3) (Landau, 2000, 2013).

- (1) Jane promised Sarah to do the dishes.
subject main verb direct object non-finite complement clause
- (2) Chris threatened Steve to kill himself.
subject main verb direct object non-finite complement clause
- (3) The student begged the teacher to go outside.
subject main verb direct object non-finite complement clause

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The type of structure exhibited in (1) through (3) has been difficult to accommodate within the theories of control. Attempts to describe transitive subject control fall generally into two categories. The first consists of those that base their explanation of this phenomenon primarily in syntax or structural approaches, and are characterized by an understanding of control based on locality (Chomsky, 1980; Larson, 1991; Hornstein, 1999; Manzini and Roussou, 2000). Although these theories differ widely in terms of how locality is understood, each of them contends that the proximity of the controller to the controlled element is what determines control relations, and predicts that TSC structures are illicit. However, TSC structures are generally considered to be grammatical in the literature, and examples such as (1) often appear in syntax text books (Haegeman, 1994; Carnie, 2013) to illustrate the grammaticality of TSC structures. Another prediction the structural approaches make is that transitive subject control across a PP complement, as in (4), should be degraded, given that intervention effects with PP experiencers of raising verbs such as *seem* are exhibited in many languages. It is not however obvious what the empirical picture is.¹

(4) Danielle vowed to Amanda to floss more regularly.

An alternative group of theories describes control phenomena primarily in terms of semantics (Postal, 1970; Jackendoff, 1972; Ruzicka, 1983; Chierchia, 1984; Farkas, 1988). Proponents of these approaches argue that syntactic mechanisms are insufficient to capture the full breadth of control behaviour. And, in spite of disagreement in terms of the precise strategies used to describe control, this set of approaches agrees that some element(s) of semantics must be employed to do so, and predicts TSC structures to be fully grammatical. Although transitive subject control may be part of the grammar, there is a view that these structures (at least the ones with a direct object) have reduced acceptability (Postal, 1970). Moreover, data from corpus analysis suggests that the TSC structure is rarely used in contemporary spoken English, further raising questions as to the grammatical status of the TSC structure. Jeffrey (2012) examined the Contemporary Corpus of American English and found that, among a random sample of occurrences of the verb *promise* modified by a complement clause, transitive subject control *promise* appeared at only a rate of one percent in the spoken data of this sample. Egan (2006) examined the British National Corpus and did not find transitive subject control *promise* among the data he considered.

As the syntactic and semantic approaches make conflicting predictions regarding the grammatical status of the TSC structure, having a clear picture of the native speaker judgment on the structure is necessary in evaluating the two approaches. In this paper, we present three acceptability judgment task experiments to clarify the native speaker intuition on the TSC structure, and to test whether the TSC phenomenon is a product of syntactic constraints such as locality, semantic constraints such as the lexical properties of the control verb, or both.

The first experiment (Experiment 1a) assesses the acceptability of transitive subject control across a direct object, and the second experiment (Experiment 1b) assesses the acceptability of transitive subject control across a PP complement. The third experiment (Experiment 2) tests the effect of both syntactic and semantic violations on acceptability. The experimental results indicate that transitive subject control across a direct object or a complement PP is of reduced acceptability, but not unacceptable, thus exhibiting gradience in acceptability judgments (Keller and Alexopoulou, 2001; Keller, 2000, 2001; Sorace, 2000; Sorace and Keller, 2005). They also indicate that control structures with a semantic violation lead to reduced acceptability just as those with a syntactic violation. We argue that these results suggest that both syntactic and semantic strategies of interpreting transitive subject control are available to speakers simultaneously and that the conflict between these derives the reduced acceptability observed. We further suggest that the results of these experiments demonstrate variation in the use of syntactic and semantic strategies both between speakers as well as within the acceptability ratings assigned by individual participants.

The rest of the paper is organized as follows. Section 2 provides a more detailed overview of both the syntactic and semantic approaches to transitive subject control, and a discussion of control shift as this concept plays an important role in the design of the third experiment. Sections 3 and 4 present the methodology and results of Experiment 1a and Experiment 1b respectively, and section 5 presents the methodology and results of Experiment 2. We discuss the theoretical implications of these results in section 6.

2. Theoretical approaches

2.1. Syntactic approaches

Structural approaches to control begin from the premise that the choice of the controller is related to locality. This line of research began with Rosenbaum (1967) and his proposal of the Minimal Distance Principle. Subsequent theorists such as Larson (1991), Hornstein (1999) and Manzini and Roussou (2000) have attempted to maintain his basic insights. Here we provide a brief discussion of these approaches and explain why transitive subject control remains problematic for each.

¹ We thank a reviewer for raising the issue of TSC structures with a PP complement in connection with TSC structures with a direct object.

Rosenbaum (1967) proposed that control is explained by the Minimal Distance Principle (MDP), in which the content of the initial noun phrase of the embedded non-finite clause must be identical to the linearly closest noun phrase in the matrix clause. Larson (1991) later recasts the MDP in terms of c-command. We adopt the c-command based formulation of the MDP in this paper, as stated below:

Minimal Distance Principle

An infinitive complement of a predicate P selects as its controller the minimal c-commanding noun phrase within the clause containing it.

As seen in (5), the MDP accurately accounts for cases of object control. In this sentence, the direct object of the matrix clause, *Natalie*, is co-referenced with the subject of the non-finite complement clause. This is as predicted by the MDP, given that *Natalie* is the closest DP that c-commands the non-finite complement clause.

(5) Holly forced *Natalie*, PRO_{*i*} to leave.

The MDP also accurately accounts for the behaviour of intransitive subject control verbs, as seen in (6), where the subject of the matrix clause, *Holly*, is also the closest DP that c-commands the non-finite complement clause.

(6) Holly_{*i*} wanted PRO_{*i*} to leave

However, the MDP is not capable of accounting for the behaviour of transitive subject control verbs. As seen in (7), the subject of the non-finite complement clause is co-referenced with the subject of the matrix clause, *Holly*, yet the closest DP that c-commands it is the object of the matrix clause, *Natalie*.

(7) Holly_{*i*} promised *Natalie* PRO_{*i*} to leave.

In short, the MDP can account for object control and intransitive subject control but cannot account for transitive subject control. Nevertheless, the basic elements of Rosenbaum's proposal would become foundational to many other theorists' work on control.

Larson (1991) attempts to defend the MDP against the apparent exception that transitive subject control poses. He argues that TSC structures are, underlyingly, double object structures. His argument, beyond the assumption that the MDP is responsible for determining controller choice, rests on two main points: a) that ditransitive *promise* and transitive subject control *promise* are syntactically similar, and b) that controller choice is determined at deep structure. These assumptions allow Larson to demonstrate that the similarity between transitive subject control and object control structures at surface structure does not hold at deep structure and that TSC structures do conform to the MDP.

The motivation for Larson's proposal comes from the apparent parallelism between ditransitives and TSC structures.

(8) John gave *Mary* a book.

(9) John promised *Mary* a book.

(10) John gave a book to *Mary*.

(11) John promised a book to *Mary*.

In (8) through (11), it is clear that both *promise* and *give* can take a direct object and an indirect object, or a direct object and an oblique dative prepositional phrase. Note, however, that, as seen in (12) and (13), object control verbs do not occur in such structures.

(12) *John forced *Mary* a conclusion.

(13) *John forced a conclusion to *Mary*

For Larson, the dissimilarity of object control structures and TSC structures on the one hand, and the similarity of TSC structures and ditransitive structures on the other, is significant. He claims that this contrast points to fundamental differences in how control is assigned by either type of control verb. He proposes that the direct object of transitive subject control and ditransitive verbs occurs lower in the construction at deep structure than the non-finite clause and the indirect object respectively. Thus, in the case of TSC verbs, the nearest DP that c-commands the subject of the non-finite complement clause is the subject of the matrix clause, and as such, control relations can be adequately accounted for by the MDP. Since Larson proposes that control relations are determined at deep structure, the subsequent transformation, which affects both ditransitive and subject control verbs, and derives the observed surface structure that appears to violate the MDP, is inconsequential to control relationships.

As Landau (2013) points out, there are some fundamental problems with this approach. One of the most significant is the limitation of the discussion to a single verb, *promise*. Since the starting point of the argument is the similarity of transitive subject control *promise* to ditransitive *promise*, it is unclear how or why Larson's analysis would be able to capture other TSC verbs such as *threaten* or *ask/beg* in situations of control shift. These verbs do not bear the same similarities to ditransitives that are observed with *promise*. That is, like object control verbs, TSC verbs other than *promise* cannot take as complements both a direct and an indirect object, or a direct object and an oblique dative prepositional phrase. Therefore, such verbs would not be expected to be subject to the same deep structure transformations undergone by ditransitives. In sum, while Larson's argument does provide a plausible description of how the MDP may capture the transitive subject control behaviour of *promise*, it is doubtful that this argument could be applied more generally.

In addition, Hornstein (1999) and Manzini and Roussou (2000) (also Witkoś and Żychliński, 2014) represent attempts to explain control through syntactic distance and c-command relationships. These approaches depart from the accounts of Rosenbaum and Larson in that they reduce the MDP to the Minimal Link Condition (MLC). The MLC is a constraint on movement proposed to prevent the overgeneration of ungrammatical structures. It has been applied successfully to this effect to Wh-island and super-raising constructions among others (Chomsky, 1995). Here, in order to streamline the discussion, we will restrict our consideration to Hornstein (1999) on how the TSC structure fares under the MLC account of control.

Hornstein's (1999) proposal is developed within his larger aim of collapsing the distinction between control and raising in Minimalism. He contends that, while there is no disagreement that control and raising are structurally distinct, the conditions that derive them do not need to be. Hornstein argues that the theory of control within Minimalism contains unnecessary stipulations and redundancies. Among these, he contends that there is no need for the distinction between trace and PRO or between raising and control. Through this, he renders the existence of a separate control module unnecessary. A radical proposal such as this has not been without controversy and debate about its merits has been rich (Culicover and Jackendoff, 2001; Boeckx et al., 2010; Bobaljik and Landau, 2009; Landau, 2003; Boeckx and Hornstein, 2004; Hornstein and Polinsky, 2010). Leaving aside its feasibility, however, most importantly for our purposes here, it does not improve the account of transitive subject control. Compare the super-raising structure in (14) and the TSC structure in (15). Under Hornstein's analysis, both these structures violate the MLC, and so (15) is predicted to be just as unacceptable as (14). However, while acceptability judgments of the structure in (15) may vary, the structure in (14) is clearly less acceptable than (15).

- (14) *Pauline appears it is likely to succeed.
 (15) ?Pauline promised Billie to succeed.

Hornstein, instead, claims that the TSC structure is marginal and can be accounted for by markedness. While markedness may indeed be important to the explanation of transitive subject control, as Landau (2007) points out, advancing such an account based on the MLC is untenable. The MLC is not a markedness condition and violations of it have strict ungrammatical consequences.

Alternatively, Hornstein and Polinsky (2010) propose that the apparent direct object of a TSC verb is actually an indirect object complement to a null preposition, as illustrated in (16). They argue that this structure does not violate the MLC as the indirect object *Mary* no longer c-commands PRO. Under this proposal, the structural analysis of TSC sentences as in (16) would be equivalent to the structural analysis of sentences with PP complements, as in (17). Hornstein and Polinsky go on to argue that the evidence for the presence of null prepositions is rare and therefore children may have difficulty acquiring the null preposition structure, resulting in intra-speaker variation and reduced acceptability judgments of TSC structures.

- (16) John_i promised [_{PP} [_P \emptyset] [_{DP} Mary]] [PRO_i to come to the party early].
 (17) John_i vowed [_{PP} [_P to] [_{DP} Mary]] [PRO_i to come to the party early].

Raising structures often exhibit intervention effects with intervening PP experiencers. Given this, under the raising analysis of control, it is puzzling why PP complements would not count as an intervenor. Setting this aside, Landau (2013) points out that the putative PP objects in TSC sentences can induce Condition C violations (18), variable binding (19) and NPI licensing (20).

- (18) *Michelle promised [_{PP} her_i] to call Susan_i.
 (19) Michelle promised [_{PP} every girl_i] to finish her_i homework.
 (20) Michelle promised [_{PP} no player] to cancel any practice.

The results of our Experiment 1b also raise questions as to the feasibility of the null preposition analysis. We will return to this issue in section 4.

2.2. Semantic approaches

The second major body of theory on control is rooted in semantics. Early work within this branch of the literature began with Postal (1970) and his discussion of control within the wider context of co-reference. Postal proposes that there is a set of modal constraints that derive control structures. This argument is based on the observation that for certain types of verbs with non-finite clausal complements there is often a corresponding finite complement that is restricted in terms of which modal verb it may occur with. This is exemplified in (21) through (24) below.

- (21) Jane told Sarah, PRO, to leave.
 (22) Jane told Sarah, that she, ought to leave.
 (23) Jane, promised Sarah PRO, to leave.
 (24) Jane, promised Sarah that she, would leave.

The structure in (21) exemplifies object control, while the parallel sentence in (22) is a paraphrase of (21) containing a finite complement clause with the modal *ought*. Example (23) is a TSC structure and the parallel sentence in (24) is a paraphrase of (23) containing a finite complement clause with the *would* modal. Based on this, Postal suggests that there is an underlying modal quality to the non-finite complements of control verbs. The type of control, subject or object, that is associated with an individual verb is dependent on this underlying modal quality. Hence, the unexpressed subject of a non-finite complement clause that is associated with an *ought* modal is controlled by the object of the matrix clause as in (21), while the unexpressed subject of the non-finite complement clause that is associated with a *would* modal as in (23) is controlled by the subject of the matrix clause.

Jackendoff (1972), Ruzicka (1983), Chierchia (1984), and Farkas (1988) also attribute control to lexical semantics. Like Postal, many of these theories proceed with the assumption that control is a product of the meaning of the control verb and its complements. They also view control across an object (i.e., transitive subject control) as not in violation of any principle/constraint unlike explanations based in syntax as discussed above.

Farkas (1988), in particular, aims to establish what determines the choice of the controller when there is more than one possible controller present by appealing to the lexical semantics of the control verb. The solution she proposes is that control phenomena may be captured in terms of a RESPonsibility relation. Before outlining how this relation applies to controller choice, she motivates its independent linguistic relevance by pointing to three constructions that benefit from an explanation based on a RESP relation. The first of these are *in order to* adjunct clauses. As seen in (25) and (26), these constructions are acceptable only when the main clause predicate is intentional. Hence, (25) is felicitous while (26) is not.

- (25) John read War and Peace in order to impress Mary.
 (26) #John resembles his father in order to annoy his grandmother.

Notice that in (25), the verb *read* describes an activity that may be intentionally controlled, while in (26) the verb *resemble* does not. Thus, *in order to* clauses must be associated with an intentional predicate.

A similar analysis applies to the adverb *intentionally* as seen in (27) and (28). Here, (27) is felicitous while (28) is not.

- (27) John read war and peace intentionally.
 (28) #John resembles his father intentionally.

As in the *in order to* constructions above, *intentionally* may only follow those predicates in which some initiator is responsible for establishing them (i.e., intentional situations).

Finally, the identity of possible imperative verbs is restricted to those that are compatible with an intentional agent. Thus, (29) and (30) below are felicitous and (31) and (32) are infelicitous as they violate this requirement.

- (29) Be responsible!
 (30) Be polite!
 (31) #Be tall!
 (32) #Be brown-eyed!

Farkas' analysis is that imperative constructions represent a request on the part of the speaker for the addressee to bring about the situation described by the imperative. Hence, in order to be felicitous, imperatives must refer to situations which are in the control of the addressee.

With this established, Farkas argues that control is also related to the RESP relation, because the situation described by the non-finite complement clause must be able to be brought about by the controller or the controller must be responsible for the situation in some way. Thus the constructions in (33) and (34) which all describe such situations are felicitous, while the constructions in (35) and (36) are infelicitous as they describe situations which may not be intentionally controlled. Note that these facts are independent of whether the matrix clause has a subject or object control verb.

- (33) Polly promised Karen to mow the lawn.
 (34) Karen forced Polly to clean her room.
 (35) #Joe promised Paul to resemble his father.
 (36) #Paul ordered Joe to be short.

For Farkas, the crucial distinction between transitive subject and object control is one of lexical specification. For her, object control verbs are only compatible with situations in which the direct object is associated with responsibility for the situation described by the non-finite complement clause. The opposite is the case for subject control verbs which are lexically specified to be compatible only with situations in which the subject of the matrix clause is responsible for the situation described by the non-finite complement clause. The RESP relation thus allows the choice of controller to be accounted for in a similar manner for both transitive subject and object control verbs, without predicting a distinct grammatical status for the TSC structure.

2.3. Control shift

Before we proceed with the discussion of the experiments, it is necessary to review the notion of *control shift*, which is of particular relevance to Experiment 2. In most cases of subject and object control, the controller is fixed to either the subject of the matrix clause or to the direct object of the matrix clause. In cases of control shift, however, the controller “shifts” to the opposite argument. Control shift was first described by Rosenbaum (1967) and since this time various theories have attempted to provide explanations for it (Breasnan, 1982; Farkas, 1988; Sag and Pollard, 1991). The precise details of this theory are tangential to the present discussion. However, it is important to identify broadly some of the factors that influence control shift. Farkas (1988) describes three factors that influence control shift each of which will be outlined below.

First, the semantics of the matrix verb are important to the instantiation of control shift. Certain verbs are more likely to undergo shift than others. Consider (37) through (40) below.

- (37) The teacher asked the student to leave.
 (38) The student asked the teacher to leave.
 (39) The teacher told the student to leave.
 (40) The student told the teacher to leave.

Here the semantics of *ask* combined with the authority relations between the subject and object of the matrix clause (teacher/student) allow for an object control reading in (37) but a subject control reading when authority relations are reversed in (38). Note that it is possible to imagine a circumstance in which (38) exhibits object control. However, real world knowledge of interactions between teachers and students make subject control more likely. This is not the case for (39) and (40). In this pair of sentences, the semantics of *tell* allow object control to remain fixed regardless of the authority relations of the subject and object of the matrix clause.

Another factor influencing control shift that Farkas notes is the semantics of the embedded event. Consider the object control structure in (41) and the subject control structure in (42) below.

- (41) The employees asked their boss to stop yelling.
 (42) The employees asked their boss to have a day off.

Here, it is the semantics of the embedded event that instantiate the control relations observed. Interacting with these are other semantic factors, namely, the authority relations of the subject and object of the matrix clause combined with knowledge of the real world behaviour of employees, bosses and our expectations of their participation in particular events.

Finally, as has already been mentioned in the discussion of control shift thus far, authority relations of the subject and object of the matrix verb play an important role in the occurrence of control shift. It is most often the case that this factor combined with the semantics of the control verb and the semantics of the embedded event as discussed above allow for control shift phenomena to occur.

Table 1
Factors and conditions of Experiment 1a.

Transitivity	Clause type
Transitive	Finite
	Non-finite
Intransitive	Finite
	Non-finite

3. Experiment 1a: acceptability judgments for *promise* constructions

The first experiment asks to what extent speakers have robust acceptability judgments about TSC constructions with a direct object and explores the following research question:

Will the verb *promise* in transitive non-finite (i.e., transitive subject control) structures be rated as less acceptable than the verb *promise* in transitive finite, intransitive non-finite and intransitive finite structures?

3.1. Participants

Participants in this study consisted of a group of 20 native speakers of English living in and around Vancouver, British Columbia, at the time of testing. They were recruited from the population of a university community and each was compensated \$10 for participation or given a course credit.

3.2. Design

This experiment examined two factors each containing two levels, and thus had a total of four conditions ($2 \times 2 = 4$). The factor of transitivity contained the levels transitive and intransitive, and the factor of clause type contained the levels finite and non-finite. This design is summarized in [Table 1](#).

3.3. Materials

The stimuli for this experiment were 96 English sentences, including both test and filler items (32 test items + 64 filler items = 96 items in total). Four different types of test sentences were examined, each corresponding to one of the four conditions in [Table 1](#). An example of a sentence corresponding to each of the experimental conditions as well as the sentential frames used to generate the stimuli for each condition is given in [Table 2](#) below. There were eight repetitions of each of the four types of test sentences resulting in a total of 32 test sentences.²

Two separate groups of filler sentences were also included. One set consisted of 32 repetitions of sentences with a single main verb, *ask*, in the same conditions as the experimental items as seen in [Table 3](#). These were included in order to provide balance for the 32 repetitions of the verb *promise*. The second group of sentences consisted of a set of eight control verbs balanced for subject and object control. These items were again divided into the same four conditions as the test items. However, in this case, unlike the experimental sentences or *ask* filler sentences, some of the conditions yielded clearly unacceptable sentences. The inclusion of unacceptable filler sentences was thought to be necessary to encourage participants to use the entire range of the seven-point scale and to help avoid the artificially low ratings that may have resulted if sentences of indeterminate acceptability were compared only to sentences expected to be fully acceptable. Examples of subject control filler sentences are given in [Table 4](#) and examples of object control filler sentences are given in [Table 5](#). The *ask* filler sentences as well as the object control and subject control filler sentences were each repeated eight times resulting in a total of 64 filler sentences ($(4 + 4) \times 8 = 64$). A full list of the test sentences and filler sentences used in Experiment 1a is provided in [Appendix A](#).

² Crucially, we needed both the subject and the object antecedent in non-finite and finite transitive conditions to have the same gender, so that the verb *promise* would be the sole determinant of the referent of PRO or *she* in the embedded clause. A reviewer observes that this may have led to uncertainty on the part of the participants and thus may have resulted in a reduction in acceptability particularly in the finite transitive condition. Indeed, the mean proportion of correct answers on the comprehension questions in the transitive finite condition (.72) was lower than in transitive non-finite (.77), intransitive finite (.97) and intransitive non-finite (.92). Nevertheless, our results show that the mean acceptability rating of the finite transitive condition is as high as the mean ratings of the finite and the non-finite intransitive conditions. We thus do not think that a possible uncertainty in the referent of the embedded pronoun would have been a confound.

Table 2
Stimuli template and example sentences by condition for Experiment 1a.

Transitive Finite <i>promise</i>	
Sentence Frame	[Female personal name A] promised [Female personal name B] she would [transitive verb phrase]
Example	Helen promised Crystal she would mow the lawn.
Transitive Non-finite <i>promise</i>	
Sentence Frame	[Female personal name A] promised [Female personal name B] to [transitive verb phrase]
Example	Jen promised Ruby to mow the lawn.
Intransitive Finite <i>promise</i>	
Sentence Frame	[Female personal name A] promised she would [transitive verb phrase]
Example	Hazel promised she would mow the lawn.
Intransitive Non-finite <i>promise</i>	
Sentence Frame	[Female personal name A] promised to [transitive verb phrase]
Example	Lillian promised to mow the lawn.

Table 3
Examples of *ask* filler sentences by condition for Experiment 1a.

	Finite	Non-finite
Transitive	Sophia asked Zoe if she could eat more vegetables.	Ida asked Norma to eat more vegetables.
Intransitive	Rita asked if she could eat more vegetables.	Kayla asked to eat more vegetables.

Table 4
Subject control filler examples for Experiment 1a.

	Finite	Non-finite
Transitive	*Judith declined Linda she would attend the party.	*Margaret declined Alison to attend the party.
Intransitive	*Gail declined she would attend the party.	Lisa declined to attend the party.

Table 5
Object control filler examples for Experiment 1a.

	Finite	Non-finite
Transitive	*Marilyn ordered Gloria she should clean the garage.	Danielle ordered Betty to clean the garage.
Intransitive	*Roberta ordered she should clean the garage.	*Tammy ordered to clean the garage.

3.4. Procedure

Materials in this experiment were presented visually to participants on a desktop computer using WebExp (Keller et al., 2009), a software package for conducting linguistic experiments. In this experiment, participants were asked to read and rate the 96 items discussed above according to “naturalness” and “acceptability”. Rating was conducted on a scale of 1 to 7, 1 being “not natural or not acceptable” and 7 being “natural or acceptable”. In order to determine whether or not participants had interpreted the PRO or the embedded pronoun as intended, a comprehension question followed the presentation of each stimulus sentence. Participants responded to questions by entering ‘y’ for yes and ‘n’ for no. The order in which the stimuli were presented was uniquely randomized for each participant. Participants’ responses were not timed.

3.5. Findings and discussion

The results of this experiment are summarized in Fig. 1, which represents the combined means for all participants by condition. Here, it is seen that the mean score for the transitive non-finite condition (5.17) is below all other conditions. The ratings given to the transitive finite (6.23), intransitive non-finite (6.76) and intransitive finite (6.58) conditions are on par. Thus, on average, participants rated the transitive non-finite condition below the other three conditions, which were all given similar ratings.

A repeated-measures ANOVA (analysis of variance) was conducted on the experimental results using the statistical software package R (R Core Development Team, 2013). As mentioned previously, this experiment examined two factors,

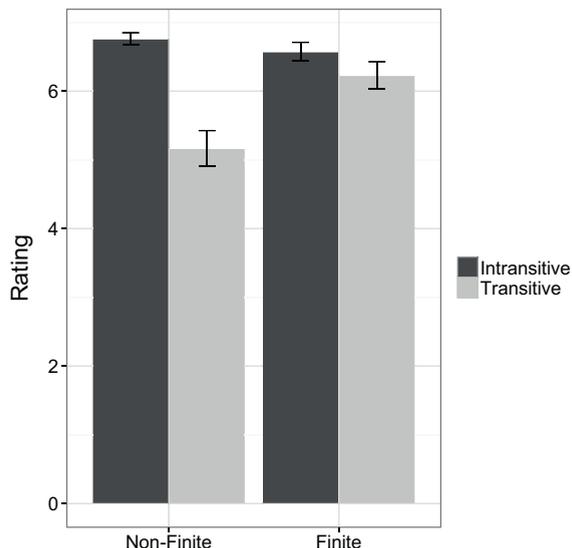


Fig. 1. Mean results of Experiment 1a.

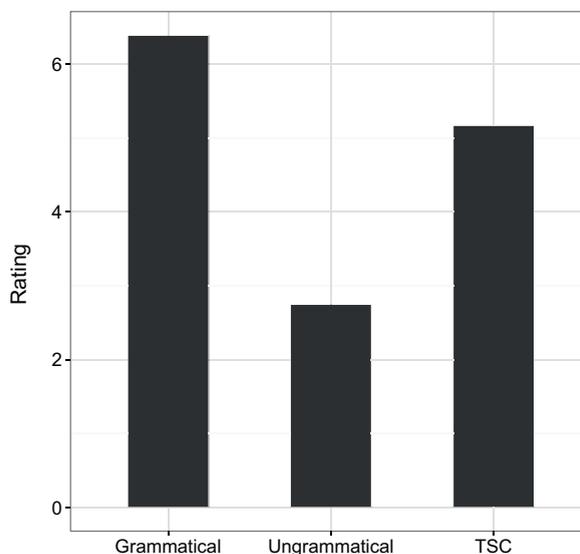


Fig. 2. Mean results of grammatical fillers, ungrammatical fillers, and TSC sentences in Experiment 1a.

each containing two levels, resulting in a total of four conditions, as seen in Table 1. The analysis yielded main effects of clause type ($F(1, 19) = 11.26, p < 0.01$) and transitivity ($F(1, 19) = 29.48, p < 0.001$), and an interaction between these two factors ($F(1, 19) = 25.17, p < 0.001$).³

These findings taken together can address the main research question of this experiment: the verb *promise* in the transitive non-finite (transitive subject control) structure is rated significantly less acceptable than the verb *promise* in transitive finite, intransitive non-finite and intransitive finite structures. A locality principle such as the MDP, thus, seems to be in effect in control structures.

The mean rating of the TSC structure (5.17), however, is much higher than the mean rating of clearly ungrammatical fillers (2.75), and is only slightly lower than the mean rating of clearly grammatical fillers (6.39), as shown in Fig. 2. That is, although the TSC structure has reduced acceptability, it is not as unacceptable as clearly ungrammatical items. This suggests that

³ The pattern of mean ratings and the findings did not change when the trials with incorrectly answered comprehension questions were excluded from the analysis. Here, the mean rating for the transitive non-finite condition (5.24) was again below the mean ratings for the transitive finite (6.17), intransitive non-finite (6.80) and intransitive finite (6.57) conditions.

while something like the MDP is in effect in control, it is not a hard constraint a violation of which results in ungrammaticality. The MDP that applies in control structures should not be interpreted as a locality principle on a par with the MLC, but should instead be taken as a soft constraint (Keller, 2000; Sorace and Keller, 2005), or a preference condition for the closest c-commanding DP as a controller. While the violation of hard constraints, such as the MLC, causes strong unacceptability, the violation of soft constraints causes only mild unacceptability. According to Keller (2000), another distinguishing characteristic between hard and soft constraints is that the violation of the former leads to strong unacceptability that is uniform, while the violation of the latter leads to mild unacceptability that varies across speakers and across context. The results of the acceptability ratings of the TSC structure in Experiment 1a show not only reduced acceptability but variation in the acceptability. We return to the issue of the reduced and varied acceptability of TSC structures in section 6.

4. Experiment 1b: acceptability judgments for subject control across PP complements

This experiment tests whether the reduction in the acceptability of transitive subject control across a direct object in *promise* sentences generalizes to transitive subject control across a PP complement with verbs other than *promise*. The research question we explore thus can be formulated as follows:

Will the verbs with a PP complement in transitive non-finite structures be rated as less acceptable than the verbs with a PP complement in transitive finite, intransitive non-finite and intransitive finite structures?

4.1. Participants

The participants in this study were 20 native English speakers living in and around Vancouver, British Columbia at the time of testing. None of them had participated in Experiment 1a. All were recruited from the population of a university community and each was compensated \$10 for participation or given a course credit.

4.2. Design and procedure

Experiment 1b had the same design as Experiment 1a. It was conducted using WebExp, following the same procedure as Experiment 1a. Participants read and rated 32 test sentences and 64 fillers, in a random order. As in Experiment 1a, a comprehension question followed the presentation of each stimulus sentence, and participants' responses were not timed.

4.3. Materials

Just as in Experiment 1a, the test materials for Experiment 1b were eight repetitions of each condition. Unlike Experiment 1a, however, the test items in each condition were generated from *vow*, *pledge*, *commit* and *guarantee*. Half of the test items had a PP complement and the other half did not. Within each group of test items, half of them contained a non-finite embedded clause and the other half contained a finite embedded clause. An example of a sentence corresponding to each of the experimental conditions, generated from *vow*, is given in Table 6. The filler sentences for this study were the same as in Experiment 1a.

4.4. Findings and discussion

Combined mean ratings for all participants by condition are shown in Fig. 3. The results are very similar to Experiment 1a. Just as in Experiment 1a, here, mean score for the transitive non-finite condition (5.13) is lower than the transitive finite (5.99), intransitive non-finite (6.14), and intransitive finite conditions (6.06).

Table 6
Example sentences by condition for Experiment 1b.

Transitive Finite vow	
Example	Paula vowed to Laura that she would organize the next dinner party.
Transitive Non-finite vow	
Example	Paula vowed to Laura to organize the next dinner party.
Intransitive Finite vow	
Example	Paula vowed that she would organize the next dinner party.
Intransitive Non-finite vow	
Example	Paula vowed to organize the next dinner party.

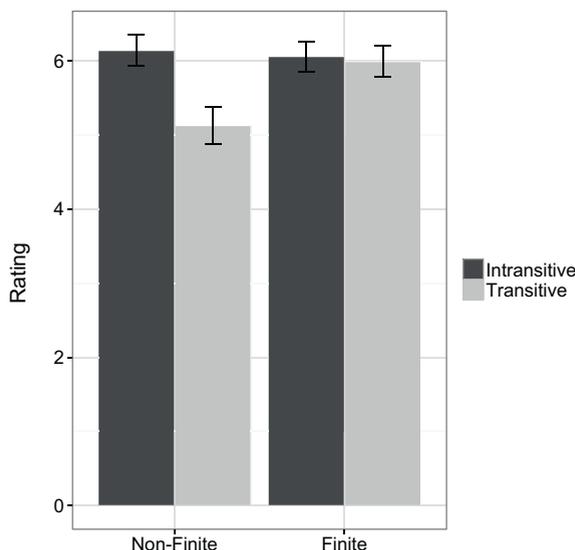


Fig. 3. Mean results of Experiment 1b.

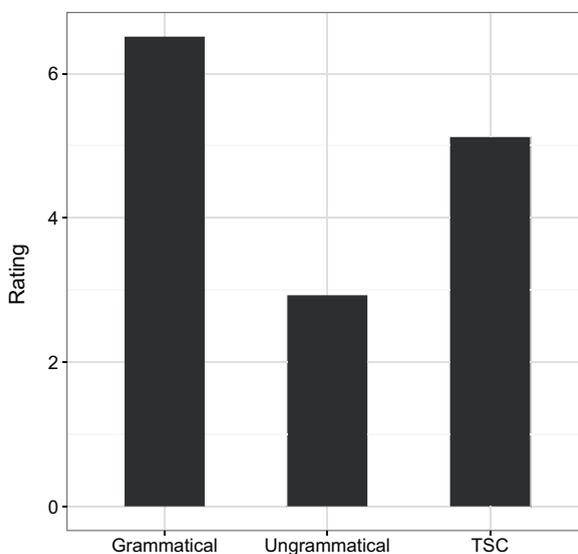


Fig. 4. Mean results of grammatical fillers, ungrammatical fillers, and TSC sentences in Experiment 1b.

A repeated-measures ANOVA revealed main effects of clause type ($F(1,19) = 17.15, p < 0.001$) and transitivity ($F(1,19) = 19.55, p < 0.001$), and an interaction between the two factors ($F(1,19) = 23.88, p < 0.001$). These results taken together can answer the main research question of this experiment: the verbs with a PP complement in transitive non-finite structures are rated significantly less acceptable than the verbs in transitive finite, intransitive non-finite and intransitive finite structures.⁴

Further, just as in Experiment 1a, the reduction in acceptability in verbs with a PP complement in the TSC structure is not on par with clearly ungrammatical fillers. The mean rating of the TSC structure with a PP complement (5.13) is much higher than the mean rating of clearly ungrammatical fillers (2.94), and is only slightly lower than the mean rating of clearly grammatical fillers (6.52), as shown in Fig. 4.

⁴ The pattern of mean ratings and the findings did not change when the trials with incorrectly answered comprehension questions were excluded from the analysis. Here, the mean rating for the transitive non-finite condition (5.39) was again below the mean ratings for the transitive finite (6.09), intransitive non-finite (6.14) and intransitive finite (6.10) conditions.

Table 7
Syntactic/semantic violations of Experiment 2 conditions.

Shift	Control	MDP	Semantics	Example
Canonical	Subject	*	–	The employee promised the supervisor to complete the report.
	Object	–	–	The parent asked the child to take out the garbage.
Shifted	Subject	*	*	The player asked the coach to miss the next practice.
	Object	–	*	The parent promised the child to stay up late on the weekend.

These findings suggest that in TSC structures, a PP complement functions as an intervenor, similarly to a direct object. We see an effect of the MDP in control structures, regardless of the categorial status of the intervening argument between the controller in the matrix clause and the PRO in the embedded non-finite clause. We also see that an intervening PP complement results in a mild reduction in acceptability similarly to an intervening direct object, and the reduction in acceptability here is not as severe as with clearly ungrammatical items. These results reinforce the notion that the MDP that is in effect in control should be taken as a soft constraint, or a general preference condition for the closest c-commanding argument as a controller, and not as a locality principle on par with the MLC. Furthermore, our findings undermine Hornstein and Polinsky's (2010) proposal that the objects in TSC structures are actually indirect objects that are complements to a null preposition. Recall that for Hornstein and Polinsky, the inter-speaker variation and the reduced acceptability of TSC sentences are attributed to the difficulty that children may have in acquiring the null preposition analysis. But this approach predicts that TSC sentences with an overt preposition should not be degraded at all. The fact that TSC structures with PP complements are as degraded as the ones with DP complements indicates that the presence or absence of P plays no role in obviating the effect of locality.

5. Experiment 2: assessing the influence of both syntax and semantics

This experiment examines the acceptability of TSC structures containing four different verbs (*promise*, *threaten*, *ask*, and *beg*). Expanding beyond the scope of the first two experiments, we consider the influence of both syntax and semantics, as well as the interaction of these, on acceptability. The aim of Experiment 2 is not only to provide a description of the acceptability of transitive subject control, but also to better understand which aspects of the syntactic and semantic approaches reviewed in section 2 best account for transitive subject control. The main research question for this experiment is stated below:

Will the acceptability ratings provided by participants correlate with violations of syntactic principles or lexical semantics such that items containing either violations will be rated as less acceptable than those that do not?

This experiment examines two factors; control type that contains the levels subject control and object control, and control shift that contains the levels shifted and canonical (i.e., structures not under the influence of control shift). In the experimental conditions considered here, there are two violations of syntax/semantics thought to be relevant. One is a violation of the MDP. Recall that the MDP is violated in all cases in which a potential controller intervenes between PRO and the controller in control structures. Thus, in this experiment, all TSC structures violate the MDP. The other relevant violation concerns lexical semantics. It is assumed that a violation is incurred in all cases in which the control structure associated with a given verb is other than that which speakers use most regularly. Namely, this violation applies to all verbs that have undergone control shift. Thus, in this experiment, all stimuli to which this violation applies are in the shifted condition, while for all those which remain in their canonical control type there is no violation.⁵ This is summarized in Table 7, wherein * indicates that a violation of a principle under consideration is incurred, and – indicates that no violation is incurred. Example sentences illustrating each combination of violations are given in Table 7 as well.

Our experimental design thus makes the following predictions on the acceptability ratings. First, if control is subject to the syntactic constraints only, then the TSC structure should be rated lower than the object control structure, regardless of control shift. Second, if control is subject to semantic constraints only, then the control shifted structure should be rated lower than the canonical structure, regardless of control type. Finally, if control is subject to both the syntactic and semantic constraints, then the control shifted structure regardless of control type, and the TSC canonical structure should

⁵ As an anonymous reviewer points out, previous research (Sag and Pollard, 1991; Panther and Köpcke, 1993; Jackendoff and Culicover, 2003) addresses these phenomena as a kind of accommodative interpretation, which Sag and Pollard (1991:82) label as “coercion”, because even though it may seem that they involve the violation of the semantically determined controller, they are in fact interpretable within appropriate contextualization. Although we recognize the validity of this point, we prefer to not adopt the term “coercion”, because it assumes a qualitative difference between syntactic and semantic constraints that is not confirmed by the results of this study.

Table 8
Factors and conditions of Experiment 2.

Control shift	Control type
Canonical	Subject Object
Shifted	Subject Object

Table 9
Verbs used in stimuli for Experiment 2.

Control	Shift	Verbs	Example Stimuli
Subject	Canonical	<i>promise, threaten</i>	The player threatened the coach to quit the team.
	Shifted	<i>ask, beg</i>	The player begged the coach to have more ice time.
Object	Canonical	<i>ask, beg</i>	The parent asked the child to take out the garbage.
	Shifted	<i>promise, threaten</i>	The parent promised the child to stay up late on the weekend.

be rated lower than the object control canonical structure. Further, assuming that there is an additive effect of syntactic/semantic violations, that is, the greater the number of both syntactic and semantic violations the lower the acceptability of the construction is expected to be, the subject control shifted structure is predicted to be rated lowest overall because it violates both syntactic and semantic constraints. In contrast, the subject control canonical condition and the object control shifted condition are predicted to be rated similarly as these conditions are both associated with a single violation of syntax and semantics respectively.

5.1. Participants

The participants in this experiment were 25 native English speakers living in and around Vancouver, British Columbia at the time of testing. None of them had participated in Experiment 1ab. All were recruited from the population of a university community and each was compensated \$10 for participation.

5.2. Design

As mentioned above, the factors in this experiment are control type, containing the levels subject control and object control, and control shift, containing the levels shifted and canonical. Thus, this experiment has two factors with two levels each, resulting in a total of four conditions ($2 \times 2 = 4$). This design is summarized in Table 8.

5.3. Materials

The materials in this experiment were four repetitions of each condition resulting in a total of 16 test items ($4 \times 4 = 16$). A set of four verbs was selected for use in these experimental stimuli. These were two TSC verbs (*promise* and *threaten*) and two object control verbs capable of control shift (*ask* and *beg*), as noted by Landau (2013). The verbs *promise* and *threaten* were used in the stimuli for the subject control canonical condition and the object control shifted condition.⁶ The verbs *ask* and *beg* were used in the stimuli for the object control canonical and the subject control shifted conditions. A summary of the verbs used in each condition is provided in Table 9. All matrix verbs in these stimuli were past tense and appeared in the transitive control structure. An example of a stimulus sentence from each condition is provided in the third column.

Participants were also presented with 130 filler sentences, 72 of which were sentences from a separate experiment on co-reference. The fillers also included 16 control sentences, 16 passive sentences derived from control sentences and

⁶ A reviewer observes that *threaten* may not be a good TSC verb, as Jackendoff and Culicover (2003) argue that it cannot take an object and an infinitive together. In our experiment, each test sentence was presented with a comprehension question testing whether participants had interpreted the sentence with the intended control structure. The proportions of correct answers for *promise* and *threaten* sentences in the subject control canonical condition were 0.8 and 0.82 respectively. We thus conclude that our participants treated *threaten* as a TSC verb to the same extent that they treated *promise* as a TSC verb.

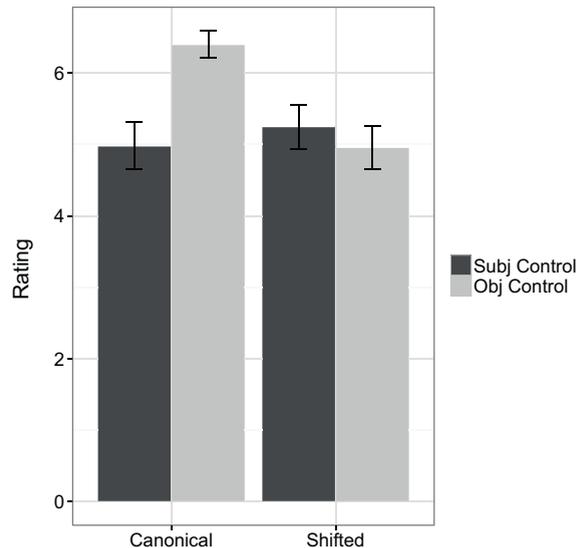


Fig. 5. Mean results of Experiment 2.

16 finite sentences in the same conditions as the experimental items. A full list of test sentences and filler sentences used for Experiment 2 (excluding the sentences from the co-reference experiment) is provided in [Appendix C](#).

5.4. Procedure

In this experiment participants were asked to rate the 146 stimuli (16 test items + 130 fillers = 146) on a seven-point scale of “naturalness and acceptability”, 1 being “not natural or not acceptable” and 7 being “natural or acceptable”. In order to determine whether or not participants had interpreted the stimuli using the intended control structure, a comprehension question followed the presentation of each stimulus sentence. Participants responded to questions by entering ‘y’ for yes and ‘n’ for no. Stimuli were presented in a random order uniquely generated for each participant. Participants’ responses were not timed.

5.5. Findings and discussion

The mean results of this experiment are summarized in [Fig. 5](#) (refer to [Table 7](#) above for an outline of the experimental design). Here, it can be seen that the mean rating of the object control canonical condition (6.4) is above the subject control canonical (4.98), subject control shifted (5.25) and object control shifted condition (4.96) ratings.

A repeated-measures ANOVA was conducted using the statistical software package R ([R Core Development Team, 2013](#)). Here, the factors of control type and shift were tested for interaction and main effects. We found main effects of both control type ($F(1,24) = 16.25, p < .001$) and control shift ($F(1,24) = 9.01, p < .01$), and an interaction between the two factors ($F(1,24) = 34.43, p < .001$). These results taken together indicate that the object control canonical condition is rated significantly higher than the other three conditions.⁷

Overall, these results pattern with the predictions of the approach that control is subject to both syntactic and semantic constraints. The significantly higher rating of the object control canonical condition above the other three conditions is as predicted, as are the similar ratings of the subject control canonical and the object control shifted conditions. However, contrary to the predictions of the syntax/semantics combined approach, a lower overall rating for the subject control shifted condition was not found.

Recall that the combined approach predicted that the acceptability ratings provided by participants will correlate with violations of syntactic principles and lexical semantics, such that items containing either violation will be rated as less acceptable than those that do not. Specifically, it predicted that constructions that violate the MDP (i.e., transitive subject control) and constructions violating the lexical semantics of verbs (i.e., control shifted structures) will be rated below

⁷ The pattern of mean ratings and the findings did not change when the trials with incorrectly answered comprehension questions were excluded from the analysis. Here, the mean rating for the object control canonical condition (6.36) was again above the mean ratings for the subject control canonical (4.93), subject control shifted (5.41) and object control shifted (5.09) conditions.

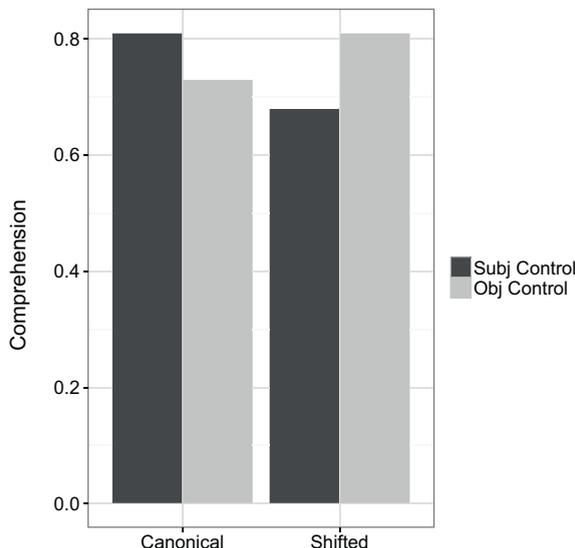


Fig. 6. Comprehension question results for Experiment 2.

structures that do not incur such violations. What remains to be explained however is why the subject control shifted condition, which was expected to incur two violations, one of the MDP and one of lexical semantics simultaneously, was not rated below the conditions that incur either of these violations in isolation.⁸

Two explanations of why this may be the case appear possible. The first is that, contrary to assumptions made in the design of the experiment, multiple simultaneous violations of syntax or semantics may not result in greater reductions in acceptability than singular violations alone. If this is true, then a lower overall rating of the subject control shifted condition would not be predicted and the results found here would be as expected. A second possibility is that multiple simultaneous violations of syntax or semantics do result in greater reductions in acceptability than singular violations alone. However, the violation of lexical semantics expected for the subject control shifted condition is not manifested in the stimuli examined here.

Determining the possibility of the first scenario is not within the scope of this experiment or the present discussion. However, some evidence is found here in support of the second. It is possible that the two object control verbs included in the study (*ask* and *beg*) are highly prone to control shift. Thus, in comparison to *promise* and *threaten*, it is reasonable to expect that these verbs would incur less of a violation of acceptability in circumstances of control shift. Evidence in support of this explanation is found in the responses to the comprehension questions, the results of which are summarized in Fig. 6. Here, the subject control shifted items and the object control canonical items received a lower number of correct responses compared to the subject control canonical and the object control shifted items. This indicates that for all occurrences of *ask* and *beg*, participants were less likely to interpret the control structure as intended. Thus, it appears that even when authority relations between the subject and direct object of the matrix clause are manipulated in order to instantiate control shift, both subject and object control remain possible for *ask* and *beg*. Therefore, it may be concluded that the control relations of *ask* and *beg* are ambiguous.

Considering the acceptability ratings again with the potential high shiftability of *ask* and *beg* in mind, the similar ratings of the subject control canonical, subject control shifted and object control shifted conditions may now be explained. Examine Table 10 which presents the violations expected with the propensity of *ask* and *beg* to shift taken into account.

⁸ We thank an anonymous reviewer for suggesting an alternative method of testing for the influence of semantics. The suggestion was to compare neutral TSC contexts, as in (i), to TSC contexts in which some RESPonsibility relation is present such that the subject of the matrix clause is responsible for the event described by the non-finite complement clause, as in (ii). Under this approach an influence of semantics could be said to be found if the RESP TSC items were rated higher than the neutral TSC items.

- (i) Kelly promised Margo to cook dinner.
- (ii) The coach promised the hockey player to provide more ice time.

We predict, however, that such sentences should be rated similarly as they both contain a violation of syntax (i.e., a violation of the MDP). It turns out that our test items in the transitive non-finite condition in Experiment 1a and the test items in the subject control canonical condition in Experiment 2 illustrate the neutral TSC items and the subject RESP TSC items respectively. Indeed, it can be observed that the acceptability ratings for the neutral TSC items in Experiment 1a and the ratings for the subject RESP TSC items in Experiment 2 are similarly reduced.

Table 10
Syntactic/semantic violations of Experiment 2 conditions (revised).

Control shift	Control type	MDP	Semantics
Canonical	Subject	*	–
	Object	–	–
Shifted	Subject	*	–
	Object	–	*

Note that here, the subject control shifted condition is only associated with one violation of the MDP and none of lexical semantics. If, as suggested, the control relations of *ask* and *beg* are ambiguous, then a violation of lexical semantics would not be expected here. Thus, following this reanalysis, the three conditions (subject control canonical, subject control shifted, object control shifted) are similar because in each case only one violation of syntax or lexical semantics is incurred. The MDP is violated in the case of the two subject control conditions, lexical semantics is violated in the case of the object control shifted condition and no condition incurs both violations simultaneously. Therefore, under the syntax/semantics combined approach to control, all conditions, with the exception of the object control canonical, which was not associated with any violations, would be expected to receive similar ratings.

6. General discussion

The three experiments presented in this paper were motivated by theoretical difficulties in accounting for transitive subject control. The first two experiments employed an acceptability judgment task to examine control structures occurring with the verb *promise* and a direct object, and control structures occurring with *vow*, *pledge*, *commit*, *guarantee* and a PP complement. These experiments each examined two factors, transitivity and clause type, and participants assigned acceptability ratings to four separate conditions (transitive non-finite, transitive finite, intransitive non-finite and intransitive finite). They sought to determine whether the TSC condition (transitive non-finite) would be rated below the three other conditions. For both experiments, the results of the statistical analysis found main effects of clause type and transitivity as well as an interaction between these factors, driven by the fact that TSC structures with a direct object or a PP complement are of reduced acceptability. This finding suggests that a locality principle such as the MDP is in effect in the control phenomenon, and that it should be taken as a preference condition or a soft constraint rather than a hard constraint, such as the MLC, a violation of which would result in ungrammaticality. This also suggests that control should not be reduced to movement which is subject to the MLC. Moreover, the MDP that is in effect in control is distinct from the principles of antecedent resolution for overt pronouns, as is evident from the fact that pronouns in embedded finite clauses could easily be co-referential with the matrix subject over the matrix object.

The third experiment examines the TSC structure with four different verbs and explores the impact of both syntactic and semantic factors on its acceptability, by testing the factors of control type and control shift with the verbs *promise*, *threaten*, *ask* and *beg*. The results of this study found main effects of control type and control shift and an interaction between the two factors, driven by the fact that the TSC canonical structure, TSC shifted structure and object control shifted structure all showed reduced acceptability in comparison to the object control canonical structure.

The results of this third experiment are of particular theoretical importance. Recall that there are two main theoretical accounts of control – a semantic-based explanation and a syntactic-based one. The basic claim of accounts of control reliant on syntax is that control is related to locality. That is, under these approaches the subject of the non-finite clause becomes associated with a controller in the matrix clause based on the proximity of these two elements. Thus, the noun closest to the non-finite complement clause will be co-referenced with the subject of that clause. Early theories accounted for this based on the Minimal Distance Principle (Jacobs and Rosenbaum, 1970) and later work related this to the Minimal Link Condition (Hornstein, 1999; Manzini and Roussou, 2000). This approach accurately describes the behaviour of both intransitive subject control and object control but cannot provide a satisfactory account of transitive subject control. The other main theoretical approach is based on semantics. The solutions proposed to account for control within this approach are more diverse than those suggested by syntactic theorists (Postal, 1970; Jackendoff, 1972; Ruzicka, 1983; Chierchia, 1984; Farkas, 1988). While many of these approaches are capable of accurately describing the control relations exhibited in TSC structures, they are not able to account for the reduced acceptability or rarity of these structures.

The design of the third experiment allows the degree to which either of these accounts contributes to the resolution of controller choice to be compared. The results show that, as predicted by the syntactic accounts, violation of the (soft) locality constraints do lead to reductions in acceptability. Further, as would be expected by accounts reliant on lexical semantics, verbs under the influence of control shift (i.e., verbs that do not occur in canonical control relations) also lead to reductions in acceptability. Together, these findings point to evidence in support of an analysis of control that incorporates

Table 11
Stimuli of relevant constructions from Exp 1ab and Exp 2.

Exp 1a: transitive non-finite stimuli with a direct object

- a) Jen promised Ruby to mow the lawn.
- b) Erin promised Stella to fix the car.
- c) Steph promised Sarah to buy some milk.
- d) Kat promised Mia to bake more cookies.
- e) Mindy promised Liz to fold the laundry.
- f) Kelly promised Michelle to unplug the TV.
- g) Allie promised Annette to boil more water.
- h) Marie promised Bianca to write more songs.

Exp 1b: transitive non-finite stimuli with a PP complement

- a) Paula vowed to Laura to organize the next dinner party.
- b) Mary-Lee pledged to Jennifer to clean the garage on the weekend.
- c) Ellen committed to Susan to stop drinking for three months.
- d) Betty guaranteed to Linda to refrain from posting embarrassing pictures on Facebook.
- e) Danielle vowed to Amanda to floss more regularly.
- f) Jane pledged to Sandra to iron the linens with greater care.
- g) Kate committed to Liz to repaint the back porch before the Fall.
- h) Nancy guaranteed to Lucy to walk the dogs twice a day.

Exp 2: subject control canonical stimuli

- a) The player threatened the coach to quit the team.
 - b) The player promised the coach to score more goals.
 - c) The employee threatened the supervisor to file a complaint.
 - d) The employee promised the supervisor to complete the report.
-

elements from both of these main approaches. Neither account is able to provide an explanation of the results of Experiment 2 in isolation. The syntactic approach cannot explain the reduced acceptability of the stimuli under control shift and similarly the semantic approach has no mechanism for explaining the reduced acceptability of the TSC stimuli.

One limitation of the design of our third experiment is that we mainly manipulated authority relation for control shift. But as a reviewer points out, and is also discussed in section 2.3, there are a number of factors that could aid control shift. A reviewer in particular notes that the most favourable context for control shift with *promise* is the *be allowed to* complement, as in (43).

(43) The parent promised the child to be allowed to stay up late on the weekend.

Finding a reduction in acceptability with test items such as (43) would further strengthen the conclusion that lexical semantics of control verbs must be incorporated in a theory of control. We leave for future research whether and how varied ways of aiding control shift influence acceptability of control structures.

If elements from both syntax and semantics, in any case, contribute in adequately accounting for the facts surrounding the acceptability of control, we might expect that some interaction of these two methods of interpretation is responsible for the reduced acceptability of TSC items, and that the way the two methods of interpretation interact may vary across speakers or across situations.

In order to explore this, it is necessary to reconsider the results of Experiments 1ab and 2. In particular, it is informative to consider the responses of individual participants to each of the TSC test items, provided in Table 11.

Consider first the ratings assigned by each participant to the TSC test items in Experiment 1a displayed in Fig. 7. Here, it appears that there is variation both in the ratings assigned between individual participants but also in some cases the ratings by an individual participant may vary widely. Three participants (p9, p17, p1) have assigned consistently high ratings (6 or above) to all items. Some participants assign consistently mid-rank rating to all items ranging from 3 to 5 (p2, p10), or ranging from 4 to 6 (p14). There is far greater variation among the remaining participants, with p15 demonstrating the lowest ratings overall with scores ranging from 1 to 4.

Similarly to Experiment 1a, both between and within participant variation is attested in the ratings assigned to the TSC test items in Experiment 1b. This is demonstrated in Fig. 8.

Ratings assigned by each participant in Experiment 2, presented in Fig. 9, also provide evidence for both between and within participant variation. Like Experiment 1ab, here there is also evidence of participants with consistent rating patterns. Such as, p9, p3, p8 and p10, which assigned a rating of 6 or 7 to all stimuli, or p12 and p17 which provided a rating of 2 or 3 to all stimuli. There is also evidence of within participant variation as exhibited by p21, p7, p24 among others in which the responses to the test items differ widely.

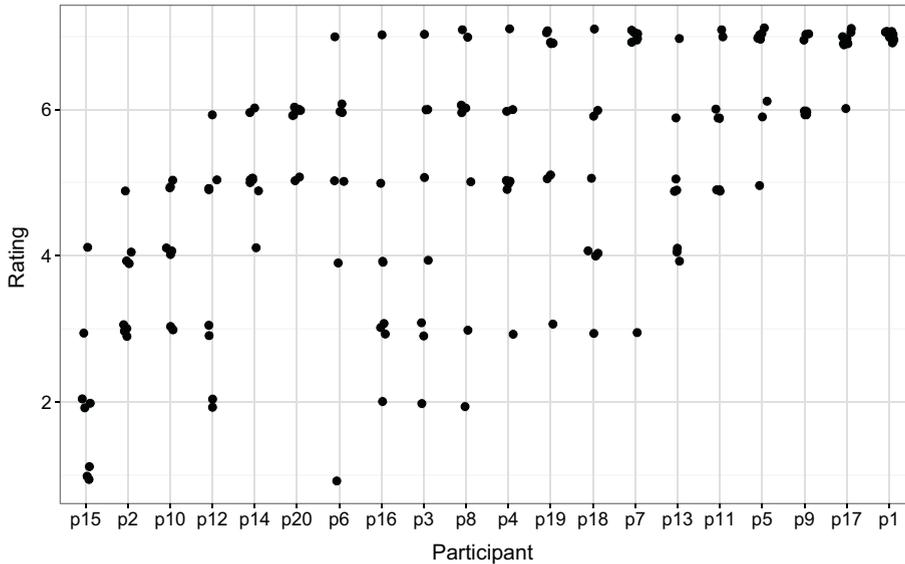


Fig. 7. By-participant results of Experiment 1a.

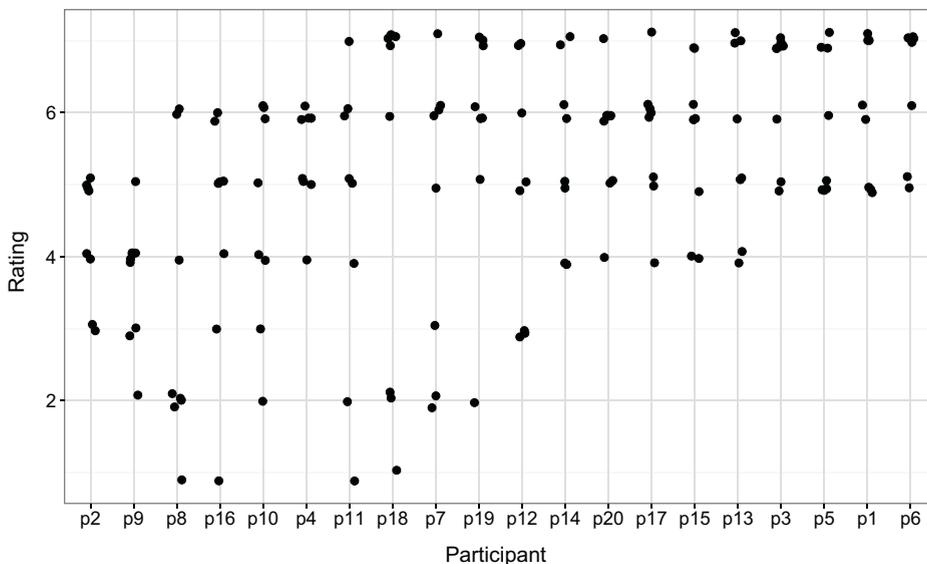


Fig. 8. By-participant results of Experiment 1b.

The results of these three experiments arguably demonstrate not only that both semantic and syntactic strategies are used by speakers to interpret TSC structures but also that there are several different manners in which the use of these strategies may be employed. Recall that based on the theoretical literature, transitive subject control is expected to be grammatical according to semantic accounts and ungrammatical according to syntactic accounts due to violation of locality constraints. Thus, it appears that speakers who assign consistently high ratings to stimuli, such as p9, p17, p1 in Experiment 1a and p9, p3, p8 and p10 in Experiment 2, employ predominantly semantic strategies to interpret transitive subject control. Conversely, speakers who assign consistently low ratings, such as p12 and p17 in Experiment 2, appear to employ predominately syntactic strategies of interpretation.

Beyond this, it appears that some speakers do not exhibit a preference for either strategy and, thus, both strategies are available simultaneously. These speakers may interpret TSC structures using semantic strategies in some cases yielding high acceptability ratings, syntactic strategies in some cases yielding low acceptability ratings, and both strategies at the same time in others yielding intermediate ratings.

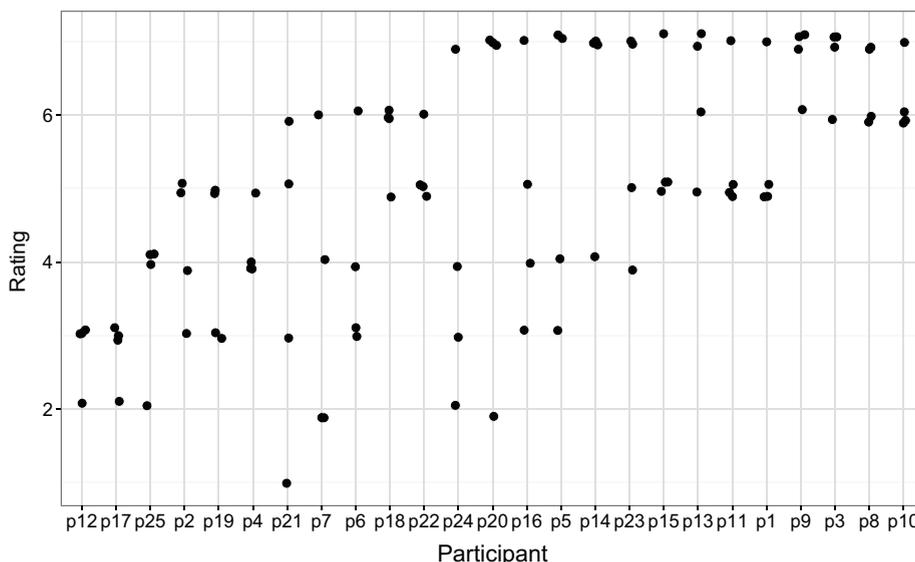


Fig. 9. By-participant results of Experiment 2.

The proposed conflict between syntactic and semantic strategies used in interpreting transitive subject control may also be responsible for the rarity of the structure in naturally occurring speech. It could be argued that as the two strategies assign conflicting grammatical status to the TSC structure, a speaker may avoid the structure altogether and instead choose an alternative structure, such as a corresponding sentence with a finite embedded clause.

Alternatively, as a reviewer points out, there could be an additional variable that we did not uncover that interacts with both the MDP and the lexical semantics manipulated here. If so, this additional variable could be a basis for idiolectal variation, resulting in gradience and variation in acceptability judgments. We fully acknowledge that this is a possibility and leave the exploration of other factors in the grammar of control for future research.

To conclude, the research presented in this paper provides empirical data on the facts surrounding transitive subject control and demonstrates that both syntax and lexical semantics are likely to impact the acceptability of this structure. The facts surrounding control are indeed complex and incorporate a far broader range of phenomena than that discussed here. However, the results of these experiments suggest that an analysis of transitive subject control that incorporates both the semantic and syntactic accounts put forth in the literature is superior than an analysis based on semantics or syntax alone.

Acknowledgements

We are grateful to the three anonymous reviewers for their insightful comments and questions that were crucial in improving this paper. We also thank the members of the Experimental Syntax Lab at SFU for many useful discussions along the way. The research reported here was partially supported by SSHRC 410-2007-2169 and SSHRC 435-2014-0161 to Han.

Appendix A. Experiment 1a: Stimuli

A.1. Test sentences

Transitive finite

1. Helen promised Crystal she would mow the lawn.
Did Helen promise that Crystal would mow the lawn?
No
2. Margaret promised Amina she would fix the car.
Did Margaret promise to fix the car?
Yes

3. Ruth promised Alisha she would buy some milk.
Did Ruth promise that Alisha would buy some milk?
No
4. Virginia promised Molly she would bake more cookies.
Did Virginia promise to bake more cookies?
Yes
5. Frances promised Karen she would fold the laundry.
Did Frances promise that Karen would fold the laundry?
No
6. Betty promised Emma she would unplug the TV.
Did Betty promise to unplug the TV?
Yes
7. Evelyn promised Casey she would boil more water.
Did Evelyn promise that Casey would boil more water?
No
8. Florence promised Anne she would write more songs.
Did Florence promise to write more songs?
Yes

Transitive non-finite

9. Jen promised Ruby to mow the lawn.
Did Jen promise to mow the lawn?
Yes
10. Erin promised Stella to fix the car.
Did Erin promise that Stella would fix the car?
No
11. Steph promised Sarah to buy some milk.
Did Steph promise to buy some milk?
Yes
12. Kat promised Mia to bake more cookies.
Did Kat promise that Mia would bake more cookies?
No
13. Mindy promised Liz to fold the laundry.
Did Mindy promise to fold the laundry?
Yes
14. Kelly promised Michelle to unplug the TV.
Did Kelly promise that Michelle would unplug the TV?
No
15. Allie promised Annette to boil more water.
Did Allie promise to boil more water?
Yes
16. Marie promised Bianca to write more songs.
Did Marie promise that Bianca would write more songs?
No

Intransitive finite

17. Hazel promised she would mow the lawn.
Did Hazel promise to mow the lawn?
Yes
18. Grace promised she would fix the car.
Did Lois promise to fix the car?
No
19. Lois promised she would buy some milk.
Did Lois promise to buy some milk?
Yes

20. Beatrice promised she would bake more cookies.
Did Clara promise to bake more cookies?
No
21. Clara promised she would fold the laundry.
Did Clara promise to fold the laundry?
Yes
22. Jane promised she would unplug the TV.
Did Rita promise to unplug the TV?
No
23. Rita promised she would boil more water.
Did Rita promise to boil more water?
Yes
24. Agnes promised she would write more songs.
Did Betty promise to write more songs?
No

Intransitive non-finite

25. Lillian promised to mow the lawn.
Did Edna promise that she would mow the lawn?
No
26. Louise promised to fix the car.
Did Louise promise that she would fix the car?
Yes
27. Edna promised to buy some milk.
Did Josephine promise that she would buy some milk?
No
28. Martha promised to bake more cookies.
Did Martha promise that she would bake more cookies?
Yes
29. Josephine promised to fold the laundry.
Did Edith promise that she would fold the laundry?
No
30. Lucille promised to unplug the TV.
Did Lucille promise that she would unplug the TV?
Yes
31. Edith promised to boil more water.
Did Hazel promise that she would boil more water?
No
32. Jean promised to write more songs.
Did Jean promise that she would write more songs?
Yes

A.2. Filler sentences

Ask transitive finite

1. Sophia asked Zoe if she could eat more vegetables.
Did Sophia ask Zoe to eat more vegetables?
Yes
2. Olivia asked Chloe if she could paint the bedroom.
Did Chloe ask Olivia to paint the bedroom?
No
3. Emily asked Lily if she could shovel the driveway.
Did Emily ask Lily to shovel the driveway?
Yes

4. Ella asked Sarah if she could clean the living room.
Did Sarah ask Ella to clean the living room?
No
5. Abbey asked Mia if she could score more goals.
Did Abbey ask Mia to score more goals?
Yes
6. Maya asked Ruby if she could read the map.
Did Ruby ask Maya to read the map?
No
7. Lorna asked Paige if she could feed the dog.
Did Lorna ask Paige to feed the dog?
Yes
8. Kylie asked Claire if she could repair the wardrobe.
Did Claire ask Kylie to repair the wardrobe?
No

Ask transitive non-finite

9. Ida asked Norma to eat more vegetables.
Did Ida ask Norma to eat more vegetables?
Yes
10. Lorraine asked Phyllis to paint the bedroom.
Did Phyllis ask Lorraine to paint the bedroom?
No
11. Maxine asked Charlotte to shovel the driveway.
Did Maxine ask Charlotte to shovel the driveway?
Yes
12. Sylvia asked Jessie to clean the living room.
Did Jessie ask Sylvia to clean the living room?
No
13. Lena asked Nancy to score more goals.
Did Lena ask Nancy to score more goals?
Yes
14. Lucy asked Ellen to read the map.
Did Ellen ask Lucy to read the map?
No
15. Leona asked Eileen to feed the dog.
Did Leona ask Eileen to feed the dog?
Yes
16. Doris asked Joan to repair the wardrobe.
Did Joan ask Doris to repair the wardrobe?
No

Ask intransitive finite

17. Rita asked if she could eat more vegetables.
Did Ella ask to eat more vegetables?
No
18. Shirley asked if she could paint the bedroom.
Did Shirley ask to paint the bedroom?
Yes
19. Bertha asked if she could shovel the driveway.
Did Shirley ask to clean the driveway?
No
20. Geraldine asked if she could clean the living room.
Did Geraldine ask to clean the living room?
Yes

21. Juanita asked if she could score more goals.
Did Vivian ask to score more goals?
No
22. Pearl asked if she could read the map.
Did Pearl ask to read the map?
Yes
23. Laura asked if she could feed the dog.
Did Annette ask to feed the dog?
No
24. Vivian asked if she could repair the wardrobe.
Did Vivian ask to repair the wardrobe?
Yes

Ask intransitive non-finite

25. Kayla asked to eat more vegetables.
Did Kayla ask to eat more vegetables?
Yes
26. Ruby asked to paint the bedroom.
Did Lilly ask to paint the bedroom?
No
27. Lorna asked to shovel the driveway.
Did Lorna ask to shovel the driveway?
Yes
28. Mia asked to clean the living room.
Did Ruby to clean the living room?
No
29. Sophia asked to score more goals.
Did Sophia ask to score goals?
Yes
30. Olivia asked to read the map.
Did Mia ask to read the map?
No
31. Emily asked to feed the dog.
Did Emily ask to feed the dog?
Yes
32. Ella asked to repair the wardrobe.
Did Olivia ask to repair the wardrobe?
No

Control transitive finite

33. Judith declined Linda she would attend the party.
Did Sarah decline to attend the party?
No
34. Sandra refused Joyce she would accept the job.
Did Sandra refuse to accept the job?
Yes
35. Carolyn attempted Judy she would influence the decision.
Did Patricia attempt to influence the decision?
No
36. Janet tried Donna she would win the game.
Did Janet try to win the game?
Yes
37. Marilyn ordered Gloria she should clean the garage.
Did Gloria order Marilyn to clean the garage?
No

38. Alice urged Peggy she should get out more.
Did Alice urge Peggy to get out more?
Yes
39. Rose forced Brenda she should find a new job.
Did Kelly force Rose to find a new job?
No
40. Sally persuaded Patsy she should get a divorce.
Did Sally persuade Patsy to get a divorce?
Yes

Control transitive non-finite

41. Margaret declined Alison to attend the party.
Did Margaret decline to attend the party?
Yes
42. Annette refused Pauline to accept the job.
Did Betty refuse to accept the job?
No
43. Allie attempted Lindsay to influence the decision.
Did Allie attempt to influence the decision?
Yes
44. Giselle tried Francesca to win the game.
Did Sandra try to win the game?
No
45. Danielle ordered Betty to clean the garage.
Did Danielle order Betty to clean the garage?
Yes
46. Stella urged Michelle to get out more.
Did Kathleen urge Stella to get out more?
No
47. Kimberly forced Susan to find a new job.
Did Stella force Susan to find a new job?
No
48. Kathleen persuaded Beverly to get a divorce.
Did Kathleen persuade Beverly to get a divorce?
Yes

Control intransitive finite

49. Gail declined she would attend the party.
Did Gail decline to attend the party?
Yes
50. Rosemary refused she would accept the job.
Did Rosemary refuse to accept the job?
Yes
51. Anita attempted she would influence the decision.
Did Anita attempt to influence the decision?
Yes
52. Darlene tried she would win the game.
Did Darlene try to win the game?
Yes
53. Roberta ordered she should clean the garage.
Did Gail order Roberta to clean the garage?
No
54. Dolores urged she should get out more.
Did Frida urge Dolores to get out more?
No

55. Jacqueline forced she should find a new job.
Did Janie force Jacqueline to find a new job?
No
56. Audrey persuaded she should get a divorce.
Did Mary persuade Audrey to get a divorce?
No

Control intransitive non-finite

57. Lisa declined to attend the party.
Did Lisa decline to attend the party?
Yes
58. Amy refused to accept the job.
Did Amy refuse to accept the job?
Yes
59. Angela attempted to influence the decision.
Did Angela attempt to influence the decision?
Yes
60. Melissa tried to win the game.
Did Melissa try to win the game?
Yes
61. Tammy ordered to clean the garage.
Did Karen order the garage to be cleaned?
No
62. Julie urged to get out more.
Did Teresa urge Julie to get out more?
No
63. Lori forced to find a new job.
Did Linda force Lori to find a new job?
No
64. Teresa persuaded to get a divorce.
Did Olivia persuade Teresa to get a divorce?
No

Appendix B. Experiment 1b: Stimuli

B.1. Test sentences

Transitive finite

1. Paula vowed to Laura that she would organize the next dinner party.
Did Paula vow that Laura would organize the next dinner party?
No
2. Mary-Lee pledged to Jennifer that she would clean the garage on the weekend.
Did Mary-Lee pledge to clean the garage on the weekend?
Yes
3. Ellen committed to Susan that she would stop drinking for three months.
Did Ellen commit that Susan would stop drinking for three months?
No
4. Betty guaranteed to Linda that she would refrain from posting embarrassing pictures on Facebook.
Did Betty guarantee to refrain from posting embarrassing pictures on Facebook?
Yes
5. Danielle vowed to Amanda that she would floss more regularly.
Did Danielle vow that Amanda would floss more regularly?
No

6. Jane pledged to Sandra that she would iron the linens with greater care.
Did Jane pledge to iron the linens with greater care?
Yes
7. Kate committed to Liz that she would repaint the back porch before the Fall.
Did Kate commit that Liz would repaint the back porch before the Fall?
No
8. Nancy guaranteed to Lucy that she would walk the dogs twice a day.
Did Nancy guarantee to walk the dogs twice a day?
Yes

Transitive non-finite

1. Paula vowed to Laura to organize the next dinner party.
Did Paula vow to organize the next dinner party?
Yes
2. Mary-Lee pledged to Jennifer to clean the garage on the weekend.
Did Mary-Lee pledge that Jennifer would clean the garage on the weekend?
No
3. Ellen committed to Susan to stop drinking for three months.
Did Ellen commit to stop drinking for three months?
Yes
4. Betty guaranteed to Linda to refrain from posting embarrassing pictures on Facebook.
Did Betty guarantee that Linda would refrain from posting embarrassing pictures on Facebook?
No
5. Danielle vowed to Amanda to floss more regularly.
Did Danielle vow to floss more regularly?
Yes
6. Jane pledged to Sandra to iron the linens with greater care.
Did Jane pledge that Sandra would iron the linens with greater care?
No
7. Kate committed to Liz to repaint the back porch before the Fall.
Did Kate commit to repaint the back porch before the Fall?
Yes
8. Nancy guaranteed to Lucy to walk the dogs twice a day.
Did Nancy guarantee that Lucy would walk the dogs twice a day?
No

Intransitive finite

1. Paula vowed that she would organize the next dinner party.
Did Paula vow to organize the next dinner party?
Yes
2. Mary-Lee pledged that she would clean the garage on the weekend.
Did Karen pledge to clean the garage on the weekend?
No
3. Ellen committed that she would stop drinking for three months.
Did Ellen commit to stop drinking for three months?
Yes
4. Betty guaranteed that she would refrain from posting embarrassing pictures on Facebook.
Did Nicole guarantee to refrain from posting embarrassing pictures on Facebook?
No
5. Danielle vowed that she would floss more regularly.
Did Danielle vow to floss more regularly?
Yes
6. Jane pledged that she would iron the linens with greater care.
Did Miranda pledge to iron the linens with greater care?
No

7. Kate committed that she would repaint the back porch before the Fall.
Did Kate commit to repaint the back porch before the Fall?
Yes
8. Nancy guaranteed that she would walk the dogs twice a day.
Did Maria guarantee to walk the dogs twice a day?
No

Intransitive non-finite

1. Paula vowed to organize the next dinner party.
Did Anna vow that she would organize the next dinner party?
No
2. Mary-Lee pledged to clean the garage on the weekend.
Did Mary-Lee pledge that she would clean the garage on the weekend?
Yes
3. Ellen committed to stop drinking for three months.
Did Frida commit that she would stop drinking for three months?
No
4. Betty guaranteed to refrain from posting embarrassing pictures on Facebook.
Did Betty guarantee that she would refrain from posting embarrassing pictures on Facebook?
Yes
5. Danielle vowed to floss more regularly.
Did Lisa vow that she would floss more regularly?
No
6. Jane pledged to iron the linens with greater care.
Did Jane pledge that she would iron the linens with greater care?
Yes
7. Kate committed to repaint the back porch before the Fall.
Did Angela commit that she would repaint the back porch before the Fall?
No
8. Nancy guaranteed to walk the dogs twice a day.
Did Nancy guarantee that she would walk the dogs twice a day?
Yes

B.2. Filler sentences

Same as in Experiment 1a.

Appendix C. Experiment 2: Stimuli

C.1. Test sentences

Subject control canonical

1. The player threatened the coach to quit the team.
Did the player threaten that the coach would quit the team?
No
2. The player promised the coach to score more goals.
Did the player promise that the coach would score more goals?
No
3. The employee threatened the supervisor to file a complaint.
Did the employee threaten that the supervisor would file a complaint?
No
4. The employee promised the supervisor to complete the report.
Did the employee promise that the supervisor would complete the report?
No

Subject control shifted

5. The player asked the coach to miss the next practice.
Did the player ask if the coach would miss the next practice?
No
6. The player begged the coach to have more ice time.
Did the player beg that the coach have more ice time?
No
7. The employee asked the supervisor to have a day off.
Did the employee ask if the supervisor could have a day off?
No
8. The employee begged the supervisor to work more overtime.
Did the employee beg that the supervisor work more overtime?
No

Object control canonical

9. The parent asked the child to take out the garbage.
Did the parent ask if the child would take out the garbage?
Yes
10. The parent begged the child to follow the rules at daycare.
Did the parent beg that the child follow the rules at daycare?
Yes
11. The judge asked the defendant to answer the lawyer's questions.
Did the judge ask if the defendant would answer the lawyer's questions?
Yes
12. The judge begged the defendant to obey the rules of the court.
Did the judge beg for the defendant to obey the rules of the court?
Yes

Object control shifted

13. The parent threatened the child to go to bed without dinner.
Did the parent threaten that the child would go to bed without dinner?
Yes
14. The parent promised the child to stay up late on the weekend.
Did the parent promise that the child could stay up late on the weekend?
Yes
15. The guard threatened the prisoner to remain in solitary confinement longer.
Did the guard threaten that the prisoner would remain in solitary confinement longer?
Yes
16. The guard promised the prisoner to have more outdoor exercise time.
Did the guard promise the prisoner that the prisoner would have more outdoor exercise time?
Yes

*C.2. Filler sentences**Finite subject control canonical*

1. The duchess threatened the prince that she would pursue a divorce.
Did the duchess threaten that the prince would pursue a divorce?
No
2. The husband promised the mid-wife that he would practice Lamaze with his wife.
Did the husband promise that he would practice Lamaze with his wife?
Yes

3. The prime minister threatened the queen that he would cancel his visit.
Did the prime minister threaten that he would cancel his visit?
Yes
4. The little boy promised the nanny that he would brush his teeth.
Did the little boy promise that the nanny would brush her teeth?
No

Finite subject control shifted

5. The duchess asked the prince if she could visit the queen less often.
Did the duchess ask if the prince could visit the queen less often?
No
6. The husband begged the mid-wife for him to remain present during his wife's delivery.
Did the husband beg for himself to remain present during his wife's delivery?
Yes
7. The prime minister asked the queen if he could give a public address at the palace.
Did the prime minister ask if the queen could give a public address at the palace?
No
8. The little boy begged the nanny for him to have more cake for dessert.
Did the little boy beg for himself to have more cake for dessert?
Yes

Finite object control canonical

9. The prime minister begged the queen for her to tend to the royal gardens more regularly.
Did prime minister beg the queen for her to tend to the royal gardens more regularly?
Yes
10. The little boy asked the nanny if she could cut the crusts off the sandwich.
Did the nanny ask the little boy if he could cut the crusts off the sandwich?
No
11. The husband begged the mid-wife for her to arrive on time for the delivery.
Did husband beg the midwife for her to arrive on time for the delivery?
Yes
12. The duchess asked the prince if he could fire the grounds keeper for killing the roses.
Did the prince ask the duchess if she could fire the grounds keeper for killing the roses?
No

Finite object control shifted

13. The duchess threatened the prince that he would not have access to the children in the event of divorce.
Did the prince threaten the duchess that he would not have access to the children in the event of divorce?
No
14. The nanny promised the little boy that he could stay up late.
Did the nanny promise the little boy that he could stay up late?
Yes
15. The queen threatened the prime minister that he would not receive approval for the constitutional changes.
Did the prime minister threaten the queen that she would not receive approval for the constitutional changes?
No
16. The mid-wife promised the husband that he would not faint during the delivery.
Did the mid-wife promise the husband that he would not faint during the delivery?
Yes

Passive subject control

17. The trucker was offered to work a double shift by the company.
Did the trucker offer the company a double shift?
No

18. The MP was promised to receive more orange juice by the concierge.
Did the concierge promise the MP orange juice?
Yes
19. The cellist was threatened to lose first position in the orchestra by the conductor.
Did the conductor threaten the cellist with losing first position?
Yes
20. The foreman was begged to purchase better fall arrest equipment by the roofer.
Did the roofer beg the foreman for better fall arrest equipment?
Yes
21. The intern was asked to complete the blueprints by the engineer.
Did the intern ask the engineer to complete the blueprints?
No
22. The sniper was intended to kill someone else by the sargent.
Did the sniper intend to kill himself?
No

Passive object control

23. The longshoreman was forced to clean the washrooms by the supervisor.
Did the supervisor force the longshoreman to clean the washrooms?
Yes
24. The landscaper was coerced to spray pesticides by the company.
Did the landscaper coerce the company to spray pesticides?
No
25. The driver was convinced to do a U-turn by the passenger.
?Did the passenger convince the driver to do a U-turn?
Yes
26. The waiter was helped to serve the tables by the bartender.
Did the waiter help the bartender to serve the tables?
No
27. The sales clerk was assisted to steal the clothes by the customer.
Did customer assist the sales clerk to steal the clothes?
Yes
28. The pizza chef was ordered to remove the anchovies by the line cook.
Did pizza chef order the line cook to remove the anchovies?
No
29. The hockey player was persuaded to try yoga by the trainer.
Did the trainer persuade the hockey player to try yoga?
Yes
30. The tenant was permitted to paint the bathroom by landlord.
Did the tenant permit the landlord to paint the bathroom?
No

Subject control

31. The manager attempted to improve sales at the store.
Did the manager make an attempt to improve sales at the store?
Yes
32. The trucker offered to work a double shift.
Did the trucker receive an offer to work a double shift?
No
33. The concierge promised to get the MP more orange juice.
Did the concierge make a promise to get the MP more orange juice?
Yes
34. The roofer begged to have better fall arrest equipment.
Did the roofer beg for better fall arrest equipment?
Yes

35. The conductor threatened to cancel the concert.
Did the conductor receive a threat to cancel the concert?
No
36. The engineer asked to see the blue prints.
Did the engineer make a request to see the blue prints?
Yes
37. The dancer managed to complete the routine without falling.
Did the dancer complete the routine without falling?
Yes
38. The sniper intended to hit someone else.
Did the sniper intend to hit himself?
No

Object control

39. The hairdresser forced the client to remove the toupee.
Did the hairdresser force the client to remove the toupee?
Yes
40. The fisherman coerced the dockworker to join a union.
Did the dockworker coerce the fisherman to join a union?
No
41. The pilot convinced the passenger to wear an oxygen mask.
Did the pilot convince the passenger to wear an oxygen mask?
Yes
42. The nurse helped the surgeon to make the incision.
Did the surgeon help the nurse to make the incision?
No
43. The tour guide assisted the tourists to find the museum.
Did the tour guide assist the tourists to find the museum?
Yes
44. The officer ordered the driver to step out of the vehicle.
Did the driver give an order to the officer?
No
45. The lawyer told the witness to lie under oath.
Did the lawyer tell the witness to lie under oath?
Yes
46. The environmentalist begged the government to stop global warming.
Did the government beg the environmentalist to stop global warming?
No

References

- Bobaljik, J.D., Landau, I., 2009. Icelandic control is not A-movement: the case from case. *Linguist. Inq.* 40, 113–132.
- Boeckx, C., Hornstein, N., 2004. Remarks and replies: movement under control. *Linguist. Inq.* 35, 431–452.
- Boeckx, C., Hornstein, N., Nunes, J., 2010. Icelandic control really is A-movement: reply to Bobaljik and Landau. *Linguist. Inq.* 41, 111–130.
- Breasnan, J., 1982. Control and complementation. *Linguist. Inq.* 13, 343–434.
- Carnie, A., 2013. *Syntax: A Generative Introduction*. Wiley-Blackwell.
- Chierchia, G., 1984. *Topics in the Syntax and Semantics of Infinitives and Gerunds*. University of Massachusetts at Amherst (Ph.D. thesis).
- Chomsky, N., 1980. On binding. *Linguist. Inq.* 11, 1–46.
- Chomsky, N., 1995. *The Minimalist Program*. MIT Press, Boston, MA.
- Culicover, P.W., Jackendoff, R., 2001. Control is not movement. *Linguist. Inq.* 32, 493–512.
- Egan, T., 2006. Did John really promise Mary to leave? Constructions <http://elanguage.net/journals/constructions/article/view/17/22>
- Farkas, D.F., 1988. On obligatory control. *Linguist. Philos.* 11, 27–58.
- Haegeman, L., 1994. *Introduction to Government & Binding Theory*. Blackwell, Oxford, Cambridge.
- Hornstein, N., 1999. Movement and control. *Linguist. Inq.* 30, 69–96.
- Hornstein, N., Polinsky, M., 2010. Control as movement: across languages and constructions. In: Hornstein, N., Polinsky, M. (Eds.), *Movement Theory of Control*. John Benjamins, Amsterdam, pp. 1–41.
- Jackendoff, R., 1972. *Semantic Interpretation in Generative Grammar*. MIT Press, Cambridge, MA.

- Jackendoff, R., Culicover, P.W., 2003. The semantic basis of control in English. *Language* 79, 517–556.
- Jacobs, R.A., Rosenbaum, P.S., 1970. *Grammar: An Introduction to Transformational Grammar*. Ginn, Boston.
- Jeffrey, M., 2012. Is transitive subject control *promise* out of control? Paper presented at the 2012 Northwest Linguistics Conference (NWLC 28) University of Washington, Seattle, April 7–8.
- Keller, F., 2000. *Gradience in Grammar: Experimental and Computational Aspects of Degrees of Grammaticality*. University of Edinburgh (Ph.D. thesis).
- Keller, F., 2001. Experimental evidence for constraint competition in gapping constructions. In: Müller, G., Sternefeld, W. (Eds.), *Competition in Syntax*. Mouton de Gruyter, Berlin, pp. 211–248.
- Keller, F., Alexopoulou, T., 2001. Phonology competes with syntax: experimental evidence for the interaction of word order and accent placement in the realization of information structure. *Cognition* 79, 301–372.
- Keller, F., Gunasekharan, S., Mayo, N., 2009. Timing accuracy of web experiments: a case study using the WebExp software package. *Behav. Res. Methods* 41, 1–12.
- Landau, I., 2000. *Elements of Control: Structure and Meaning in Infinitival Constructions*. Kluwer Academic Publishers, Boston, MA.
- Landau, I., 2003. Movement out of control. *Linguist. Inq.* 34, 471–498.
- Landau, I., 2007. Movement-resistant aspects of control. In: Davies, W.D., Dubinsky, S. (Eds.), *New Horizons in the Analysis of Control and Raising*. Springer, Dordrecht, pp. 293–325.
- Landau, I., 2013. *Control in Generative Grammar: A Research Companion*. Cambridge University Press, New York.
- Larson, R.K., 1991. *Promise and the theory of control*. *Linguist. Inq.* 22, 103–139.
- Manzini, M.R., Roussou, A., 2000. A minimalist theory of A-movement and control. *Lingua* 110, 409–447.
- Panther, K.-U., Köpcke, K.-M., 1993. A cognitive approach to obligatory control phenomena in English and German. *Folia Linguist.* 27, 57–105.
- Postal, P.M., 1970. On coreferential complement subject deletion. *Linguist. Inq.* 1, 439.
- R Core Development Team, 2013. R: A Language and Environment for Statistical Computing. R Foundation for Statistical Computing, Vienna, Austria. <http://www.R-project.org/>
- Rosenbaum, P.S., 1967. *The Grammar of English Predicate Complement Construction*. MIT Press, Boston, MA.
- Ruzicka, R., 1983. Remarks on control. *Linguist. Inq.* 14, 309.
- Sag, I.A., Pollard, C., 1991. An integrated theory of complement control. *Language* 67, 63–113.
- Sorace, A., 2000. Gradients in auxiliary selection with intransitive verbs. *Language* 76, 859–890.
- Sorace, A., Keller, F., 2005. Gradience in linguistic data. *Lingua* 115, 1497–1524.
- Witkoś, J., Żychliński, S., 2014. On Visser's generalization. *Linguist. Rev.* 31, 635–668.