A theory of two strong islands

by

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Abstract

This thesis is dedicated to two strong island effects: *The Subject Condition* and *The Adjunct Condition*. Both effects can be unified under a single generalization, known as Condition on Extraction Domain, or CED (Cattell, 1976; Kayne, 1981; Huang, 1982): any maximal projection that is merged with a phrase is an island.

The thesis develops the so-called *Spell Out theory*, based on the original proposal by Johnson (2003). This theory derives CED from two basic assumptions about when and to which constituent Spell Out is applied over the course of syntactic derivation. The assumptions are, first, that between any two phrasal sisters at least one must be spelled out, and second, that a spelled out phrase does not project its category. The thesis also offers a theory of the interaction between syntactic derivation and memory structure that derives these two assumptions. The core principle is that focus of attention can only hold one element at a time.

The thesis examines three main predictions of the Spell Out theory. The first prediction is the Adjunct Condition. The thesis shows that adjuncts may sometimes be transparent, but only if their sister is opaque. The second prediction is the Subject Condition. The thesis argues that any extraction out of subjects either involves extraction out of complements (not specifiers) or covert pied-piping. The third and new prediction is that all specifiers and all adjuncts are interpreted by the LF interface before their sister, that is, they create the local context for their sister, as is evident from the behavior of discourse anaphora (the Island Condition).

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I dedicate this thesis to the dear memory of my teacher, Nadezhda Mirova.

Он опыт из лепета лепит

И лепет из опыта пьёт.

'New theory brings new data

New data bring new theory'

(rough translantion)

Octave #9

Osip Mandelstam

Contents

Одну и ту же ситуацию можно описать многими различными способами. Естественное желание машины будет, очевидно, такое: разделить место действия некоторой координатной сеткой и описывать в каком-то порядке, что происходит в каждом участке. Между тем для человека гораздо более естественным будет такое описание, когда выбирается некоторый главный предмет, <...> и от него, как от корня, строится граф, который определяет положение всех остальных предметов.

'One and the same situation can be described in many different ways. The natural desire of a computer would, evidently, be the following: build a coordinate grid and describe each square in a particular order. Meanwhile, for a human a much more natural description would be one when a main object is chosen, <...> and from it, like from a root, a graph is being built, which determines the positions of all the other objects.'

On the structure of a paragraph

Elena Paducheva

Chapter 1

The Spell Out theory

1.1 What this thesis is about

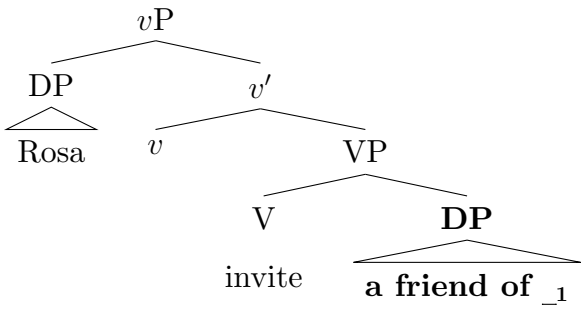
Consider the contrast in (1). In (1a) the *wh*-phrase *who$_1$* moves out of the noun phrase *a friend of* _$_1$ in the object position, and the sentence is fine. In (1b) the same *wh*-phrase moves out of the same noun phrase, but this noun phrase is in the subject position, and the sentence is not as good. This contrast illustrates the so-called *Subject Condition*, first introduced by Ross (1967, 241-255) and further developed by Chomsky (1973), Cattell (1976), Kayne (1981), Pesetsky (1982, 313-318) and Huang (1982, 503-514), among others.

(1) a. ok This is the person [**who$_1$** Rosa invited [a friend of _$_1$] to the party].

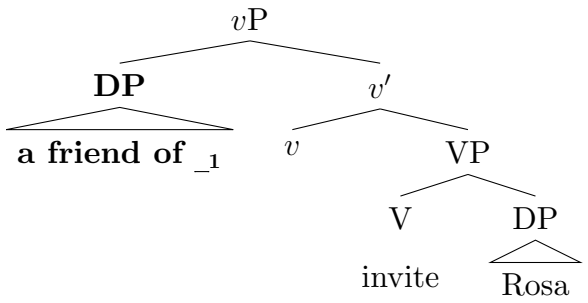
b. * This is the person [**who$_1$** [a friend of _$_1$] invited Rosa to the party].

There must be some property that distinguishes between subjects and objects that we should attribute the contrast in (1) to. One such property is that subjects merge with a phrase, while objects merge with a head. In (1a) the noun phrase that is being extracted from, *a friend of* _$_1$, is merged with the verb *invite*, while in (1b) the same noun phrase is merged with v':

(2) a. The position of *a friend of* $_1$ in (1a):



b. The position of *a friend of* $_1$ in (1b):



In this thesis I will defend the view first proposed by Cattell (1976), Kayne (1981) and Huang (1982), according to which it is this distinction that lies behind the Subject Condition, namely, the distinction between phrases that merge with heads and phrases that merge with other phrases. The former can be transparent for movement, while the latter are invariably opaque.

Consider now the contrast in (3) from Russian. In (3a) the PP *v kotoryj* 'into which' moves from some position inside a subjunctive clause headed by *čto-by* 'that-SBJ', which is the complement of *xotel* 'want', and the sentence is fine. In (3b) the same PP moves from the same position inside the same subjunctive clause, but this clause is an adjunct to the verb phrase *mnogo rabotal* 'much worked', and the sentence is not as good. This contrast illustrates the so-called *Adjunct Condition*, first introduced and developed by Cattell (1976), Paducheva and Zaliznyak (1979), Kayne (1981), Huang (1982, 497-499, 503-514) and others.

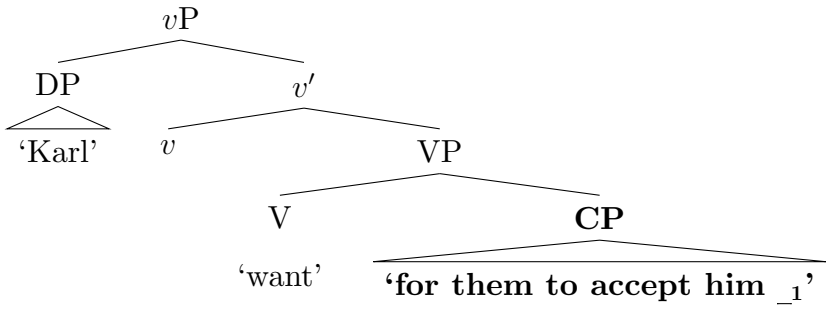
(3) Russian

a. ok klub, [**v kotoryj** Karl očen' xotel, [čto-by *pro* ego prinjali _1]]
club into which Karl very wanted that-SBJ they him accepted
'...the club **which$_1$** Karl wanted so much for them to accept him to _1.'

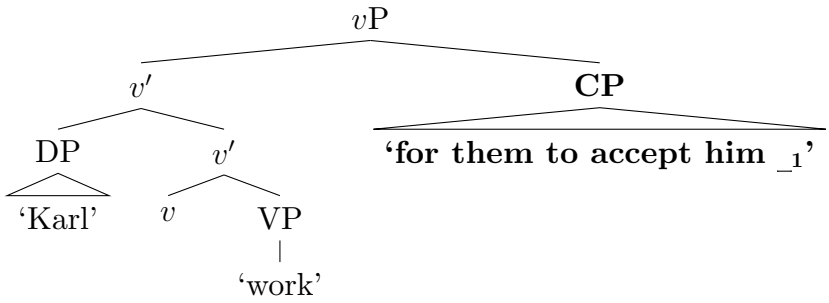
b. * klub, [**v kotoryj** Karl mnogo rabotal, [čto-by *pro* ego prinjali _1]]
club into which Karl much worked that-SBJ they him accepted
'...the club **which$_1$** Karl worked a lot for them to accept him to _1.'

There are several properties that distinguish between complements and adjuncts and that could be responsible for the contrast in (3), one of which is that complements merge with a head, while adjuncts merge with a phrase. For example, in (3a) the subjunctive clause is merged with the verb *xotel* 'wanted', while in (3b) the same subjunctive clause is merged with v':

(4) a. The position of the subjunctive clause in (3a):



b. The position of the subjunctive clause in (3b):



In this thesis I will defend the view, according to which the Adjunct Condition stems from the same basic principles as the Subject Condition. Namely, phrases

that merge with a head (complements) can be transparent, while phrases that merge with other phrases (specifiers and adjuncts) are opaque.

This *configurational account* was first pursued by Cattell (1976), Kayne (1981) and Huang (1982). The generalization that unifies the Subject and the Adjunct Condition is commonly known as Huang's (1982) Condition on Extraction Domain, or CED (Huang, 1982, 505). Various explanations for this generalization have been advanced by Uriagereka (1999), Nunes and Uriagereka (2000), Johnson (2003) and Sheehan (2010). For some discussion of Uriagereka's (1999) and Johnson's (2003) accounts see section 1.4 below.

This dissertation pursues a theory called *the Spell Out theory*, which is a development of Johnson's (2003) proposal. The Spell Out theory consists of two core assumptions about when and to which constituent the operation of Spell Out is applied over the course of syntactic derivation. The first assumption is that between any two phrasal sisters at least one must be spelled out. The second assumption is that a spelled out phrase does not project its category.

In this chapter I will formally introduce the Spell Out theory and its predictions in narrow syntax and at the LF interface, and offer some speculations about why this theory might be true. Section 1.2 outlines the background assumptions concerning phrase structure and movement. Section 1.3 lays out the Spell Out theory and its predictions. Section 1.4 offers a tentative theory of the interaction between syntactic derivation and memory structure that could derive the Spell Out theory itself.

1.2 Background and terminology

1.2.1 Phrase structure

In this dissertation I will adopt the *Bare Phrase Structure* framework, introduced by Chomsky (1995). More precisely, I will make reference to three basic syntactic notions: *constituency*, *(maximal) projection* and a *modifier vs. non-modifier distinction*.

The notion of constituency is very straightforward. It is a common assumption that sentences in natural language are structured. In particular, the string *listening to a merry song* in all the three sentences in (5) forms a constituent, which may be represented as a node on a syntactic tree. In (5a) it is the immediate subconstituent of *liked listening to a merry song*; in (5b) it is the immediate subconstituent of *cleaned the room listening to a merry song*; and in (5c) it is the immediate subconstituent of *listening to a merry song made Rosa happy*.

(5) a. [ok] Rosa [liked [listening to a merry song]].

b. [ok] Rosa [cleaned the room [listening to a merry song]].

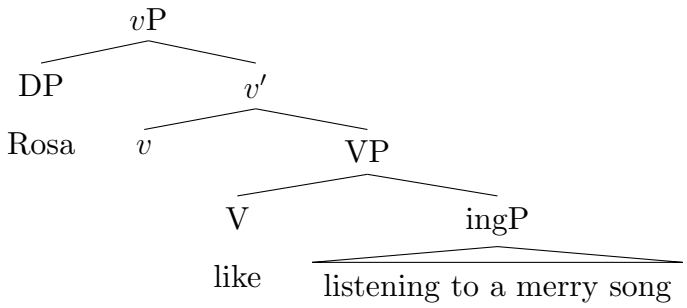
c. [ok] [[Listening to a merry song] made Rosa happy].

By assumption, all the terminal nodes (heads) in a syntactic tree bear a category, which determines, among other things, their syntactic distribution. For example, *clean* and *like* bear the category V (for verb), *room* bears the category N (for noun), and *the* bears the category D (for determiner).

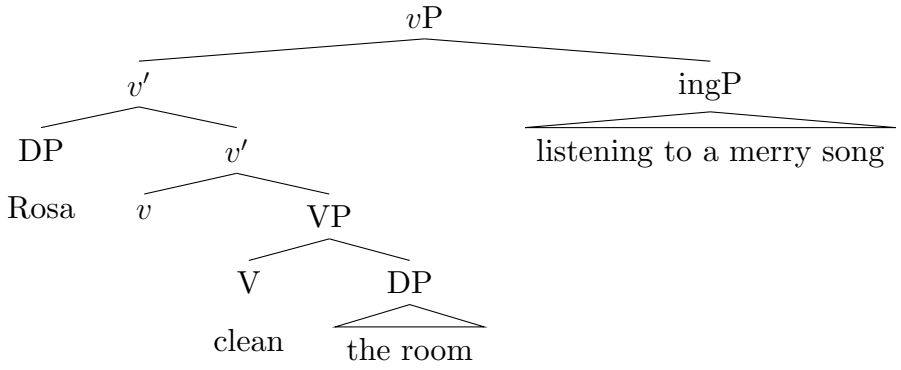
Furthermore, all non-terminal nodes (phrases) also bear a category. More precisely, each non-terminal node bears the syntactic category of one of its immediate daughters, namely, the daughter that contains the head of the constituent that this node dominates.[1] One of the daughters, thus, *projects* its category to its mother. For example, the node that dominates the constituent *liked listening to a merry song* bears the category of *like*, which is V. Hence, it is labeled VP. Meanwhile the node that dominates the constituent *the room* bears the category of *the*, which is D. Hence, it is labeled DP:

[1]Like in the case of the notion of constituency, the notion of the head of a constituent is associated with a set of properties neither of which is necessary and neither of which is sufficient. The head of a constituent is usually the terminal node that determines the syntactic distribution of this constituent and carries the morphology that the syntactic context of this constituent demands/assigns.

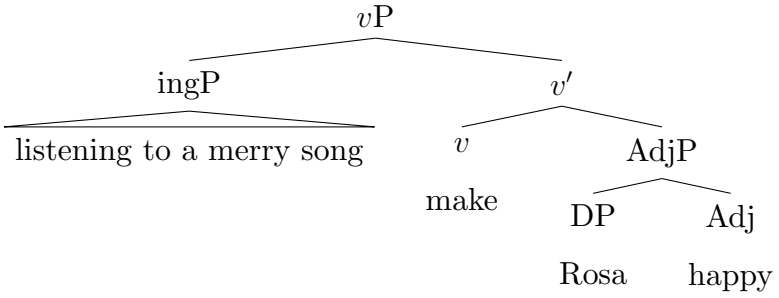
(6) a. The structure of the verb phrase in (5a)[2]



b. The structure of the verb phrase in (5b)



c. The structure of the verb phrase in (5c)



A node that does not project its category to its mother is called *a maximal projection*. A node that does project its category is *a non-maximal projection*. For example, the *ing*-clause *listening to a merry song* is a maximal projection in all the structures in (6). By convention, maximal projections are labeled XP, while

[2]Here and throughout I will follow the common assumption that English subjects are base generated within the verb phrase and later move to Spec,TP.

non-maximal projections are labeled X′.

In what follows I will use two parameters to distinguish between different types of maximal projections. The first parameter is a modifier vs. non-modifier distinction. A *modifier* is a maximal projection that is optional in the context of its sister. Semantically, it does not fill any argument slot of the main predicate, it introduces modification.[3] The class of non-modifiers includes everything else, including arguments. For example, the *ing*-clause *listening to a merry song* is a modifier in (6b), but not in (6a) or (6c), where it fills an argument slot of the main verb.

The second parameter is the complexity of the sister. If a maximal projection is merged with a head (a terminal node), it will be called a *complement*, **regardless** of its semantic status. If a maximal projection is merged with a phrase (a non-terminal node), it will be called either *a specifier* or *an adjunct*. If it is a modifier, it will be called an adjunct, and if it is not, it will be called a specifier.[4] Notice that in Bare Phrase Structure, complements can be modifiers:

(7) Types of maximal projections

XP's sister \ XP's status	Non-Modifier	Modifier
Head	*Complement*	*Complement*
Phrase	*Specifier*	*Adjunct*

In (6a) the *ing*-clause *listening to a merry song* is not a modifier (it is an argument in this case), and its sister is a head, which means that it is a complement. In (6b) the *ing*-clause is a modifier whose sister is a phrase, which means that it is an adjunct. In (6c) the *ing*-clause is not a modifier (it is an argument in this case) and its sister is a phrase, which means that it is a specifier.

[3]Another property of modifiers is that their morphology is never predetermined by the main predicate, see Chomsky (1965, 1981), Melchuk (1974) and Kibrik (1977), among numerous others.

[4]The terminology originally comes from the X′-theory (Jackendoff, 1977; Chomsky, 1981), which uses it in a slightly different way. In X′-theory it is assumed that all complements are arguments, which is crucially not the case in Bare Phrase Structure.

1.2.2 Movement

Movement is a description of a situation when there are reasons to believe that a constituent occupies two positions in the same sentence at once. For example, in (8) the phrase *which song* occupies the position at the left periphery of the embedded question, because it is pronounced there. At the same time it serves as an argument of the verb *listen* inside the *ing*-clause. Here and throughout the lower unpronounced position is marked by _ with an index. By assumption, *which song* in (8) is base generated in the lower argument position and later moves to the left periphery of the embedded clause, because this clause is an embedded question.

(8) ok I know [**which song$_1$** Rosa liked [listening to _$_1$]].

Usually, movement can connect two syntactic positions at an arbitrary long distance from each other. In particular, it may cross (potentially) infinitely many clausal boundaries:

(9) a. ok I know [**which song$_1$** Rosa liked [listening to _$_1$]].

b. ok I know [**which song$_1$** Karl thinks Rosa liked [listening to _$_1$]].

c. ok I know [**which song$_1$** you say Karl thinks Rosa liked [listening to _$_1$]].

d. ok ...

However, as was first observed by Ross (1967), there are certain syntactic domains that restrict movement. For example, movement of a modifier, like *when*, cannot cross the boundary of an embedded question:

(10) a. ok I know [**when$_1$** Rosa thought [that Karl left _$_1$]].

b. * I know [**when$_1$** Rosa asked [whether Karl left _$_1$]].

There are three types of constituents that restrict long-distance movement: *phases*, *weak islands* and *strong islands* (see Szabolcsi, 2006, for an overview).

Phases might as well have been called peninsulas. They are constituents that only allow movement from their left edge position (see Fox, 1999; McCloskey, 2000;

Chomsky, 2001; Fox and Pesetsky, 2005, and numerous others). According to other theories, movement out of a phase does not have to proceed through its left edge, but rather has to preserve the phase-internal word order (see Fox and Pesetsky, 2005). A phase is defined as a maximal projection of a certain category, regardless of its structural position or interpretation. For example, it is usually assumed that any DP, any CP and any vP is a phase, regardless of their structural position or interpretation.

Weak islands only allow movement of certain types of constituents. In particular, arguments but not modifiers can move out of a weak island (see Ross, 1967; Cinque, 1990; Rizzi, 1990; Szabolcsi and Zwarts, 1993; Szabolcsi, 2006, and numerous others). A weak island can be defined as the scope of a semantic operator. For example, the scope of an interrogative *wh*-phrase (an embedded question), the scope of a definite article and the scope of negation are usually assumed to be weak islands (see Szabolcsi and Zwarts, 1993 and Szabolcsi, 2006).

Strong islands do not allow any movement to escape from them, neither of an argument nor of a modifier, neither through the left edge nor from the base position (see Ross, 1967; Cinque, 1990; Takahashi, 1994; Uriagereka, 1999; Johnson, 2003; Stepanov, 2007; Sheehan, 2010, and numerous others). A strong island is usually defined in terms of its structural position. In this sense strong islands are configurational. For example, any maximal projection that is an adjunct is usually assumed to be a strong island, regardless of its category (unlike phases) or its interpretation (unlike weak islands).

The Subject Condition, illustrated again by (11), is a strong island effect. In both (11a) and (11b) *who* moves out of a DP, which means that this contrast cannot be attributed to DP being a phase. Furthermore, the DP that is being extracted from has the same interpretation, in particular, it is indefinite in both cases, which means that this contrast cannot be attributed to the meaning of some semantic operator. The only difference between (11a) and (11b) is the structural position of the constituent that is being moved out of: complement in (11a) and specifier in (11b). Consequently, this can only be classified as a strong island effect.

(11) a. [ok] This is the person [**who$_1$** Rosa invited [a friend of _$_1$] to the party].

b. * This is the person [**who$_1$** [a friend of _$_1$] invited Rosa to the party].

The Adjunct Condition, illustrated again by (12), is also a strong island effect. In both (12a) and (12b) the PP *v kotoryj* moves out of a subjunctive clause, which means that this contrast cannot be attributed to Russian subjunctive clauses being phases. Furthermore, it is not obvious that there any semantic operators that are present in (12b), but not in (12a), which means that this contrast cannot be easily explained as a weak island effect. The only clear difference between (12a) and (12b) is the structural position of the constituent that is being moved out of: complement in (12a) and adjunct in (12b). Hence, this is also best classified as a strong island effect.

(12) Russian

a. [ok] klub, [**v kotoryj** Karl očen' xotel, [čto-by *pro* ego prinjali _$_1$]]
club into which Karl very wanted that-SBJ they him accepted
'...the club **which$_1$** Karl wanted so much for them to accept him to _$_1$.'

b. * klub, [**v kotoryj** Karl mnogo rabotal, [čto-by *pro* ego prinjali _$_1$]]
club into which Karl much worked that-SBJ they him accepted
'...the club **which$_1$** Karl worked a lot for them to accept him to _$_1$.'

The goal of this dissertation is to argue that (11) and (12) illustrate the same strong island effect. Any maximal projection that is merged with a phrase (any specifier and any adjunct, as defined above) is a strong island.

1.3 The Spell Out theory

1.3.1 The two central claims

Any linguistic item can be viewed as a triplet of form, meaning and syntactic structure, which connects the previous two. For example, the sentence *Karl likes music* is associated with a sequence of phonological features (form), a proposition and its

pragmatic effects (meaning) and a syntactic structure, which can be represented by a tree. The syntactic structure of lexical items is very simple and, possibly, consists of only one node and some set of syntactic features, including the category. Larger items, like phrases or sentences have a more complex structure.

In the Principles and Parameters framework (Chomsky, 1981), as well as in Minimalism (Chomsky, 1995), it is assumed that language first builds a syntactic structure and then assigns to it its form and meaning. *Spell Out* is the operation that is responsible for this last step. It takes a constituent (syntactic structure) and returns its phonological and semantic representation (form and meaning). Naturally, Spell Out is not a simple operation and may consist of multiple sub-steps. Furthermore, the sub-steps may be different at the syntax-semantics interface (LF) and the syntax-phonology interface (PF).

By assumption, after a constituent is spelled out, it turns into a terminal, like a lexical item. After it has been associated with a particular form and meaning, its internal syntactic structure becomes irrelevant and, thus, inaccessible for further syntactic processes, for example, movement.

As a result, a spelled out constituent is special in at least two respects. First, it is interpreted by the PF and LF interfaces before it is merged with the rest of the sentence, and second, a spelled out constituent is opaque for movement.

Unlike Chomsky (2001), in whose theory Spell Out applies to phases, this dissertation follows the idea first proposed by Uriagereka (1999) and Johnson (2003), according to which Spell Out applies to strong islands. The proposed theory builds on Johnson (2003) and consists of the following two hypotheses:

(13) **The Spell Out theory.**

a. Between any two phrasal sisters at least one has to be spelled out.

b. A spelled out phrase does not project its category.

From (13a) and (13b), taken together, it follows that all specifiers and all adjuncts must be spelled out, because specifiers and adjuncts are, by definition, max-

imal projections whose sister is a phrase. That is, a specifier is, by definition, a phrase that is merged with another phrase and does not project its category; and an adjunct is also, by definition, a phrase that is merged with another phrase and does not project its category.

1.3.2 Predictions in narrow syntax

The two immediate predictions of the Spell Out theory in narrow syntax are that all adjuncts are opaque for movement (the Adjunct Condition) and that all specifiers are opaque for movement (the Subject Condition).

As I have already shown above, there is a contrast between extraction out of a complement, as in (14a), and extraction out of an adjunct, as in (14b).

(14) a. ok I know [**which song$_1$** Rosa liked [listening to _$_1$]].

b. * I know [**which song$_1$** Rosa cleaned the room [listening to _$_1$]].

In the current literature there are two views on the contrast in (14), stemming from two properties that distinguish the *ing*-clause in (14a) and in (14b). Various theories that can be generally called *modifier accounts* (Chomsky, 2004; Truswell, 2007; Stepanov, 2007; Hunter, 2010, 2015; Bošković, 2017) draw the line between modifiers and non-modifiers. According to this view, all modifiers are opaque, while non-modifiers can be transparent. *Configurational accounts* (Uriagereka, 1999; Nunes and Uriagereka, 2000; Johnson, 2003; Sheehan, 2010) draw the line between adjuncts and complements. According to this view all adjuncts are opaque, while complements (regardless of whether they are modifiers or not) can be transparent.

(15) a. Opaque maximal projections under modifier accounts

XP's status / XP's sister	Non-Modifier	Modifier
Head	*Complement*	***Complement***
Phrase	*Specifier*	***Adjunct***

b. Opaque maximal projections under configurational accounts

XP's sister \ XP's status	Non-Modifier	Modifier
Head	*Complement*	*Complement*
Phrase	***Specifier***	***Adjunct***

The Spell Out theory is a configurational account. It predicts that opacity should track the structural distinction between adjuncts and complements, not the semantic one between modifiers and non-modifiers. As a consequence, unlike modifier accounts, the Spell Out theory predicts that modifiers can be transparent. Moreover, they can be transparent in two precise circumstances:

(16) a. A modifier is transparent if it is merged with a head (is a complement).

b. A modifier is transparent if its sister is spelled out.

The situation described in (16a) arises when a modifier is attached low in the syntactic structure. As for the situation in (16b), I suggest that it can only arise if the modifier and its sister bear the same category. In this circumstance the mother node will have the same category and, hence, the same syntactic distribution (i.e., it can be selected by the same set of heads) regardless of which of its daughters projects.

In chapter 2 I will argue, based on data from Balkar (a Turkic language, spoken in Kabardino-Balkaria, Russia), that modifiers can be transparent, contrary to what modifier accounts predict. Furthermore, they are transparent precisely in the two cases described by (16).

The argument comes from the behavior of non-finite clauses that serve as modifiers, so-called *converbs*. Balkar converbs come in three varieties: vPs, TPs and CPs. vP-converbs are attached within the main vP, and in the context of an unaccusative verb of motion or position they are structurally complements (merged with the verb). TP-converbs are attached between the vP or the T′ level. CP-

complements are attached at the CP level. TP-converbs are always opaque, as the Spell Out theory predicts. They are merged with a phrase, and this phrase cannot be spelled out, either because it is not of the same category as the converb or because its EPP feature has not yet been satisfied (in the case of the T′-attachment). *v*P-converbs are transparent in the context of unaccusative verbs of motion or position, in other words, only when they are attached as complements. This confirms the prediction in (16a). CP-complements are only transparent if the main clause, their CP-sister, is opaque. Scrambling is possible out of a CP-converb, out of the main clause, but not out of both simultaneously. This confirms the prediction in (16b).

In sum, data from Balkar confirm the predictions of the Spell Out theory and are incompatible with modifier accounts. In Balkar the transparency of a non-finite clause depends on its structural position, not on its argument vs. modifier status.

The Subject Condition can be illustrated by the contrast between extraction out of a complement, as in (17a), and extraction out of a specifier, as in (17b).

(17) a. ok I know [**which song$_1$** you think Rosa liked [listening to _$_1$]].

b. * I know [**which song$_1$** you think [listening to _$_1$] made Rosa happy].

The prediction of the Spell Out theory is that all specifiers (both derived and base generated) should be opaque for movement. This is the strongest form of the Subject Condition.

This prediction has been challenged in the recent syntactic literature in two ways. First, in some languages, like Russian, some subjects that stay in-situ are transparent for extraction. This led some researchers to the idea that the strongest version of the Subject Condition is incorrect (see Takahashi, 1994; Rizzi and Shlonsky, 2007; Stepanov, 2007). The proposed weaker version only restricts movement out of derived specifiers (the so-called *freezing effect*, see Wexler and Culicover, 1981).

Second, in other grammars, like Balkar or the colloquial register of Russian

(see Zemskaya, 1973, and chapter 3 for more discussion), nominal subjects do not seem to be opaque at all, regardless of their syntactic position (see Sekerina, 1997; Fanselow and Ćavar, 2002; Pereltsvaig, 2008; Bondarenko and Davis, 2020a, and others). This is a challenge to both the stronger and the weaker version of the Subject Condition.

In chapter 3 I will argue that both of these challenges are superficial and that under closer consideration the strongest version of the Subject Condition is correct, as predicted by the Spell Out theory.

As for the first challenge, I consider subjects in-situ in Russian and show that they are only transparent if they are base generated as complements, see Polinsky et al. (2013) and also Jurka (2010) for the empirical support for the same generalization in German, English, Japanese and Serbian. That is, only subjects of certain unaccusative verbs (verbs of position and 'be') are transparent in-situ, while those subjects that can independently be argued to be base generated as specifiers, i.e., subjects of unergative and transitive verbs are opaque. This supports the Spell Out theory: base generated specifiers are opaque, base generated complements are transparent.

As for the second challenge, I discuss Balkar and the colloquial register of Russian as two examples of grammar systems that seemingly allow extraction out of all noun phrases, regardless of their syntactic position. As I will show, there are good reasons to believe that in these systems split noun phrases do not necessarily involve genuine subextraction. Instead, they are better analyzed as *discontinuously spelled out* constituents (see Fanselow and Ćavar, 2002; Pereltsvaig, 2008; Bondarenko and Davis, 2020a, and others). That is, part of a noun phrase is marked as Topic and moves to the Topic position. The rest of the noun phrase is pied-piped, so no genuine subextraction is involved. However, only the topical part of the noun phrase is pronounced in the Topic position, while the pied-piped material is "reconstructed" at PF. The literature proposes a variety of arguments in support of this analysis, some of which will be reviewed in chapter 3.

Furthermore, even in grammars like Balkar or the colloquial register of Russian

the effects of the Subject Condition are still detectable, though obscured. First, in Balkar the Subject Condition applies to nominalized clauses, which cannot be discontinuously spelled out. That is, scrambling is possible out of a nominalized clause in the object position, but not out of the same nominalized clause in the subject position.

Second, in both Balkar and the colloquial register of Russian splitting a subject noun phrase is more restricted than splitting an object noun phrase. In particular, splitting an object "across" a split subject is possible, while splitting a subject "across" a split object is not. Splitting an object does not have to preserve the internal order of the noun phrase elements, while splitting a subject does. These asymmetries are easily explained, if we assume that in these grammars noun phrases can be split by two independent processes: Discontinuous Spell Out and genuine subextraction. Because the Subject Condition still applies, genuine subextraction is only available for object noun phrases. Consequently, object noun phrases can be split in two ways (subextraction or Discontinuous Spell Out), while subject noun phrases can only be split as a result of Discontinuous Spell Out. Hence object noun phrases are expected to be split more freely than subject noun phrases.

To sum up, extraction data supports the predictions of the Spell Out theory. Extraction out of all specifiers and all adjuncts is principally restricted. Adjuncts can only be transparent if their sister is opaque, that is, only if their sister is spelled out. Any apparent extraction out of a base generated specifier involves Discontinuous Spell Out (i.e., covert pied-piping).

1.3.3 Predictions at LF

The immediate prediction of the Spell Out theory at LF is that any specifier and any adjunct is interpreted before its sister. This follows from the two assumptions in (13) and the definitions of specifiers and adjuncts.

A specifier or an adjunct does not project its category and is merged with a phrase, hence, by (13), it must be spelled out. Meanwhile, the sister of a specifier or an adjunct does project its category, hence, by (13), it is not spelled out. As the

result, the meaning of any specifier and the meaning of any adjunct is "known" to the semantic component before the meaning of its sister. For example, in a sentence *[[A person who saw a car$_1$] [said that it$_1$'s honking frightened the cat]]* the specifier *[a person who saw a car$_1$]* is spelled out before its sister *[said that it$_1$'s honking frightened the cat]*.

In chapter 4 I will argue that this hypothesis can be tested by its consequences for how the semantic component processes a syntactic structure. In particular, I argue that every spelled out constituent (a specifier or an adjunct) creates the local context for its non-spelled out sister. The main argument comes from the direction of *discourse anaphora*.

By discourse anaphora I understand the anaphoric relation between an indefinite and a pronoun where the indefinite is not interpreted in the scope of any other operator (no negation or quantifiers), as in (18).

(18) $^{\text{ok}}$ Karl saw **a cat$_1$** on the street and gave **it$_1$** some fish.

All theories of discourse anaphora (Heim, 1982; Groenendijk and Stokhof, 1991; Chierchia, 1995; Schlenker, 2009, 2011; Rothschild, 2011; Rothschild and Mandelkern, 2017; Mandelkern, 2020, and many others) assume that the indefinite must be interpreted before the pronoun. The indefinite, like *a cat$_1$* in (18), introduces a discourse referent which the pronoun, like *it$_1$* in (18), can later "pick up". In other words, the indefinite creates a context in which the presupposition of the pronoun is satisfied.

The question is what "interpreted before" corresponds to. To my knowledge, all the existing theories of discourse anaphora assume that it corresponds to "linearly precedes". That is, they assume that for any given sentence the semantic component has access to the surface linear order of its terminals and processes them accordingly, that is, from left to right.

If we assume that the surface linear order is established at the PF interface, there is an architectural problem with this point view, because it is unclear how the LF interface can have access to the output of the PF interface.

Apart from the conceptual problems, however, it is also not obvious that indefinites must always proceed pronouns in order to create accessible antecedents for them (see Chierchia, 1995). It is true that in most cases cataphora to an indefinite is not possible. In coordination discourse anaphora can only "proceed" from left to right, as is evident from the contrast in (19). An indefinite inside a specifier can serve as an antecedent for a pronoun inside the sister of this specifier, but not the other way around, as is evident from the contrast in (20). Cataphora is also not possible if the indefinite is inside a complement, as is evident from (21b). However, cataphora is possible if the indefinite is inside an adjunct, as is evident from (21a).

(19) a. ok Karl [saw **a cat$_1$** on the street] and gave **it$_1$** some fish.

b. * Karl [saw **it$_1$** on the street] and gave **a cat$_1$** some fish.

(20) a. ok [A person who saw **a cat$_1$** on the street] gave **it$_1$** some fish.

b. * [A person who saw **it$_1$** on the street] gave **a cat$_1$** some fish.

(21) a. ok Rosa informed **his$_1$** parents [when she caught **a student$_1$** smoking].

b. * Rosa informed **his$_1$** parents [that she caught **a student$_1$** smoking].

Any theory of discourse anaphora must rule in cataphora in (21a), but crucially not in (19b), (20b) or (21b). Existing approaches rely on the basic 'left-to-right' processing principle and on an additional assumption that adjuncts are special in some way, which allows them to ameliorate this principle. In other words, cataphora is impossible, but for postposed adjuncts. This is not a very satisfactory theory. A better approach would be to find some kind of generalization that would capture all the cases in (19-21) and incorporate it as a basic processing principle.

The Spell Out theory readily provides such a generalization. Any spelled out constituent is interpreted before its non-spelled out sister. In particular, any adjunct is interpreted before its sister and any specifier is interpreted before its sister. In what follows I will call this generalization *the Island Condition*. According to a

more precise formulation, given in chapter 4, any node α is interpreted before any other node β if and only if α SO-commands β (SO for Spell Out). The relation of SO-command is defined as follows: a node α SO-commands another node β if and only if the node that both (reflexively) dominates α and c-commands β is a maximal projection (hence, a specifier or an adjunct). In other words, α SO-commands β if and only if α is inside a specifier or an adjunct and β is inside its sister.

By this definition the indefinite SO-commands the pronoun in (20a) and (21a), but not in (20b) and (21b).

As for (19), it has been argued independently (see Ross, 1967; Johannessen, 1993, 1998; Kayne, 1994, and others) that the connective *and* forms a constituent with the second conjunct. This leads us to the result that *and* takes the second conjunct as a complement and the first conjunct as a specifier and forms ConjP. Consequently, (19) reduces to (20). The first conjunct is the specifier of ConjP and the second conjunct is the complement of Conj (*and*). The first conjunct is interpreted before the second conjunct.

In chapter 4 I examine these predictions in more detail and show that the Island Condition not only rules in cataphora with adjuncts in a principled way, but also accommodates "classical" cases of discourse anaphora without additional stipulations. It also correctly predicts the possibility of cataphora in asymmetric coordination. I formulate the algorithm of Spell Out at LF that derives the Island Condition automatically as a consequence of the order of interpretation and context update, building on Heim (1982), Schlenker (2009) and Mandelkern (2020). The central idea is that at any moment of interpretation the semantic component tries to update the context with all the information available to it. As a result, when interpreting any non-terminal node with a spelled out and a non-spelled out daughter, for instance, a TP, the semantic component first updates the context by the content of its spelled out daughter (DP) and only then proceeds to interpret its sister (T′).

1.4 Towards an explanation

As mentioned above, the generalization that unifies the Adjunct Condition and the Subject Condition was originally developed by Cattell (1976), Kayne (1981) and Huang (1982). The generalization is usually called Condition on Extraction Domain, or CED. It states that any maximal projection whose sister is a phrase must be an island.

Uriagereka (1999) and Johnson (2003) both propose to derive CED from an assumption that certain constituents must be turned into terminals in the course of syntactic derivation.[5]

Uriagereka's (1999) account is based on Kayne's (1994) linearization theory. He argues that between any two phrasal sisters **the left one** must be turned into a terminal via Spell Out, because a structure with two phrasal sisters cannot be linearized in Kayne's (1994) system.

The main advantage of Uriagereka's (1999) theory is that it explains strong island effects by appealing to the independently established linearization mechanism proposed by Kayne (1994). In other words, specifiers must be spelled out because of the demands of the PF interface, which, by Kayne's (1994) assumptions, cannot linearize a structure with two phrasal sisters. Of course, if the linearization theory proposed by Kayne (1994) turns out to be incorrect, Uriagereka's (1999) theory of strong islands should be rethought as well.

This theory predicts that specifiers are spelled out because they are on the left. It does not predict that postposed adjuncts are spelled out. Furthermore, it predicts that the sister of a postposed adjunct is spelled out, as was pointed out by Johnson (2003). That is not a welcome prediction, because a main clause that linearly precedes its adjunct is usually transparent for extraction.

Johnson (2003) proposes a different explanation for CED, based on certain assumptions about syntactic derivation. Johnson's (2003) tree-building mechanism makes use of two operations: Merge and Renumerate. In his system, for any two

[5]Uriagereka's (1999) approach has been further developed by Nunes and Uriagereka (2000) and Sheehan (2010).

phrases that are sisters at least one must be renumerated. His theory's predictions do not depend on linear order. As the result, both specifiers and adjuncts must be renumerated regardless of their linear position.

The Spell Out theory, repeated in (22), is a development of Johnson's (2003) proposal. Johnson's Renumerate is understood as Spell Out, which is an operation whose primary purpose is to assign semantic and phonological information to a piece of syntactic structure.

(22) **The Spell Out theory.**

a. Between any two phrasal sisters at least one has to be spelled out.

b. A spelled out phrase does not project its category.

If the Spell Out theory is correct, the next question is why should it be? If Spell Out is not tied to linearization, what can it be explained by? That is, why does the tree-building mechanism works the way it does? Namely, first, why is it not possible to merge two non-spelled out phrases, and second, why does a spelled out phrase not project? In the remainder of this section I will lay out a theory of syntactic derivation that tries to explain the two claims of the Spell Out theory as limitations imposed on the tree-building mechanism by working memory and focus of attention.

Let me start by postulating that syntactic derivation can manipulate three finite sets: *the Lexicon*, *the Workspace* and *the Focus*. The Lexicon and the Workspace are sets of linguistic items (triplets of form, meaning and a set of syntactic features, including category) which are stored in memory. This includes both lexical items and previously spelled out constituents. Any item stored in memory is primitive, in the sense that it does not have internal syntactic structure, and is associated with a certain meaning and a certain form.

The fact that memory contains two different sets of items has been established independently. It is has been argued that there are two types of memory: long-term memory and working memory (see Baddeley, 1986, 1993; Cowan, 1988, 1993;

Oberauer, 2009, 2013, and many others). The Lexicon corresponds to the long-term memory and the Workspace corresponds to the working memory.

The Focus is a set that contains at most one element. This is the element that is in the focus of attention at the current moment in the derivation. The fact that focus of attention can contain at most one element has also been argued for independently (see Cowan, 1988, 1993; Garavan, 1998; Oberauer, 2009, 2019).

To recapitulate, syntactic derivation can manipulate three finite sets: the Lexicon, the Workspace and the Focus. The Lexicon and the Workspace are sets that contain primitive linguistic items stored in memory, which are triplets of form, meaning and a set of syntactic features (i.e. category). The Focus can contain at most one element:[6]

(23) <Lexicon (L), Workspace (W), Focus (F)>, where:

a. L and W contain primitive items;

b. $|F| \leq 1$.

Any theory of syntactic derivation must have at least three basic operations: *operation 1*, which brings an item from the Lexicon into the Workspace; *operation 2*, which brings an item from the Workspace into the Focus; and *operation 3*, which brings an item from the Focus back into the Workspace. These are the simplest possible operations, no additional assumptions are made.

However, this simplest system can only deliver a finite grammar. It can bring items one by one from the Lexicon into the Workspace and then into the Focus, but no more than that. For example, suppose the Lexicon consists of four items: 'a', 'girl', 'admires' and 'Rosa'. If the Focus contains 'girl' and we want to bring 'a' into it, we have to first bring 'girl' back into the Workspace, because the Focus can only contain one element at a time.

As the result, this system can generate at most as many different utterances as there are items in the Lexicon. In this case it is four: *a*, *girl*, *admires* and *Rosa*.

[6]To reiterate, the assumptions about the nature and number of these sets are based on independently established facts about memory structure.

This is far from any natural language.

Clearly, we need to make some additional assumptions. The present proposal is to make additional assumptions about operations 2 and 3, namely, the ones that bring something from the Workspace into the Focus and back.

Suppose that operation 2, which brings something from the Workspace into the Focus, involves *Merge*, as defined by Chomsky (1995, 2001). Now, instead of discharging an element from the Focus back into the Workspace, it can put into the Focus a set consisting of the element that was there before and the element that is being brought into the Focus from the Workspace. For example, the Focus holds the item 'girl', and we want to bring the item 'a' from the Workspace. Instead of discharging 'girl' from the Focus, Merge forms a set {a, girl} and puts this set in the Focus. Notice that the Focus still only contains one element, but this element is itself a set.

This new system can merge lexical items with the Focus one by one. As the result, we have what is called a regular grammar in Chomsky's (1957) hierarchy. This grammar can only merge a head with a phrase, and consequently, it does not have any specifiers or adjuncts. Any node has at most one complex daughter. We can now generate infinitely many expressions, for example, *[admires Rosa]*, *[a girl]*, *[Rosa [admires Rosa]]* etc., but, crucially, not yet *[[a girl] [admires Rosa]]*.

Suppose further that operation 3, which brings something from the Focus back into the Workspace, involves *Spell Out*. Spell Out can take the set that is in the Focus and turn it into a primitive item by assigning the phonological and semantic representation. This spelled out element can now be stored back in the Workspace and participate in further derivation. For example, suppose we have derived the set {a, girl} by applying Merge to 'girl' and then to 'a'. We can now spell this set out and store it in the Workspace as a new primitive item 'a girl', which we can later merge with the Focus.

This system delivers a context free grammar in Chomsky's (1957) hierarchy, something that resembles natural languages. It can merge a phrase with a phrase, but, crucially, one of these two phrases must have undergone Spell Out. The first

claim of the Spell Out theory is successfully derived.[7]

To sum up, I have introduced additional assumptions about operations 2 and 3. They are now identified with Merge and Spell Out. Operation 1, which brings something from the Lexicon into the Workspace, remains intact and will be called *Activate*.

The resulting system has three finite sets (the Lexicon, the Workspace and the Focus) and three operations (Activate, Merge and Spell Out). Activate brings items from the Lexicon into the Workspace (25a). Merge brings an item from the Workspace into the Focus (25b). Spell Out brings the element from the Focus back into the Workspace (25c).

(24) Three finite sets <Lexicon (L), Workspace (W), Focus (F)>, where:

a. L and W contain primitive items;

b. $|F| \leq 1$.

(25) Three operations.

a. Activate $(L \rightarrow W)$

Takes $< L, W, F >$ and some elements $X_1 ... X_n \in L$.

Returns $< L, W', F >$, where $W' = W \cup \{X_1 .... X_n\}$.

b. Merge $(W \rightarrow F)$

Takes $< L, W, F >$, where $F = \{Y\}$, and an element X from W.

Returns $< L, W', F' >$, where $W' = W \setminus \{X\}$ and $F' = \{\{X, Y\}\}$.

c. Spell Out $(W \leftarrow F)$

Takes $< L, W, F >$, where $F = \{X\}$.

Returns $< L, W', F' >$, where $W' = W \cup \{X^{\text{spelled out}}\}$ and $F' = \varnothing$.

[7]Interestingly, the system with Merge, but without Spell Out, can also "count", if the only element in the Lexicon is the number 1. But it can only add up to as many elements as the working memory (the Workspace + the Focus) can hold at a time, that is, probably, up to 5 or 7 (Baddeley, 1986, 1993). With Spell Out smaller numbers can be stored and added again, which makes addition unbounded. The system with both Merge and Spell Out can "count" to any arbitrarily large natural number.

This grammar can derive a sentence like *A girl admires Rosa*, but crucially, either *a girl* or *admires Rosa* must be spelled out. Here is how the derivation proceeds, if *a girl* is spelled out:

(26) The derivation of *A girl admires Rosa*.
$L^{0\text{–}9}$ = {'a', 'girl', 'admires', 'Rosa', ...}.

a. Start:
$W^0 = \varnothing$, $F^0 = \varnothing$.

b. Activate 'a' and 'girl':
W^1 = {'a', 'girl'}, $F^1 = \varnothing$.

c. Merge 'girl':
W^2 = {'a'}, F^2 = { 'girl' }.

d. Merge 'a':
$W^3 = \varnothing$, F^3 = { {'a', 'girl'} }.

e. Spell Out:
W^4 = { 'a girl' }, $F^4 = \varnothing$.

f. Activate 'admires' and 'Rosa':
W^5 = { 'a girl', 'admires', 'Rosa' }, $F^5 = \varnothing$.

g. Merge 'Rosa':
W^6 = { 'a girl', 'admires' }, F^6 = { 'Rosa' }.

h. Merge 'admires':
W^7 = { 'a girl' }, F^7 = { {'admires', 'Rosa'} }.

i. Merge 'a girl':
$W^8 = \varnothing$, F^8 = { {'a girl', {'admires', 'Rosa'}} }.

j. Spell Out:
W^9 = { 'a girl admires Rosa' }, $F^9 = \varnothing$.

We have successfully derived the first claim of the Spell Out theory, namely,

that between any two phrasal sisters at least one must be spelled out. The second claim is that a spelled out phrase does not project. This requires some additional assumptions concerning projection. For the present purposes, I will simply stipulate the rules of projection without explanation.

By assumption, whenever Merge applies to an element from the Workspace and an element in the Focus, the resulting set bears the category of one of these two elements. Let us assume that the choice solely depends on the element that comes from the Workspace. If this element is new, that is, has not been spelled out before, which means that it is a lexical item, then it projects. If this element is something old that has been spelled out before, it does not project. Perhaps, this could be explained by a preference to immediately record information about new elements in the derivation over the old ones.

(27) Projection hierarchy:

New lexical item from $W >$ the set in $F >$ old spelled out item from W.

We have now successfully incorporated both claims of the Spell Out theory. Between any two phrasal sisters at least one has to be spelled out, and a spelled out phrase does not project its category. However, the present system still lacks movement.

Movement can be formulated as a version of Merge, so-called *Internal Merge*, as opposed to *External Merge* (see Chomsky, 2001). In the present system we can say that External Merge combines an item from the Workspace with the Focus, while Internal Merge combines an item from the Focus with the Focus.

(28) a. External Merge

Takes $< L, W, F >$, where $F = \{Y\}$, and an element X from W.
Returns $< L, W', F' >$ where $W' = W \setminus \{X\}$ and $F' = \{\{X, Y\}\}$.

b. Internal Merge

Takes $< L, W, F >$, where $F = \{Y\}$, and an element X from Y.
Returns $< L, W, F' >$ where $F' = \{\{X, Y\}\}$.

Notice that, if the element X that Merge manipulates with comes from the Workspace, it can only be a primitive item, because the Workspace only contains primitive items. Meanwhile, if it comes from the Focus, it can be either a primitive item or a set. For example, if the Focus is { {'a girl', {'admires', 'Rosa'}} }, Internal Merge can apply to 'a girl', 'admires', 'Rosa' and also to {'admires', 'Rosa'}. As the result, three types of nodes can undergo movement: lexical items, previously spelled out constituents and non-spelled out constituents. This allows to state operations like *remnant movement*. For example, 'Rosa' can undergo Internal Merge deriving the new Focus { {'Rosa' {{'a girl'} {'admires', 'Rosa'}}} }. Later the "remnant" {'admires', 'Rosa'} can also undergo Internal Merge deriving the new Focus { {{'admires', 'Rosa'}, {'Rosa' {{'a girl'} {'admires', 'Rosa'}}}} }.

1.5 Roadmap

The remainder of this dissertation is dedicated to providing empirical arguments for the two central claims of the Spell Out theory, repeated below:

(29) **The Spell Out theory.**

a. Between any two phrasal sisters at least one has to be spelled out.

b. A spelled out phrase does not project its category.

In chapters 2 and 3 I examine the two predictions that the Spell Out theory makes in narrow syntax, namely, the Adjunct and the Subject Condition. Chapter 2 provides some arguments in favor of the Spell Out view of the Adjunct Condition, based on data from Balkar and English. It argues that an adjunct can only be transparent for movement, if its sister is opaque. Chapter 3 provides some arguments in favor of the Spell Out view of the Subject Condition, based on data from Russian and Balkar. It argues that any apparent extraction out of a specifier involves Discontinuous Spell Out (i.e., covert pied-piping).

Chapter 4 is dedicated to the predictions that the Spell Out theory makes at the LF interface, namely, the Island Condition. There I will argue that all specifiers and all adjuncts are interpreted before their sister, based on data from English (see also Appendix B for Russian).

Chapter 2

The Adjunct Condition

2.1 Formulating the adjunct condition

In this chapter I will argue for the Spell Out theory of the Adjunct Condition, based on new evidence from Balkar (a dialect of Karachay-Balkar, a Turkic language, spoken in the Republic of Kabardino-Balkaria, Russia) with some discussion of English. In particular, I will argue that an adjunct, as defined in the previous chapter, can **only** be extracted from if **its sister is opaque**, as predicted by the Spell Out theory (at least one of two phrasal sisters must be spelled out).

For Balkar I will use data collected through fieldwork.[1] Adjunct Condition effects will be tested against long-distance scrambling. The adjuncts that I will focus on are so-called converbs or converb clauses. For English, I will reconsider data from Truswell (2007), who diagnoses the Adjunct Condition with relativization and *wh*-question formation.[2] The adjuncts that I will focus on in English are modifier *ing*-clauses.

[1]Balkar data are based on the judgments of three native speakers from the village of Verkhnyaya Balkariya (Republic of Kabardino-Balkaria, Russia). The speakers were either asked to judge whether a single sentence was acceptable in their dialect, or to compare the acceptability of a pair of sentences. Sentences judged as grammatical are marked with $^{\text{ok}}$, ungrammatical as *, and $^{?}$ is used for marginally acceptable sentences.

[2]English data were elicited from eight native speakers. The speakers were presented with one sentence or a pair of sentences. They were asked to judge each sentence on the scale from 1 (ungrammatical) to 5 (grammatical). Evaluations from 1 to 2 were considered "ungrammatical" (*), and 4 to 5 as "grammatical" ($^{\text{ok}}$). The examples for which the speakers' evaluations averaged around 3 are marked $^{?}$ (marginally acceptable). For sentence pairs the speakers were also asked whether they

The Adjunct Condition was originally proposed by Huang (1982, 497-499, 503-514). It restricts movement out of adjuncts and can be illustrated by the following contrast:

(1) a. [ok] I know **which song$_1$** you liked **[listening to _$_1$]**.

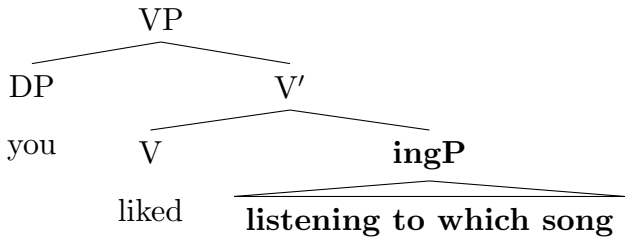
b. * I know **which song$_1$** you cleaned the room **[listening to _$_1$]**.

In (1a) a noun phrase *which song* is extracted from an *ing*-clause *listening to* _ , which serves as the complement of *liked*, and the sentence is fine. In (1b) the same noun phrase *which song* is extracted from the same *ing*-clause *listening to* _ . But the *ing*-clause is an adjunct, and the sentence is bad.

In both cases the moved constituent is the same (*which song*), and the clause that it is extracted from is the same (*listening to* _). The only difference is the syntactic position of the clause: complement in (1a) vs. adjunct in (1b). The Adjunct Condition can be preliminary stated as follows: extraction is not possible out of adjuncts (but is possible out of complements).

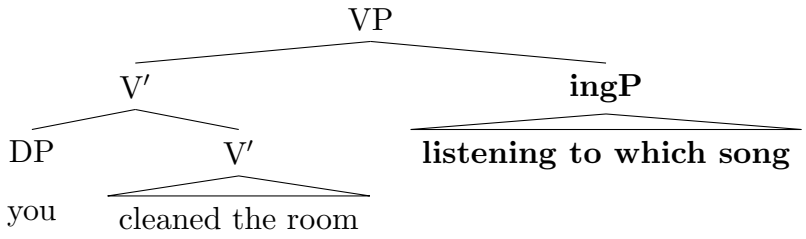
There are two respects in which complements are different from adjuncts. First, they stand in different semantic relations to the main clause. Adjuncts are *modifiers*, complements may not be. Modifiers are optional and do not fill any argument slots of the main predicate. Second, they occupy different structural positions. Complements merge with a head, as is illustrated in (2a), adjuncts merge with a phrase, as is illustrated in (2b).

(2) a. Complement:



perceived a contrast in grammaticality between the two members of the pair.

b. Adjunct:



In X-bar theory these two properties are connected: all adjuncts are modifiers, and no complements are modifiers. In the Bare Phrase Structure framework (Chomsky, 1995) it is not the case, because complements can be modifiers (see Chapter 1 for discussion).

As the result, Bare Phrase Structure offers two views of the Adjunct Condition: modifier accounts vs. configurational accounts. *Modifier accounts* are a variety of different theories (Chomsky, 2004; Truswell, 2007; Stepanov, 2007; Hunter, 2010, 2015; Bošković, 2017, among a few others), which all capitalize on the argument vs. modifier distinction. *Configurational accounts* (Uriagereka, 1999; Nunes and Uriagereka, 2000; Johnson, 2003; Sheehan, 2010) capitalize on the structural distinction: merged with a head vs. merged with a phrase.

Modifier accounts claim that modifiers are integrated into the clause via special syntactic rules, which make them opaque. These theories can be further classified into two groups.

Semantic modifier accounts (Truswell, 2007 and Bošković, 2017) claim that the crucial property of modifiers is in how they are incorporated into the main clause at the semantic level. Modifiers are interpreted conjunctively and combine with the matrix clause via Predicate Modification and, according to semantic modifier accounts, it is this that makes them opaque for extraction.

Syntactic modifier accounts (Chomsky, 2004; Stepanov, 2007; Hunter, 2010, 2015) claim that the crucial property of modifiers is in how they are incorporated into the main clause in syntax. Stepanov (2007), building on Lebeaux (1991), suggests that all modifiers are always merged late (counter-cyclically), after all the other

operations have been performed, including movement. According to Stepanov, it is this that makes modifiers inaccessible for movement. Meanwhile, Chomsky (2004) and Hunter (2010, 2015) propose special tree-building operations. Chomsky (2004) assumes that modifiers are combined with the rest of the clause via the special Pair-Merge rule. Hunter (2010, 2015) assumes that, while non-modifiers are combined with their heads by Merge and a special operation Insert, modifiers only use Insert.

As opposed to modifier accounts, configurational accounts capitalize on the structural asymmetry: complements merge with a head, adjuncts merge with a phrase. The Spell Out theory, presented in Chapter 1, belongs to this camp. Consider the two core empirical claims of the Spell Out theory, repeated in (3).

(3) a. When two phrases are sisters, at least one of them must be spelled out.
b. A spelled out phrase does not project its category.

From (3) it follows that all adjuncts must be spelled out, because they are maximal projections and are merged with a phrase. To spell out a constituent means to ship it off to both LF and PF interfaces, which assign semantic and phonological representation. As a result, this constituent becomes a term, like a lexical item, and, consequently, opaque for extraction (see Chapter 1). Thus, it follows from (3) that all adjuncts are opaque.

But crucially, it does not follow that all modifiers are opaque, as modifier accounts predict. The Spell Out theory predicts that modifiers can be transparent in two cases:

(4) a. A modifier is transparent if it is merged with a head (is a complement).
b. A modifier is transparent if its sister is spelled out.

The first case (4a) arises when a modifier is merged low. If it is merged with a head, it is no longer an adjunct, it is an un-selected complement, as per definitions from Chapter 1, and is expected to be transparent. It could still be **interpreted** as a modifier (e.g, via Predicate Modification or Event Identification), in the sense

that it does not fill any argument slot of the main predicate. But structurally it is a complement, because it is a sister to a head, and this is why it is expected to be transparent.

The second case (4b) arises when a modifier is merged with a phrase, but it is this phrase that is spelled out. In this case the modifier projects its category. For the purposes of this thesis I will suggest that this is only possible if, first, the sister of the modifier could be spelled out (that is, it has all of its unvalued features valued and EPP features satisfied), and second, both the modifier and its sister are of the same category. This is a circumstance that permits either to project, because in either case the mother node will have the same category, and hence, the same syntactic distribution. That is, the mother node will be selected by the same set of heads regardless of which of its daughters projects. An important prediction of this analysis is that the sister of a transparent modifier has to be opaque. No simultaneous extraction out of the modifier and out the main clause should be possible.

In what follows I will show that apparent counterexamples to the Adjunct Condition found in Balkar and English fall precisely under the two categories in (4). Either they involve extraction out of a complement, not an adjunct, or they do involve extraction out of an adjunct, but its sister has to be opaque, which supports the Spell Out theory.

In sections 2.2, 2.3 and 2.4 I will present a case study of Balkar converbs (non-finite adjunct clauses). Crucially, Balkar converbs are modifiers. They are optional and do not fill any argument slots of the main predicate. Modifier accounts predict them to be always opaque. However, as I will show below, these clauses can be transparent for scrambling. Furthermore, they are transparent in precisely the two situations described by (4), as the Spell Out theory predicts. Balkar converbs are a perfect case study for two reasons. First, the attachment site and the category of a converb clause can be established independently from extraction. Second, scrambling in Balkar permits moving more than one constituent at once. This makes it possible to test the prediction in (4b).

In section 2.5 I will briefly consider some known apparent exceptions to the Adjunct Condition in English, originally pointed out by Truswell (2007), in the light of what we find in Balkar. We will see that the analysis proposed for Balkar can be extended to the English data as well without additional stipulations.

If modifiers can only be transparent under the conditions described by (4), it provides a strong argument in favor of the Spell Out theory. Modifier accounts do not have a clear way of dealing with transparent modifiers at all. What matters for modifier accounts is whether the constituent in question fills an argument slot or not, but not its structural position or the transparency of its sister.

2.2 Introducing Balkar converbs

2.2.1 Preliminaries

It is obvious that the predictions of the Spell Out theory crucially depend on our assumptions about the category of the modifier, its position in the main clause and the category of the modifier's sister.

In this section I will introduce non-finite clausal adjuncts in Balkar (so-called converbs). We will discuss their size, i.e., their category, and their syntactic position. But before we proceed, let me make some preliminary observations about the clausal structure in Balkar.

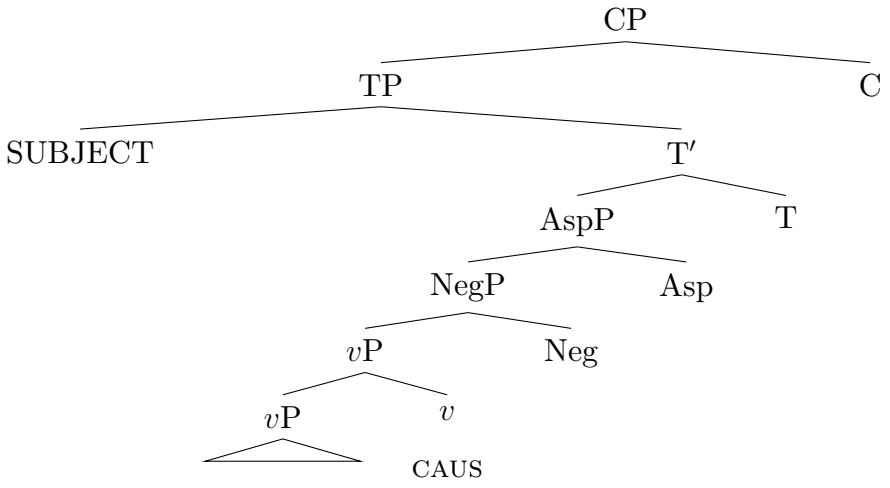
Balkar is a head final (SOV) language with rich verbal morphology:

(5) Root + Voice + Negation + Aspect (auxiliary) + Tense + Agreement
based on (Podobryaev, 2004)

Given the morphological structure of the verb, presented in (5), and following the Mirror Principle (Baker, 1985), I will assume the following syntactic structure for a simple clause in Balkar:[3]

[3]I will assume that subject in Balkar (the noun phrase that controls verbal agreement) is base generated within the vP and later moves to Spec,TP, and that finite agreement morphology is located in T.

(6) Balkar clause:



Let me point out two important assumptions illustrated by the tree in (6). First, the causative morphology (CAUS) is hosted by a v head, which takes another vP (or VP) as its complement. This analysis is based on Harley (1996), among many others. For Balkar causatives specifically it was proposed and developed by Lyutikova et al. (2006). Second, Negation is located low: above the vP, but below aspect auxiliaries. Here I am following the Mirror Principle: I assume that the location of the negative suffix inside the verb form is mirroring the syntactic position of the corresponding head in syntax, cf. (5) and (6).

2.2.2 Converbs

Balkar has a whole variety of clausal and non-clausal modifiers. For the purposes of this case study I will focus on non-finite clauses headed by a verb with the suffix *-a*[4] or *-p*. These clauses will be referred to as 'converbs' or 'converb clauses'.

The term comes from the literature on Turkic languages, where it is sometimes applied to all non-finite clausal adjuncts (see Kornfilt, 1997, Pazelskaya and Shluin-

[4]The suffix *-a* has two allomorphs: *-j* after vowels and *-a* after consonants (Podobryaev, 2004). As most suffixes in Turkic languages and Balkar specifically, the allomorph *-a* is subject to vowel harmony, that is, it is realized as *-a* in back environments and as *-e* in front environments. When naming morphemes here and throughout, I will conventionally use the back variant.

sky, 2007, Grashchenkov and Ermolaeva, 2015, Grashchenkov, 2015 and Ermolaeva, 2016, among others). Here and below I will use the term 'converb' specifically for non-nominalized, non-finite clauses formed by the two aforementioned suffixes.

The choice between *-a* and *-p* depends on the temporal relation between the converb clause and the main clause. As in many other Turkic languages, in Balkar *-p* is primarily used for precedence (7b), and *-a* – for simultaneity (7a).[5]

(7) a. ok Aslan$_1$ **[PRO$_1$ zir-la zirla-j]** šorpa ete-j e-di
Aslan song-PL sing-CONV soup make-CONV AUX-PST1.3SG
'Aslan$_1$ was making soup, **PRO$_1$ singing songs**.'

b. ok ustaz$_1$ **[PRO$_1$ ešik-ni ac-ıp]** stol-nu otou-ʁa kij-ir-di
teacher door-ACC open-CONV table-ACC room-DAT come.in-CAUS-PST1.3SG
'The teacher$_1$ carried the table into the room, **PRO$_1$ having opened the door**.'

As in many other Turkic languages, the converb clause in Balkar usually does not have its own overt subject (Kornfilt, 1997, 68). It has a gap in the subject position, presumably, a PRO argument that is interpreted as co-referent with the subject of the main clause (I will discuss possible controllers for PRO in more detail in section 2.4.1 below).

There are, however, certain semantic conditions (Grashchenkov and Ermolaeva, 2015 and Ermolaeva, 2016), under which a converb clause may have its own overt subject, similar to absolutive adjuncts in English (Stump, 1985). The subject of a converb clause has zero case marking, which means that either it has no case or that it bears nominative, since nominative marking is consistently null:

[5]Sometimes *-p* may be used with the simultaneous reading as well. It is not clear to me when it is possible, so I am going to assume that for the simultaneity reading both *-p* and *-a* are freely available, while the precedence reading can only be expressed by *-p*.

(8) a. ok **[zašcɨq tabaq-la kel-tir-e]** Fatima stol-ʁa azɨq sal-a
boy plate-PL come-CAUS-CONV Fatima table-DAT food put-CONV
e-di
AUX-PST1.3SG
Lit.: '**The boy bringing plates**, Fatima was setting the table.'
'While the boy was bringing plates, Fatima was setting the table.'

b. ok **[zašcɨq ešik-ni ac-ɨp]** ustaz stol-nu otou-ʁa
boy door-ACC open-CONV teacher table-ACC room-DAT
kir-giz-t-di
come.in-CAUS-CAUS-PST1.3SG
Lit.: '**The boy having opened the door**, the teacher carried the table into the room.'
'After the boy opened the door, the teacher carried the table into the room.'

Here and throughout I will only give the literal translation for converbs with overt subjects, which may not always be a grammatical sentence or may not have the same meaning in English. Whenever it is important for the current discussion, a more detailed description of the meanings of Balkar sentences will be provided in the text.

2.2.3 Scrambling

Balkar has scrambling, which correlates with differences in information structure. Most constituents can be moved away from their base position. In most cases this happens to constituents that are interpreted as given or topical, while focused constituents remain in-situ and, preferably, adjacent to the verb. For instance, in (9) the object of the embedded clause *Fatimani kitabɨn* 'Fatima's book' is moved (i.e., scrambled) to the left periphery of the main clause.

(9) ok ***[Fatima-ni kitab-ɨn]*** $_1$ men **[bu zašcɨq** $_1$ **oqu-sa]** süj-e-me
Fatima-GEN book-ACC I this boy read-COND love-PRS-1SG
'I want **that boy to read *Fatima's book*** $_1$.'

Scrambling is possible out of both converbs with an overt subject and converbs with PRO, as is shown by (10a) and (10b) respectively.

(10) a. ok ***ešik-ni₁*** men **[[Fatima _1 bezgi-ler-in-den teš-ip]** Kerim
door-ACC I Fatima hinge-PL-3-ABL take.off-CONV Kerim
tešek-ni üj-ge alaj kij-ir-di] de-di-m
bed-ACC house-DAT thus come.in-CAUS-PST1.3SG say-PST1-1SG
'I said **Fatima having taken *the door₁* off its hinges**, Kerim carried the bed into the house.'

b. ok ***[meni zɨr-ɨm-mɨ]₁*** men [Aslan$_2$ zol-da **[PRO$_2$ _1 zɨrla-j]**
my song-1SG-ACC I Aslan road-LOC sing-CONV
bar-ʁan] sun-a-ma
go-NZR think-PRS-1SG
'I think Aslan$_2$ was walking down the road, **PRO$_2$ singing *my song$_1$***.'

However, there are two crucial differences between the configuration in (10a) and in (10b). First, whether a PRO-converb can be scrambled out of or not depends on the type of the main verb, as is schematized in (11) and illustrated in (12). The main verb cannot be transitive (11a) or unergative (11b). It has to be an unaccusative verb of position (11c) or motion (11d).

(11) a. * XP_1 ... [$_{main}$ ... [$_{PRO\text{-}conv}$ ... _1 ...] ... $V_{transitive}$] ... (12a)
b. * XP_1 ... [$_{main}$ ... [$_{PRO\text{-}conv}$ ... _1 ...] ... $V_{unergative}$] ... (12b)
c. ? XP_1 ... [$_{main}$ ... [$_{PRO\text{-}conv}$ ... _1 ...] ... $V_{position}$] ... (12c)
d. ok XP_1 ... [$_{main}$ ... [$_{PRO\text{-}conv}$ ... _1 ...] ... V_{motion}] ... (12d)

(12) a. * ***[zarɨq zɨr-nɨ]₁*** men [Kerim$_2$ ušuxuuur **[PRO$_2$ _1 zɨrla-j]** **<u>xazɨrla-ʁan</u>**]
happy song-ACC I Kerim food sing-CONV cook-NZR
sun-a-ma
think-PRS-1SG
'I think that Kerim$_2$ was **<u>making</u>** dinner, **PRO$_2$ singing *a happy song*.**'

b. * ***[zarɨq zɨr-nɨ]₁*** men [Kerim$_2$ baxca-da **[PRO$_2$ _1 zɨrla-j]** **išle-gen**]
happy song-ACC I Kerim garden-LOC sing-CONV work-NZR
sun-a-ma
think-PRS-1SG
'I think that Kerim$_2$ was **working** in the garden, **PRO$_2$ singing *a happy song***.'

c. ? ***[meni kitab-ɨm-mɨ]₁*** men [Kerim$_2$ divan-da **[PRO$_2$ _1 oqu-j]**
my book-1SG-ACC I Kerim couch-LOC read-CONV
zat-xan] sun-a-ma
lie-NZR think-PRS-1SG
'I think that Kerim$_2$ was **lying** on the couch, **PRO$_2$ reading *my book***.'

d. ok ***[meni zɨr-ɨm-mɨ]₁*** men [Aslan$_2$ zol-da **[PRO$_2$ _1 zɨrla-j]** **bar-ʁan**]
my song-1SG-ACC I Aslan road-LOC sing-CONV go-NZR
sun-a-ma
think-PRS-1SG
'I think that Aslan$_2$ was **walking** down the road, **PRO$_2$ singing *my song***.'

A converb with an overt subject behaves differently, that is, the type of the main verb does not affect its transparency:

(13) a. ok XP_1 ... [$_{main}$ [$_{subj\text{-}conv}$ ... _1 ...] ... $V_{transitive}$] ... (14a)
b. ok XP_1 ... [$_{main}$ [$_{subj\text{-}conv}$ ... _1 ...] ... $V_{unergative}$] ... (14b)
c. ok XP_1 ... [$_{main}$ [$_{subj\text{-}conv}$ ... _1 ...] ... $V_{position}$] ... (14c)
d. ok XP_1 ... [$_{main}$ [$_{subj\text{-}conv}$ ... _1 ...] ... V_{motion}] ... (14d)

(14) a. ok ***ešik-ni₁*** men [**[Fatima _1 bezgi-ler-in-den teš-ip]** Kerim
door-ACC I Fatima hinge-PL-3-ABL take.off-CONV Kerim
tešek-ni üj-ge alaj **kij-ir-di**] de-di-m
bed-ACC house-DAT thus come.in-CAUS-PST1.3SG say-PST1-1SG
'I said **Fatima having taken *the door* off its hinges**, Kerim **carried** the bed into the house.'

b. ok ***Fatima-ʁa₁*** men [**[Kerim _1 boluš-a]** baxca-da ol$_1$ alaj **išle-gen**]
Fatima-DAT I Kerim help-CONV garden-LOC 3SG thus work-NZR
sun-a-ma
think-PRS-1SG
'I think **Kerim helping *Fatima₁***, she$_1$ **worked** in the garden.'

c. ok ***tüken-ge₁*** men **[[Fatima _1 ket-ip]** üj-de quru Kerim **tur-ʁan]**
store-DAT I Fatima leave-CONV house-LOC only Kerim stay-NZR
sun-a-ma
think-PRS-1SG
'I think **Fatima going *to the store***, Kerim **stayed** home alone.'

d. ok ***[qart ana-si-na]₁*** men **[[Kerim _1 boluš-a]** zol-da ol$_1$ alaj
old mother-3SG-DAT I Kerim help-CONV road-LOC 3SG thus
bar-ʁan] sun-a-ma
go-NZR think-PRS-1SG
'I think that **Kerim helping *the old lady₁***, she$_1$ was **walking** down the road.'

Second, scrambling a constituent out of a PRO-converb has no effect on the transparency of the main clause. As is schematized in (15) and illustrated by (16), it is possible to scramble a constituent out of the main clause (15a), out of the converb clause (15b), and out of both clauses simultaneously (15c).

(15) a. ok XP_1 ... [$_{main}$ _1 ... [$_{PRO\text{-}conv}$ ... YP_3 ...] ...] ... (16a)

b. ok YP_3 ... [$_{main}$ XP_1 ... [$_{PRO\text{-}conv}$ ... _3 ...] ...] ... (16b)

c. ok XP_1 YP_3 ... [$_{main}$ _1 ... [$_{PRO\text{-}conv}$ ... _3 ...] ...] ... (16c)

(16) a. ok ***zol-da₁*** Fatima [Kerim$_2$ _1 **[PRO$_2$ [ol zir-ni]$_3$ zirla-j]** bar-a
road-LOC Fatima Kerim that song-ACC sing-CONV go-CONV
e-di] de-gen-di
AUX-3SG say-PST2-3SG
'Fatima said Kerim$_2$ was walking ***by the road***, **PRO$_2$ singing that song**.'

b. ok ***[ol zir-ni]₃*** Fatima [Kerim$_2$ zol-da$_1$ **[PRO$_2$ _3 zirla-j]** bar-a
that song-ACC Fatima Kerim road-LOC sing-CONV go-CONV
e-di] de-gen-di
AUX-3SG say-PST2-3SG
'Fatima said Kerim$_2$ was walking by the road, **PRO$_2$ singing *that song***.'

c. ok ***zol-da₁ [ol zir-ni]₃*** Fatima [Kerim$_2$ _1 **[PRO$_2$ _3 zirla-j]** bar-a
road-LOC that song-ACC Fatima Kerim sing-CONV go-CONV
e-di] de-gen-di
AUX-3SG say-PST2-3SG
'Fatima said Kerim$_2$ was walking ***by the road***, **PRO$_2$ singing *that song***.'

At the same time, if scrambling applies from a converb with an overt subject, the main clause becomes opaque. It is possible to scramble a constituent out of the main clause (17a), out of the converb clause (17b), but crucially **not out of both** clauses simultaneously (17c).

(17) a. ok YP$_2$ ... [$_{main}$ [$_{subj\text{-}conv}$ ... XP$_1$ ...] ... _2 ...] ... (18a)

b. ok XP$_1$ ... [$_{main}$ [$_{subj\text{-}conv}$ ... _1 ...] ... YP$_2$ ...] ... (18b)

c. * XP$_1$ YP$_2$ ... [$_{main}$ [$_{subj\text{-}conv}$ ... _1 ...] ... _2 ...] ... (18c)

(18) a. ok ***üj-ge₂*** men
house-DAT I
[[Fatima ešik-ni bezgi-ler-in-den teš-ip] Kerim tešek-ni **_2**
Fatima door-ACC hinge-PL-3-ABL take.off-CONV Kerim bed-ACC
kijir-di] de-di-m
carry-PST1.3SG say-PST1-1SG
'I said **Fatima having taken the door off its hinges**, Kerim carried the bed ***into the house***.'

b. ok ***ešik-ni₁*** men
door-ACC I
[[Fatima _1 bezgi-ler-in-den teš-ip] Kerim tešek-ni üj-ge$_2$
Fatima hinge-PL-3-ABL take.off-CONV Kerim bed-ACC house-DAT
kijir-di] de-di-m
carry-PST1.3SG say-PST1-1SG
'I said **Fatima having taken *the door* off its hinges**, Kerim carried the bed into the house.'

c. * ***ešik-ni$_1$ üj-ge$_2$*** men
door-ACC house-DAT I
[[Fatima _1 **bezgi-ler-in-den teš-ip]** Kerim tešek-ni _2
Fatima hinge-PL-3-ABL take.off-CONV Kerim bed-ACC
kijir-di] de-di-m
carry-PST1.3SG say-PST1-1SG
'I said **Fatima having taken *the door* off its hinges**, Kerim carried the bed ***into the house***.'

To sum up, extraction out of converbs with PRO and out of converbs with an overt subject is different in two ways. First, the transparency of a PRO-converb depends on the type of the main verb, while the transparency of a converb with an overt subject does not. Second, scrambling out of a PRO-converb does not make the main clause opaque, while scrambling out of a converb with an overt subject does.

Remember that the Spell Out theory predicts extraction out of modifiers to be possible, but under precisely two independent conditions (4). A modifier is transparent if it is merged with a head (4a), or if its sister is spelled out (4b). Hence, the possibilities of scrambling out of PRO-converbs and converbs with an overt subject in Balkar behave exactly as we expect. In the remainder of this chapter I will argue that converbs with PRO confirm the prediction in (4a), and converbs with an overt subject confirm the prediction in (4b).

2.2.4 Outline

In what follows I will argue that Balkar converbs come in three varieties.

CP-converbs (with an overt subject) contain a full CP structure. They can contain a causative morpheme, negation, an aspectual auxiliary, a TP-level adverb and an overt subject. They bear a special semantic relation to the main clause, encoded by their silent C (they describe either an event that overlaps with the event described by the main clause or an event that causes it).

TP-converbs (with PRO) contain a full TP structure. They can contain a causative morpheme, negation, an aspectual auxiliary, a TP-level adverb, but not an overt subject. They do not bear any special semantic relation to the main clause,

apart from the temporal one.

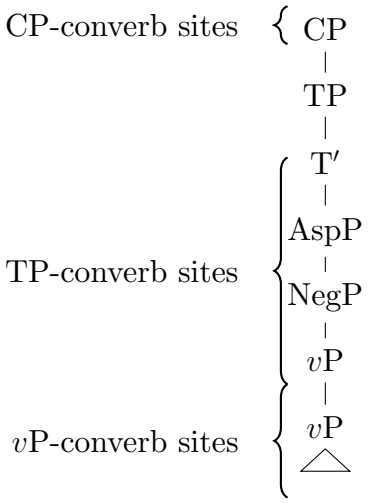
vP-converbs (with PRO) are bare *v*Ps. They can contain a causative morpheme, but not negation, an aspectual auxiliary, a TP-level adverb or an overt subject:

(19) Converb types in Balkar

Can contain:		causative	negation	Asp	TP-adverb	subject
converbs with subject	CP-converbs	yes	yes	yes	yes	yes
converbs	TP-converbs	yes	yes	yes	yes	no
with PRO	*v*P-converbs	yes	no	no	no	no

CP-converbs are attached at the left periphery of the main clause, they cannot be interpreted in the scope of negation or the subject of the main clause. Meanwhile, TP-converbs can be interpreted in the scope of negation and the subject of the main clause. They attach at the T′, the AspP, the NegP or the *v*P level. Finally, *v*P-converbs have to be attached inside the *v*P of the main clause, that is, as a sister to *v*′ or V′. If the main verb does not have its own object **and** is a verb of motion or position, a *v*P converb may merge directly with the verb, as its complement:

(20) Attachment sites



Interestingly, there seems to be a correlation between the size of the converb

clause and its attachment site: "like merges with like". CP merges with CP, TP merges with a projection between T′ and *v*P, *v*P merges within the *v*P. This might be due to the modificational, conjunctive semantics of the converb clause. If it is semantically integrated into the main clause via Predicate Modification, its sister has to be interpreted as a predicate of the same type.

TP-converbs are always opaque for scrambling. This is as predicted by the Spell Out theory. Their sister is a phrase which cannot be spelled out, either because it is not of the same category as the converb (AspP, NegP, *v*P), or because not all of its features have been satisfied (T′).

Only CP- and *v*P-converbs can be transparent for scrambling. *v*P-converbs are only transparent in the context of a verb of motion or position. This means that *v*P-converbs are only transparent if they are merged as complements (sister to head). They are still optional and do not fill any argument slots of the main predicate. They are modifiers, so the modifier accounts predict them to be opaque. But they are merged as complements and are transparent, as predicted by (4a). As expected, their transparency does not affect the transparency of the main clause.

Prediction (4b) is confirmed by CP-converbs. It is possible to scramble a constituent out of the main CP, as schematized in (21a) and illustrated by (18a), a constituent out of the CP-converb, as schematized in (21b) and illustrated by (18b), but not out of both, as schematized in (21c) and illustrated by (18c). Crucially, it is not the case that scrambling two constituents at the same time is impossible in Balkar in principle. For example, it is possible in the case of a *v*P-converb (16c). But it is not possible with a constituent inside a CP-converb and a constituent inside its sister:

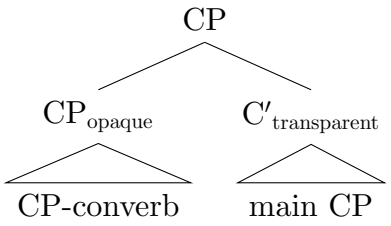
(21)

a.	ok	YP_2	... [$_{main}$ [$_{subj\text{-}conv}$ ... XP_1 ...]	... $\__2$	...] ... (18a)
b.	ok	XP_1	... [$_{main}$ [$_{subj\text{-}conv}$ ... $\__1$ ...]	... YP_2	...] ... (18b)
c.	*	XP_1 YP_2	... [$_{main}$ [$_{subj\text{-}conv}$ ... $\__1$ ...]	... $\__2$	...] ... (18c)

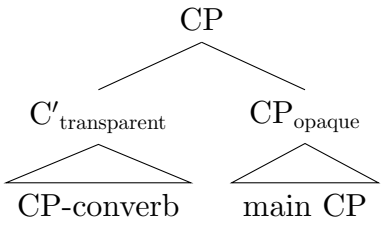
CP-converbs are adjuncts. But because their sister is a also a CP, either the

converb or its sister can be spelled out. The spelled out constituent does not project:

(22) a. Spelling out the converb:



b. Spelling out the main clause:



The case of CP-converbs will be discussed in detail in section 2.3. TP- and *v*P-converbs will be discussed in detail in section 2.4.

2.3 Extracting from converbs with subjects

This section focuses on converbs with an overt subject. Here I will argue that (a) they are CPs (with a defective T and a silent C); and (b) that they are attached at the CP level.

2.3.1 CP-coverbs

Size

In this section I will argue that converbs with overt subjects contain at least a TP. First, they can contain recursively embedded *v*Ps, that is, a causative construction. For example, in (23) the converb clause contains the causative marker *-tɨr* and the corresponding Causer argument (*doktor* 'doctor').

(23) ok **[doktor Kerim-ge tereze-ni ac-tɨr-ɨp]** sau-suz
doctor Kerim-DAT window-ACC open-CAUS-CONV healthy-CAR
igi-rek bol-ʁan-dɨ
good-COMP become-PST2-3SG
'**The doctor making Kerim open the window**, the patient felt better.'

Second, converbs with overt subjects contain enough verbal projections to host negation, that is, they include NegP. This can be easily shown for the *-a* converb:

(24) ok **[Kerim Fatima-nɨ ujat-ma-j]** Fatima kece ozuu-nu
Kerim Fatima-ACC wake.up-NEG-CONV Fatima night throughout-ACC
zuqla-ʁan-dɨ
sleep-PST2-3SG
'**Kerim not waking Fatima up**, Fatima slept through the night.'

The converb suffix *-p* is incompatible with the negative suffix regardless of whether the converb has a subject or not, and regardless of whether the converb clause functions as a modifier or as an argument. This is true across Turkic languages (see Grashchenkov, 2015, and for Balkar specifically – Lyutikova et al., 2006). The combination of morphemes *ma+p* 'NEG-CONV' is simply ill-formed:

(25) * ujat-ma-p
wake.up-NEG-CONV

For the present purposes I will assume that this is a morphological gap, and that the verbal structure inside the converb clause does contain the Neg head that hosts negation, as is evident from (24).

Third, converb clauses with overt subjects include aspectual projections, i.e., AspP. In particular, they can contain the aspectual auxiliary *tur* 'HAB':

(26) ok **[Fatima ustaz-nɨ quru cakɨr-ɨp tur-ɨp]** sabij-le
Fatima teacher-ACC constantly call-CONV HAB-CONV kid-PL
ojna-jal-ma-j e-di-le
play-POT-NEG-CONV AUX-PST1-PL
'**Fatima constantly calling the teacher**, the kids weren't able to play.'

Finally, converb clauses with overt subjects can contain a temporal adverbial specifying the Topic Time, independent from the Topic Time of the main clause:

(27) ok **[Aslan tünene mašɨna-nɨ sat-ɨp al-ɨp]** biz bügün šaxar-ʁa
Aslan yesterday car-ACC buy-CONV take-CONV we today city-DAT
bar-ʁan-bɨz
go-PST2-1PL
'**Aslan buying a car yesterday**, we drove to the city today.'

However, there cannot be a tense mismatch between the converb clause and the main clause. Thus, in (27) the Topic Times are different (yesterday vs. today), but

the tense is the same: past. If the main clause is in the future tense, the converb clause may not be in the past, see (28).

(28) * **[Aslan tünene mašina-nɨ sat-ɨp al-ɨp]** biz tambla šaxar-ʁa
Aslan yesterday car-ACC buy-CONV take-CONV we tomorrow city-DAT
bar-lɨq-bɨz
go-FUT-1PL
Intended: '**Aslan buying a car yesterday**, we will drive to the city tomorrow.'

It seems that even though converbs with overt subjects have their own TP, this TP is defective. The tense feature of the converb clause has to match the tense feature of the main clause.

To sum up, converbs with overt subjects contain at least the following set of verbal projections: TP > AspP > NegP > vP (with a defective [–fin(ite)] T).

As established by Grashchenkov and Ermolaeva (2015) and Ermolaeva (2016), whether the converb clause may have an overt subject or not depends on its semantic relation to the main clause.[6] With PRO the simple temporal relation (precedence or simultaneity) is enough, while with an overt subject there is some additional semantic relation to the main clause, similar to absolutive adjuncts in English (Stump, 1985). I will assume that this semantic relation is encoded by the silent C that embeds the converb clause inside the main one and licenses the overt subject.

There are four cases when a converb may have its own overt subject. The first case is when the subject of the converb clause and the subject of the main clause stand in the part-whole relation:

(29) ok **[qol-lar-ɨ$_1$ qaltɨra-j]** Kerim$_1$ stol-nu otou-ʁa
hand-PL-3 shake-CONV Kerim table-ACC room-DAT
kir-giz-t-di
come.in-CAUS-CAUS-PST1.3SG
'**His$_1$ hands shaking**, Kerim$_1$ carried the table into the room.'

[6]These authors look at a variety of closely related Turkic languages, like Mishar Tatar and Kyrgyz, but not Balkar. However, their generalizations apply to Balkar as well.

The second case is when the converb and the main clause "describe the same event". More precisely, when the event associated with the converb clause and the event associated with the main clause overlap (including cases when one is a subevent of the other and cases when they describe the same event):

(30) ok **[Fatima bir-inci alʁiš ajt-ip]** quuancnɨ bašla-dɨ
Fatima one-ORD toast say-CONV celebration begin-PST1.3SG
'**Fatima saying the first toast**, the celebrations began.'
→ The celebrations included Fatima saying the first toast.

(31) ok **[zaščɨq tabaq-la kel-tir-e]** Fatima stol-ʁa azɨq sal-a e-di
boy plate-PL come-CAUS-CONV Fatima table-DAT food put-CONV AUX-PST1.3SG
'**The boy bringing plates**, Fatima was setting the table (for dinner).'
→ Fatima was using the plates that the boy was bringing.

In (30) the two clauses describe the same event. In (31) we are dealing with an event overlap. To the extent that it is acceptable, the sentence in (31) implies that Fatima was using the plates that the boy was bringing. Otherwise, the speakers find the two clauses "not semantically connected" and judge the sentence as bad. The two events overlap in the sense that they share a participant, namely, the plates. The boy is bringing them, and Fatima is using them to set the table.

Perhaps, a careful definition of event overlap will also subsume cases of the part-whole relation between participants, as in (29).

The third case is when the converb clause and the main clause stand in the relation of 'counterfactual causation'. Lewis (1973) and Dowty 1979, 99-110 define causation through a counterfactual inference. According to them, ϕ causes ψ if (a) ϕ is true, (b) ψ is true, and (c) if ϕ wasn't true, ψ wouldn't have been true (the counterfactual inference).

A Balkar converb may have its own overt subject, if the sentence has a counterfactual inference of the form 'if e_1 didn't happen, e_2 wouldn't have happened', where e_1 is the event associated with the converb and e_2 is the event associated with the main clause, as in (32).

(32) a. ok **[Fatima ešik-ni bezgi-ler-in-den teš-ip]** Kerim tešek-ni
Fatima door-ACC hinge-PL-3-ABL take.off-CONV Kerim bed-ACC
üj-ge (alaj) kij-ir-di
house-DAT thus come.in-CAUS-PST1.3SG
'**Fatima having taken the door off its hinges**, Kerim carried the bed into the house.'
→ If Fatima didn't take the door off its hinges, Kerim wouldn't have carried the bed into the house.

b. ok **[zašcɨq ešik-ni ac-ɨp]** ustaz stol-nu otou-ʁa
boy door-ACC open-CONV teacher table-ACC room-DAT
kir-giz-t-di
come.in-CAUS-CAUS-PST1.3SG
'**The boy having opened the door**, the teacher carried the table into the room.'
→ If the boy didn't open the door, the teacher wouldn't have carried the table into the room.

The sentence in (32a) implies that if Fatima didn't take the door off its hinges, Kerim wouldn't have carried the table into the house. The sentence in (32b) implies that if the boy didn't open the door, the teacher wouldn't have carried the table into the room. In other words, because Fatima took the door off its hinges, Kerim carried the table into the house; and because the boy opened the door, the teacher carried the table into the room.

By contrast, the sentence in (33) is generally judged as odd with the comment that "the two events (Fatima going to the store and Kerim feeding the dogs) are not connected".

(33) # **[Fatima tüken-ge bar-ɨp]** Kerim it-le-ge aš aša-t-dɨ
Fatima store-DAT go-CONV Kerim dog-PL-DAT food eat-CAUS-3SG
'(With) Fatima having gone to the store, Kerim fed the dogs.'

Farima and Kerim do not stand in the part-whole relation, the two events described by (33) do not share participants. Hence, the only option left is the 'counterfactual causation'. But in this case (33) has to imply that Kerim wouldn't have fed the dogs if Fatima stayed home, which is a strange inference to make.

In fact, this is precisely how the speakers tend to comment on (33). It could be an acceptable sentence, if, for example, Fatima was very strict and would never let Kerim feed the dogs while she was in the house. Hence, if she did stay home, he wouldn't have done that.

What is the pragmatic status of the counterfactual inference? Is it an implicature, a presupposition, or an entailment? This question requires more thorough semantic fieldwork and will be left open in this dissertation.

Finally, to a limited extent, Balkar converbs with an overt subject may restrict a modal operator in the matrix clause (similar to conditional sentences):

(34) ok **[Kerim Fatima-ʁa$_1$ mašina sat-ɨp al-ɨp]** ol$_1$ šaxar-ʁa
Kerim Fatima-DAT car buy-CONV take-CONV 3SG city-DAT
bar-al-lɨq-dɨ
go-POT-FUT-3SG
Lit.: '**Kerim buying Fatima a car**, she will be able to go to the city.'
'If Kerim buys Fatima a car, she will be able to go to the city.'

The difference between the counterfactual causation use in (32) and the conditional use in (34) is that in the latter case the sentence does not entail the truth of the converb clause. Namely, (34) does not entail that Kerim will buy Fatima a car. It can be followed up by 'but he will not' without a contradiction.

What happens instead is that the converb clause describes the condition under which Fatima will be able to go to the city. The converb restricts the future tense operator in the main clause, like an *if*-clause under Kratzer's (1986) analysis. The sentence in (34) can be paraphrased as 'if Kerim buys Fatima a car, she will be able to go to the city'.

Not all modal operators can be restricted by converbs with overt subjects. The future tense operator can be, but the circumstantial modal operator *-al* 'be able to', glossed in (34) as 'POT', may not. Take, for example, the present version of the sentence in (34), given in (35). In this case the truth of the converb clause **is** entailed. The sentence may not be continued by 'but Kerim will not buy her a car' without a contradiction.

(35) [ok] **[Kerim Fatima-ʁa$_1$ mašina sat-ɨp al-ɨp]** ol$_1$ šaxar-ʁa bar-al-a-dɨ
Kerim Fatima-DAT car buy-CONV take-CONV 3SG city-DAT go-POT-PRS-3SG
'**Kerim buying Fatima a car**, she is able to go to the city.'

The sentence in (35) has the 'counterfactual causation' meaning: because Kerim bought Fatima a car, it is now possible for her to go to the city.

The difference between (34) and (35) is similar to Stump's (1985) distinction between strong and weak free adjuncts. Stump's "free adjunct" is a non-finite clause that functions as a modifier: "A free adjunct is a non-finite predicative phrase with the function of an adverbial subordinative clause" (Stump, 1985, 4).

The distinction between strong and weak free adjuncts can be illustrated by the following minimal pair:

(36) a. Wearing that new outfit, Bill would fool everyone.

b. Being a master of disguise, Bill would fool everyone.

(Stump, 1985, 41-42)

In (36a) the adjunct clause *wearing that new outfit* is interpreted as the restrictor of the modal operator *would*. The sentence can be paraphrased as 'If Bill wore that new outfit, he would fool everyone'. This is a weak free adjunct. In (36b) the adjunct clause *being a master of disguise* is **not** interpreted as the restrictor of the modal operator. It stands in a causal relation to the main clause. The sentence cannot be paraphrased as 'If Bill was a master of disguise, he would fool everyone'. But it can be paraphrased as 'Because Bill was a master of disguise, he would fool everyone'. This is a strong free adjunct.

The difference is supported by the fact that (36a) does not entail that Bill wore that new outfit, while (36b) does entail that Bill was a master of disguise.

Balkar converbs with an overt subject may be interpreted either as weak or as strong free adjuncts. They can be understood causally or as the restrictor of a modal operator in the main clause. The question of which operators can be restricted by a converb with an overt subject, for example, why they can restrict the future tense operation, but not the ability modal, will have to remain for the future research.

To sum up, there are four circumstances in which a converb clause may have an overt subject in Balkar. First, if the subject of the converb clause and the subject of the main clause stand in the part-whole relation. Second, if the event described by the converb clause and the event described by the main clause overlap (including cases when one is a subevent of the other). Third, if the converb clause and the main clause are related by 'counterfactual causation'. This leads to the counterfactual inference: if the event described by the converb clause didn't happen the event described by the main clause wouldn't have happened. Fourth, if the converb clause restricts a modal operator in the main clause.[7]

In what follows I will assume that Balkar converbs with overt subjects are CPs with a silent complementizer. This complementizer has a double effect: (a) it licenses an overt subject; and (b) it introduces a special semantic relation to the main clause.

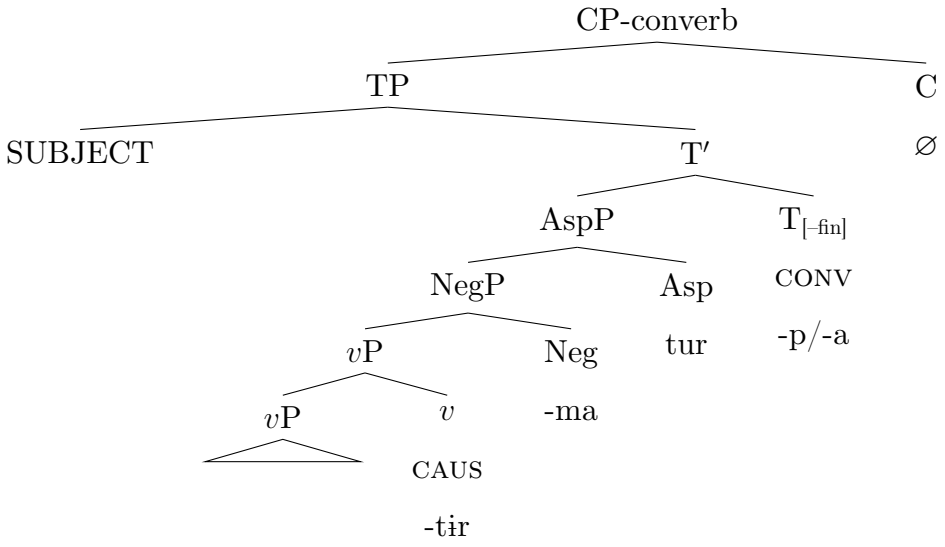
Thus, converb clauses with subjects have a full CP structure: CP $>$ $\text{TP}_{[\text{–fin}]}$ $>$ AspP $>$ NegP $>$ vP. Henceforth I will refer to them as CP-converbs.

(37) Converb types in Balkar

Can contain:		causative	negation	Asp	TP-adverb	subject
converbs with subject	**CP-converbs**	**yes**	**yes**	**yes**	**yes**	**yes**
converbs with PRO	TP-converbs	yes	yes	yes	yes	no
	vP-converbs	yes	no	no	no	no

[7]Cases 1 and 3 may, perhaps, be reduced to case 2. In the case of the part-whole relation there is a shared participant, namely, the subject. In the case of the causation relation, the two events can be construed as two subevents of a bigger event, one causing the other. However, it is harder to incorporate case 4 (the conditional use) into the same general meaning.

(38) A CP-converb:



Position

In the previous section I have argued that converbs with overt subjects are CPs. In this section I will argue that CP-converbs attach at the CP level of the main clause.

First, the default surface position for a CP-converbs is on the left periphery of the main clause. Other word orders are acceptable, but dispreferred (this is not the case for TP- and *v*P-converbs, see section 2.4.1):

(39) a. ok **[zaščɨq** **ešik-ni** **ac-ɨp]** ustaz stol-nu otou-ʁa
boy door-ACC open-CONV teacher table-ACC room-DAT
kir-giz-t-di
come.in-CAUS-CAUS-PST1.3SG

b. ? ustaz **[zaščɨq** **ešik-ni** **ac-ɨp]** stol-nu otou-ʁa
teacher boy door-ACC open-CONV table-ACC room-DAT
kir-giz-t-di
come.in-CAUS-CAUS-PST1.3SG

c. ? ustaz stol-nu **[zaščɨq** **ešik-ni** **ac-ɨp]** otou-ʁa
teacher table-ACC boy door-ACC open-CONV room-DAT
kir-giz-t-di
come.in-CAUS-CAUS-PST1.3SG

d. ? ustaz stol-nu otou-ʁa **[zaščıq ešik-ni ac-ıp]**
teacher table-ACC room-DAT boy door-ACC open-CONV
kir-giz-t-di
come.in-CAUS-CAUS-PST1.3SG
'**The boy having opened the door**, the teacher carried the table into the room.'

Second, a CP-converb cannot be interpreted in the scope of a causative marker in the main clause, regardless of the surface word order. Given the assumption that causative marking is hosted at v, it means that CP-converbs are attached at least above the main vP.

(40) a. ok **[zaščıq ešik-ni ac-ıp]** Fatima ustaz-ʁa stol-nu otou-ʁa
boy door-ACC open-CONV Fatima teacher-DAT table-ACC room-DAT
kir-giz-t-dir-gen-di
come.in-CAUS-CAUS-CAUS-PST2-3SG

b. ? Fatima ustaz-ʁa stol-nu otou-ʁa **[zaščıq ešik-ni ac-ıp]**
Fatima teacher-DAT table-ACC room-DAT boy door-ACC open-CONV
kir-giz-t-dir-gen-di[8]
come.in-CAUS-CAUS-CAUS-PST2-3SG
1. '**The boy having opened the door**, Fatima made the teacher carry the table into the room.'
2. *'Fatima made it so that the boy having opened the door and the teacher carried the table into the room.'

Neither sentence in (40) has an interpretation, where Fatima makes the boy open the door. The boy opening the door escapes the scope of the causative in the main clause.

Third, a CP-converb escapes the scope of negation in the main clause. This means that a CP-converb is attached at least above the main NegP.

[8]There is an extra causative marker in this verb. The first causative suffix *-giz* derives the meaning 'carry.into' from 'come.into' and introduces the teacher as the Causer (Agent) of the carrying event. The third causative suffix *-dir* introduces Fatima as another Causer. The second causative suffix *-t* does not introduce any arguments. Here I will assume the analysis developed by Lyutikova and Tatevosov (2012) and Tatevosov (2018), according to which this intermediate causative suffix marks the semantic relation between the two events: Fatima making the teacher carry the table and the teacher carrying the table.

Balkar has a Negative Polarity Item (NPI) of the form *bir NP-da* 'one NP-ADD'. Outside the scope of negation it means 'one more NP'. In the scope of negation it is interpreted as an existential quantifier, like English *any*. For more details on the particle *-da* and its relation to the negative polarity see Bylinina et al. (2020).

Negation may license this NPI across a clausal boundary:

(41) [ok] **bir ustaz=da** [sabij-le **bir kitap-nɨ=da** oqu-ʁan] sun-**ma**-j-dɨ
one teacher=ADD kid-PL one book-ACC=ADD read-NZR think-NEG-PRS-3SG
'It is not the case that **any teacher** thinks that the kids read **any book**.'

Notice that in (41) the negation on the main verb *sun* 'think' licenses both the NPI in the main subject position and the NPI in the embedded clause. This means that negation is in fact interpreted in the main clause (this is not a case of Neg-raising), which means that it 'genuinely' licenses the NPI in the embedded clause across a clause boundary.[9]

However, negation in the main clause may not license an NPI inside a CP-converb, regardless of the linear order:

(42) a. [?] **[oquucu-la bir üj iš-ni=da$_1$ et-ip]** ustaz aŋa$_1$
student-PL one home work-ACC=ADD make-CONV teacher 3SG.DAT
qara-**ma**-ʁan-dɨ
look-NEG-PST2-3SG

b. [?] ustaz **[oquucu-la bir üj iš-ni=da$_1$ et-ip]** aŋa$_1$
teacher student-PL one home work-ACC=ADD make-CONV 3SG.DAT
qara-**ma**-ʁan-dɨ
look-NEG-PST2-3SG

1. 'The students did one more homework, the teacher didn't grade it.'
2. *'It is not the case that there was a homework that the students did and the teacher graded.'

In neither sentence in (42) is the NPI licensed by the negation in the main clause. To the extent that these sentences are grammatical, the *bir NP-da* 'one NP-ADD'

[9]The fact that negation can license an NPI in the subject position means that either negation is interpreted high (above TP) or that the subject may reconstruct below the Neg head. Here and below I will assume the latter. The main reason for this is that negation may not take scope over a CP-converb.

expression has the meaning ‘one more NP’, not ‘any NP’.

Finally, a quantified subject of the main clause may not bind a pronoun inside the CP-converb, regardless of the linear order:

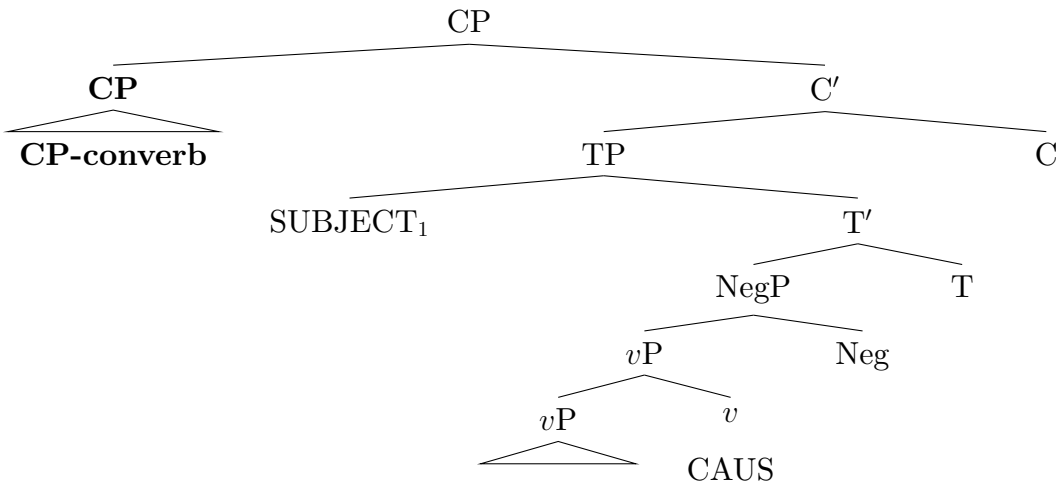
(43) a. ok **[Madina aŋa$_{2/*1}$ bilet al-ɨp]** **xar zaščiq$_1$** erišiu-ge
Madina 3SG.DAT ticket take-CONV every boy competition-DAT
qatiš-xan-dɨ
take.part-PST2-3SG

b. ? **xar zaščiq$_1$ [Madina aŋa$_{2/*1}$ bilet al-ɨp]** erišiu-ge
every boy Madina 3SG.DAT ticket take-CONV competition-DAT
qatiš-xan-dɨ
take.part-PST2-3SG
‘**Madina buying him$_{2/*1}$ a ticket**, **every boy$_1$** took part in the competition.’

In neither sentence in (43) can the pronoun *aŋa* ‘3SG.DAT’ inside the CP-converb be bound by the quantified subject of the main clause (*xar zaščiq* ‘every boy’).

To sum up, CP-converbs are attached above the main *v*P, the main NegP and the subject of the main clause (which presumably occupies Spec,TP). In what follows I am going to assume that CP-converbs merge at the CP-level:

(44) The position of a CP-converb in the main clause:



A converb with an overt subject is, thus, a CP that modifies another CP. Some

main clause constituents, like the subject, may A′-move above the CP-converb to the left periphery (39b-d). This is A′-movement, because it does not create new binding possibilities, see (43). It also probably requires special information structure, which explains why (39b-d) are not readily acceptable.

2.3.2 Back to extraction

As was shown in section 2.2, it is possible to scramble a constituent out of a CP-converb. However, in this respect CP-converbs show two important properties that distinguish them from PRO-converbs: (a) main clause opacity; and (b) lack of correlation between the possibility of extraction and the lexical meaning of the main verb.

If a CP converb is extracted from, it must be the leftmost constituent in the sentence it modifies, see (45).

(45) a. ok ***ešik-ni₁*** men [**[Fatima _1 bezgi-ler-in-den teš-ip]** Kerim
door-ACC I Fatima hinge-PL-3-ABL take.off-CONV Kerim
tešek-ni üj-ge alaj kij-ir-di] de-di-m
bed-ACC house-DAT thus come.in-CAUS-PST1.3SG say-PST1-1SG

b. * ***ešik-ni₁*** men [Kerim$_2$ **[Fatima _1 bezgi-ler-in-den teš-ip]**
door-ACC I Kerim Fatima hinge-PL-3-ABL take.off-CONV
tešek-ni üj-ge alaj kij-ir-di] de-di-m
bed-ACC house-DAT thus come.in-CAUS-PST1.3SG say-PST1-1SG
'I said **Fatima having taken *the door* off its hinges**, Kerim carried the bed into the house.'

More generally, a CP-converb is only transparent if its sister is opaque. Even though it is possible to scramble a constituent out of the main clause (46a) or out of the CP-converb (46b), it **is not possible** to scramble out of the main clause and the converb **simultaneously** (46c).

(46) a. ok YP_2 ... [$_{main}$ [$_{subj\text{-}conv}$ ... XP_1 ...] ... _2 ...] ... (47a)

b. ok XP_1 ... [$_{main}$ [$_{subj\text{-}conv}$ ... _1 ...] ... YP_2 ...] ... (47b)

c. * XP_1 YP_2 ... [$_{main}$ [$_{subj\text{-}conv}$ ... _1 ...] ... _2 ...] ... (47c)

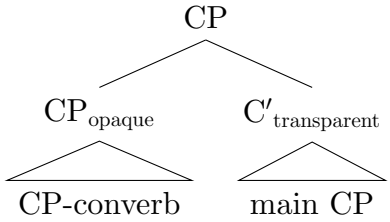
(47) a. ok ***üj-ge₂*** men
house-DAT I
[[Fatima ešik-ni bezgi-ler-in-den teš-ip] Kerim tešek-ni **_2**
Fatima door-ACC hinge-PL-3-ABL take.off-CONV Kerim bed-ACC
kijir-di] de-di-m
carry-PST1.3SG say-PST1-1SG
'I said **Fatima having taken the door off its hinges**, Kerim carried the bed ***into the house***.'

b. ok ***ešik-ni₁*** men
door-ACC I
[[Fatima _1 bezgi-ler-in-den teš-ip] Kerim tešek-ni üj-ge$_2$
Fatima hinge-PL-3-ABL take.off-CONV Kerim bed-ACC house-DAT
kijir-di] de-di-m
carry-PST1.3SG say-PST1-1SG
'I said **Fatima having taken *the door* off its hinges**, Kerim carried the bed into the house.'

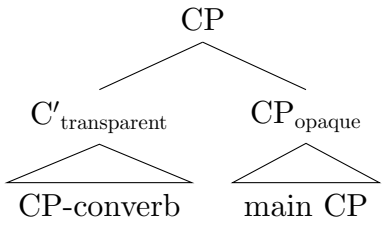
c. * ***ešik-ni₁ üj-ge₂*** men
door-ACC house-DAT I
[[Fatima _1 bezgi-ler-in-den teš-ip] Kerim tešek-ni **_2**
Fatima hinge-PL-3-ABL take.off-CONV Kerim bed-ACC
kijir-di] de-di-m
carry-PST1.3SG say-PST1-1SG
'I said **Fatima having taken *the door* off its hinges**, Kerim carried the bed ***into the house***.'

This is what the Spell Out theory predicts. If one CP modifies another CP, the system may choose to spell out either one of them, but at least one must be spelled out. The non spelled out CP will project its category:

(48) a. Spelling out the converb clause:



b. Spelling out the main clause:



This immediately predicts the impossibility of (47c). It is also expected that there will be no correlation between the possibility of extraction and the meaning of the main verb (unlike in the case of *v*P-converbs, which will be discussed in the next section).

2.4 Extracting from converbs with PRO

In this section I will consider Balkar converbs with a PRO subject and argue that they come in two varieties. Some converb clauses with PRO are TPs and are attached to or above the main *v*P. Other converbs with PRO are *v*Ps and occupy a lower position, within the main *v*P (*v*′ or V′). Only *v*P-sized converbs that are attached as sisters to the main verb are transparent for scrambling.

2.4.1 *v*P/TP-converbs

Size

Let me begin by showing that converb clauses without an overt subject contain a full clausal structure inside them, except the subject.

First, they can contain recursively embedded *v*Ps, i.e., a causative construction:

(49) ok sau-suz$_1$ **[PRO$_1$ Kerim-ge tereze-ni ac-tir-ip]**
healthy-CAR Kerim-DAT window-ACC open-CAUS-CONV
igi-rek bol-du
good-COMP become-PST1.3SG
'The patient$_1$ felt better, **PRO$_1$ having made Kerim open the window**.'

Second, a converb with PRO can contain negation:

(50) ok **[PRO$_1$ Kerim-ni üj-de kör-me-j]** Fatima$_1$ tüken-ge
Kerim-ACC house-LOC see-NEG-CONV Fatima store-DAT
bar-ʁan-dɨ
go-PST2-3SG
'**PRO$_1$ not seeing Kerim at home**, Fatima$_1$ went to the store.'

As before, the negation marker *-ma* is only compatible with the *-a* suffix, not with the *-p* suffix (see section 2.3.1 above).

Third, converbs with PRO subjects can contain the aspectual auxiliary *tur* 'HAB':

(51) ok Fatima$_1$ Kerim-ni **[PRO$_1$ quru šaxar-ʁa bar-ɨp tur-up]**
Fatima Kerim-ACC constantly city-DAT go-CONV HAB-CONV
terk-terk kör-e e-di
often see-CONV AUX-PST1.3SG
'Fatima$_1$ saw Kerim often, **PRO$_1$ constantly going to the city**.'

Finally, a converb with PRO can be modified by a temporal adverbial, which is independent from the main clause:

(52) ok **[PRO$_1$ tünene mašina-nɨ sat-ɨp al-ɨp]** biz$_1$ bügün šaxar-ʁa
yesterday car-ACC buy-CONV take-CONV we today city-DAT
bar-ʁan-bɨz
go-PST2-1PL
'**PRO$_1$ having bought a car yesterday**, we$_1$ went to the city today.'

As with CP-converbs, the tense of the converb clause has to match the tense of the main clause:

(53) * **[PRO$_1$ tünene mašina-nɨ sat-ɨp al-ɨp]** biz$_1$ tambla šaxar-ʁa
yesterday car-ACC buy-CONV take-CONV we tomorrow city-DAT
bar-lɨq-bɨz
go-FUT-1PL
'**PRO$_1$ having bought a car yesterday**, we$_1$ will go to the city tomorrow.'

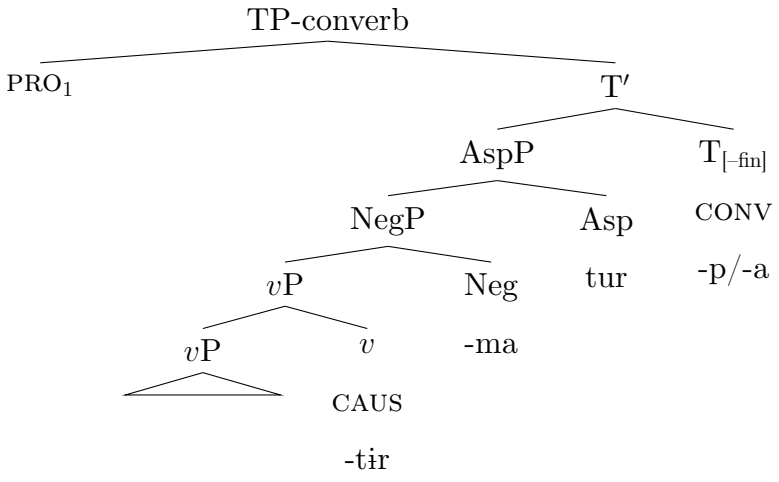
To sum up, a converb with PRO seems to have the same amount of verbal structure as a CP-converb, with two crucial differences. First, it does not contain an overt subject. Second, converbs with PRO do not have to stand in a special semantic relation to the main clause. A simple temporal overlap is enough.

(54) Converb types in Balkar

Can contain:		causative	negation	Asp	TP-adverb	subject
converbs with subject	CP-converbs	yes	yes	yes	yes	yes
converbs	**TP-converbs**	**yes**	**yes**	**yes**	**yes**	**no**
with PRO	*v*P-converbs	yes	no	no	no	no

Let us assume then that converbs with PRO are full TPs (with a defective T that has to match with the temporal reference of the main clause), as is illustrated by (55). They do not contain a C, and as a consequence, they can only have a covert subject and do not stand in any specific semantic relation to the main clause, apart from temporal overlap.

(55) A TP-converb:



Position

What position do TP-converbs occupy within the main clause? It seems that they are attached lower than CP-converbs, but above the *v*P. The surface position of a TP-converb is not restricted in any way:

(56) a. ok **[PRO$_1$ ešik-ni ac-ɨp]** ustaz$_1$ stol-nu otou-ʁa
door-ACC open-CONV teacher table-ACC room-DAT
kij-ir-di
come.in-CAUS-PST1.3SG

b. ok ustaz$_1$ **[PRO$_1$ ešik-ni ac-ɨp]** stol-nu otou-ʁa
teacher door-ACC open-CONV table-ACC room-DAT
kij-ir-di
come.in-CAUS-PST1.3SG

c. ok ustaz$_1$ stol-nu **[PRO$_1$ ešik-ni ac-ɨp]** otou-ʁa
teacher table-ACC door-ACC open-CONV room-DAT
kij-ir-di
come.in-CAUS-PST1.3SG

d. ok ustaz$_1$ stol-nu otou-ʁa **[PRO$_1$ ešik-ni ac-ɨp]**
teacher table-ACC room-DAT door-ACC open-CONV
kij-ir-di
come.in-CAUS-PST1.3SG

'The teacher$_1$ carried the table into the room, **PRO$_1$ having opened the door**.'

A TP-converb can be interpreted in the scope of negation. Unlike a CP-converb, an NPI inside a TP-converb can be licensed by the matrix negation (57). Notice that in (57b) the converb clause contains an aspectual auxiliary and is still interpreted in the scope of negation.

(57) a. ok Fatima$_1$ **[PRO$_1$ bir kitap-nɨ=da oqu-j]**
Fatima one book-ACC=ADD read-CONV
sejirsin-**me**-gen-di
be.surprised-NEG-PST2-3SG
'Fatima$_1$ was**n't** surprised, **PRO$_1$ reading any book**.'

b. ok Fatima$_1$ **[PRO$_1$ bir kitap-nɨ=da oqu-j tur-up]**
Fatima one book-ACC=ADD read-CONV HAB-CONV
sejirsin-**me**-j-di
be.surprised-NEG-PRS-3SG
'Fatima$_1$ is**n't** surprised, **PRO$_1$ reading any book**.'

At the first glance, a converb with PRO can be interpreted in the scope of the causative suffix as well:

(58) ok Fatima Aslan-ʁa$_2$ **[PRO$_2$ zir-ʁa tiŋila-p]** tüš-ge azıq
Fatima Aslan-DAT song-DAT listen-CONV sleep-DAT food
et-dir-gen-di
make-CAUS-PST2-3SG
'Fatima made Aslan$_2$ make dinner, **PRO$_2$ having listened to the song**.'

In (58) Fatima brings about a situation where Kerim is both reading a book and listening to a song. Notice that in this case it is Kerim (the Causee) that controls the PRO subject of the converb, not Fatima (the Causer).

However, if a converb clause is interpreted in the scope of the causative marker, it no longer may contain an aspectual auxiliary, nor (for some speakers) negation. Thus, in (59) the converb clause contains an aspectual auxiliary, and the antecedent for PRO cannot be the Causee, it has to include the Causer.[10]

(59) ok Fatima$_1$ Kerim-ni$_2$ **[PRO$_{1/*2}$ zir-ʁa tiŋila-p tur-up]** aš
Fatima Kerim-ACC song-DAT listen-CONV HAB-CONV food
üj-de oltur-t-a-dı
house-LOC sit-CAUS-PRS-3SG
'Fatima$_1$ makes Kerim$_2$ sit in the kitchen, **PRO$_{1/*2}$ constantly listening to a song**.'

In (60) the converb clause contains negation, and the antecedent for PRO cannot be the Causee, it must be the Causer. The converb has to be interpreted above the higher causative vP.

(60) ok Fatima$_1$ Kerim-ge$_2$ kitap-nı **[PRO$_{1/?2}$ zir-ʁa tiŋila-ma-j]**
Fatima Kerim-DAT book-ACC song-DAT listen-NEG-CONV
oqu-t-xan-dı
read-CAUS-PST2-3SG
'Fatima$_1$ made Kerim$_2$ read the book, **PRO$_{1/?2}$ not listening to a song**.'

In the light of these data I will assume that converbs with PRO subjects come in two varieties. There are TP-converbs with a PRO subject that contain full TP

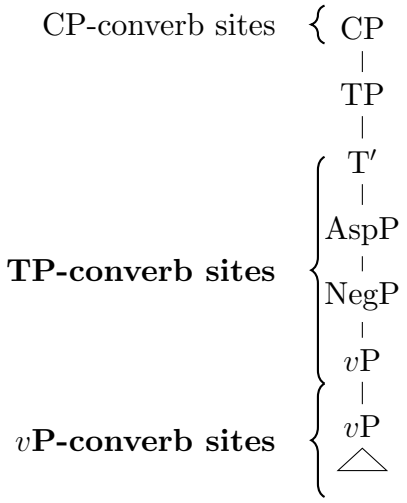
[10]For some speakers the sentence may also have a split control interpretation, where both Fatima and Kerim are listening to the song, but it may never have the interpretation where the Causee exhaustively controls PRO.

structure (enough to host negation and aspectual auxiliaries) and attach above the main vP. There are also vP-converbs with a PRO subject that contain just a vP (not enough to host negation or aspectual auxiliaries) and attach within the main vP.

(61) Converb types in Balkar

Can contain:		causative	negation	Asp	TP-adverb	subject
converbs with subject	CP-converbs	yes	yes	yes	yes	yes
converbs	TP-converbs	yes	yes	yes	yes	no
with PRO	**vP-converbs**	**yes**	**no**	**no**	**no**	**no**

(62) Attachment sites



If PRO has to be controlled by a c-commanding noun phrase, TP-converbs have to attach below the main subject. Otherwise there is no possible controller for PRO.

Possible controllers for PRO

The PRO subject of converb clauses is usually controlled by the subject of the main clause, as in (63).

(63) ok ustaz$_1$ **[PRO$_1$ ešik-ni ac-ɨp]** stol-nu otou-ʁa kij-ir-di
teacher door-ACC open-CONV table-ACC room-DAT come.in-CAUS-PST1.3SG
'The teacher$_1$ carried the table into the room, **PRO$_1$ having opened the door**.'

As we have seen above, however, the PRO subject of a *v*P-converb can be controlled by the Causee, as in (64a). For some speakers, PRO could also be controlled by the object of perception verbs, like *kör* 'see' in (64b).

(64) a. ok Fatima Kerim-ge$_1$ **[PRO$_1$ zir-ʁa tiŋila-j]** kitap oqu-t-xan-dɨ
Fatima Kerim-DAT song-DAT listen-CONV book read-CAUS-PST2-3SG
'Fatima made Kerim$_1$ read a book, **PRO$_1$ listening to a song**.'

b. ? men Kerim-ni zaš-ɨ-n$_1$ **[PRO$_1$ bu at-nɨ al-a]** kör-gen-me
I Kerim-GEN son-3-ACC this horse-ACC take-CONV see-PST2-1SG
'I saw Kerim's son$_1$ **PRO$_1$ taking this horse**.'

The PRO subject may not have a cross-sentential antecedent. The two sentences in (65) form a short text. In the second sentence (65b) PRO is controlled by the local subject *men* 'I', not by *meni qarɨndašɨm* 'my brother' from the previous sentence.

(65) a. ok meni qarɨndaš-ɨm$_1$ maŋa qonaq-ʁa kel-di
my brother-3SG 1SG.DAT guest-DAT come-PST1.3SG
'My brother$_1$ came to visit me.'

b. ok **[PRO$_{2/*1}$ üjge kir-ip]** men$_2$ a-nɨ xal-ɨ-n sor-du-m
house-DAT come.in-CONV I 3SG-GEN state-3-ACC ask-PST1-1SG
'**PRO$_{2/*1}$ having come into the house**, I$_1$ asked how he was doing.'

The PRO subject could be controlled by a non-local subject, i.e., across a clause boundary, as in (66). Here the subject of *sun* 'think', namely, Fatima, is the understood subject of the converb clause that modifies the complement of *sun* 'think'.

Fatima thinks that her giving Kerim the key yesterday made it possible for Kerim to enter the house.

(66) [ok] Fatima$_1$ **[[PRO$_1$ tünene aŋa axtiš-nɨ ber-ip]** Kerim üj-ge
Fatima yesterday 3SG.DAT key-ACC give-CONV Kerim house-DAT
kir-al-ʁan] sun-a-dɨ
come.in-POT-NZR think-PRS-3SG
'Fatima$_1$ thinks that **PRO$_1$ giving him the key**, Kerim was able to enter the house.'

However, there are good reasons to believe that in (66) we are dealing with a CP-converb, not with a TP or a *v*P-converb. First, the converb has to occupy the leftmost position in the embedded clause:

(67) * Fatima$_1$ [Kerim **[PRO$_1$ tünene aŋa axtiš-nɨ ber-ip]** üj-ge
Fatima Kerim yesterday 3SG.DAT key-ACC give-CONV house-DAT
kir-al-ʁan] sun-a-dɨ
come.in-POT-NZR think-PRS-3SG
'Fatima$_1$ thinks that **PRO$_1$ giving him the key**, Kerim was able to enter the house.'

Second, a pronoun inside the converb may not be bound by a quantifier in the embedded subject position:

(68) * Fatima$_1$ **[[PRO$_1$ tünene aŋa$_2$ axtiš-nɨ ber-ip] xar zašcɨq$_2$**
Fatima yesterday 3SG.DAT key-ACC give-CONV every boy
üj-ge kir-al-ʁan] sun-a-dɨ
house-DAT come.in-POT-NZR think-PRS-3SG
'Fatima$_1$ thinks that **PRO$_1$ giving him$_2$ the key**, every boy$_2$ was able to enter the house.'

Third, there has to be a special semantic relation between the converb clause and the main clause. In this case it is counterfactual causation: if Fatima didn't give Kerim the key, he wouldn't have been able to enter the house. If the counterfactual inference is not supported by the context, the sentence is judged odd:

(69) # Fatima$_1$ **[[PRO$_1$ tünene aŋa axtiš-nɨ ber-ip]** Kerim tüken-ge bar-ʁan] sun-a-dɨ
Fatima yesterday 3SG.DAT key-ACC give-CONV Kerim store-DAT go-NZR think-PRS-3SG
'Fatima$_1$ thinks that Kerim went to the store, (with) PRO$_1$ giving him the key.'

The sentence in (69) implies that Fatima giving Kerim the key caused him to go to the store, which is an odd inference, hence the sentence is judged as strange. The speakers comment that the two events are not connected to each other.

These data are easily explained, if we make two assumptions. First, PRO has to be controlled by the closest c-commanding noun phrase (see the Minimal Distance Principle in Rosenbaum, 1967, Larson, 1991, among many others). Second, CP-converbs may have an overt subject or PRO, meanwhile, TP and vP-converbs can only have PRO in their subject position.

Crucially, as I have shown above, CP-converbs are base-generated above the main subject. This means that, if they have PRO for the subject, this PRO has to be controlled by a c-commanding noun phrase in a higher clause, as in (66).

Meanwhile, TP and vP-converbs may be base-generated lower, see (62). Correspondingly, their PRO subject is controlled either by the local subject or by some lower argument, depending on the attachment site of the converb. If the converb clause is attached below the Causee, the Causee controls PRO, as in (64a). If the converb clause is attached below the object, the object controls PRO, as in (64b).

2.4.2 Bleached verbs and grammaticalization

Before returning to the discussion of extraction, let us consider certain cases when a *v*P-converb is attached so low that it becomes the structural complement of the main verb.

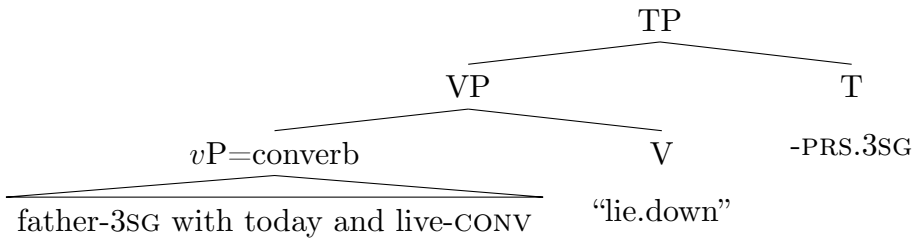
It is very common across Turkic languages that in the context of a converb clause certain main verbs lose their lexical semantics and assume the meaning of an aspectual or modal operator, or the meaning that is usually associated with so-called restructuring predicates, like 'begin', 'end' or 'allow'. In the literature on Turkic languages this structure is usually called 'serialization' or 'a complex verb construction' (see Tybykova, 1966, Ganiev, 2003, Lyutikova et al., 2006, Shluinsky, 2009, Grashchenkov, 2012, 2015, among numerous others).

An example of a complex verb construction from Mishar Tatar (a Turkic language spoken predominantly in the Republic of Tatarstan, Russia) is given in (70). Here the verb *jat* 'lie.down' no longer means 'to lie down', but functions as an aspectual operator (most probably, as the universal perfect marker). One could view this in the same light as the English use of an *-ing* form with 'be' and 'keep' to form progressives.

(70) Mishar Tatar

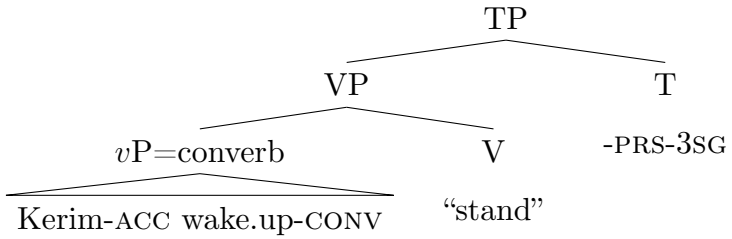
ok ä tege ügi kɤz **[ätä-se belän begen dä jäš-ä-p]**
and this stranger girl father-3sg with today and live-st-conv
jat-a
lie.down-prs
'And this orphan **is still living to this day with her father**.'

(Grashchenkov, 2015, 32)



In Balkar itself the verb *tur* can both be used as a lexical verb meaning 'stand/be.situated' or as an aspectual auxiliary with habitual or perfect meaning (for more details on the syntax and semantics of this auxiliary see Lyutikova et al., 2006, 362-433).

(71) ok Asijat **[Kerim-ni ujat-ɨp]** **tur-a-dɨ**
Asijat Kerim-ACC wake.up-CONV stand-PRS-3SG
'Asijat **usually wakes Kerim up**.'



In these cases the converb clause is usually analyzed as the complement of the bleached verb, as is illustrated by the trees under (70) and (71). One of the arguments in favor of analyzing the converb clause as a structural complement in theses cases is that the complex verb construction has several properties of Restructuring or Clause Union (see Wurmbrand, 2001, and much subsequent work).

For example, if the complex verb construction is to be causativized or passivized, the causative / passive marking sometimes appears **both** on the bleached verb and on the lexical verb, as in (72). This sentence contains two causative suffixes, but semantically there is only one causation. In fact, adding an extra Causer to the structure makes it ungrammatical (see Grashchenkov, 2015, 159).

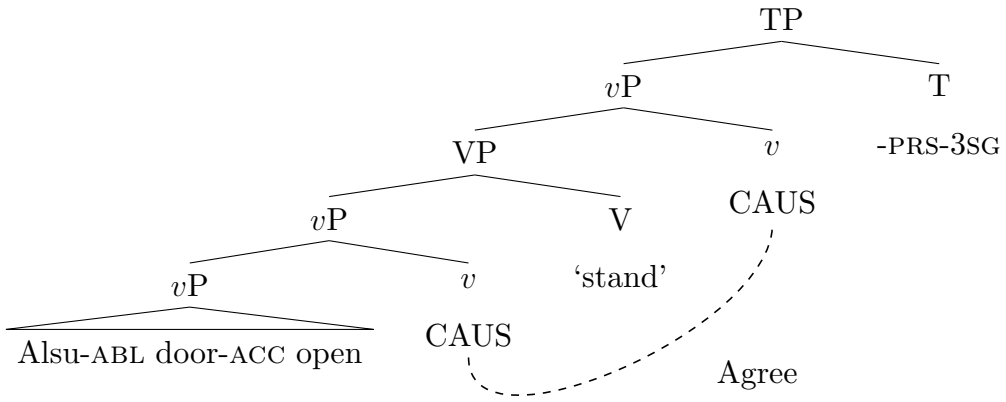
(72) Mishar Tatar
ok marat alsu-dan išek-ne ač-**tɤr**-ɣ-p kuj-**dɤr**-dɣ
Marat Alsu-ABL door-ACC open-CAUS-ST-CONV stand-CAUS-PST
'Marat **made** Alsu open the door.' (Grashchenkov, 2015, 158)

According to Grashchenkov (2015, 154), whether causative or passive morphology appears on the lexical verb, on the bleached verb or on both depends on the

language and on the identity of the bleached verb. Double marking seems always to be an option. But there are cases when the causative/passive morphology on the lexical verb is optional, and there are cases when the causative/passive morphology on the bleached verb is optional.

In what follows I am going to assume that one of the suffixes is semantically vacuous and appears only as the result of agreement. For concreteness, let us assume that it is agreement between the v/Voice head projected by the lexical verb and the v/Voice head projected by the bleached verb, as is schematized in (73). This is similar to Bondarenko's (2018a) analysis of passive morphology in Buryat Restructuring, building on Wurmbrand and Shimamura (2017).

(73) Agreement in v:



According to Grashchenkov (2015, 92-93), main verbs that become bleached and form complex verb constructions across Turkic languages include verbs of motion ('go', 'come'), verbs of position ('put', 'lie.down', 'stand'), transfer of possession ('give', 'take'), perception verbs ('see', 'look') and copulas ('be', 'stay.put').

In Balkar verbs of motion or position constitute an interesting "intermediate" case. If a motion verb or a verb of position is modified by a vP-converb, this verb still retains its original lexical meaning, as in (74) and (75). This is evident from the fact that the main verb has its own adverbial modifier, namely, *zajau* 'by.foot' in (74) and *šindik-de* 'chair-LOC' in (75).

(74) ok Fatima$_1$ zajau **[PRO$_1$ quancl**ɨ **zɨr-n**ɨ **zɨrla-j]** bar-a
Fatima by.foot happy song-ACC sing-CONV go-CONV
e-di
AUX-PST1.3SG
'Fatima$_1$ was walking by foot, **PRO$_1$ singing a happy song**.'

(75) ok Aslan$_1$ šindik-de **[PRO$_1$ meni zɨr-ɨm-ma tɨŋɨla-j]** oltur-a
Aslan chair-LOC my song-1SG-DAT listen-CONV sit-CONV
e-di
AUX-3SG
'Aslan$_1$ was sitting on the chair, **PRO$_1$ listening to my song**.'

However, this configuration does show a Restructuring/Clause Union effect, when it comes to derivational morphology. If a clause like (74) is to be causativized, the speakers strongly prefer to put the causative marking **both** inside the converb and the main verb:[11]

(76) Fatima Kerim-ni$_1$ bu zol bla
Fatima Kerim-ACC this road with
a. * **[PRO$_1$ tüken-den cɨʁ-ɨp]** bar-**dɨr**-ʁan-dɨ
store-DAT come.out-CONV go-CAUS-PST2-3SG
b. * **[PRO$_1$ tüken-den cɨʁ-ar-ɨp]** bar-ʁan-dɨ
store-DAT come.out-CAUS-CONV go-PST2-3SG
c. ok **[PRO$_1$ tüken-den cɨʁ-ar-ɨp]** bar-**dɨr**-ʁan-dɨ
store-DAT come.out-CAUS-CONV go-CAUS-PST2-3SG
'Fatima **made** Kerim$_1$ go down this road, **PRO$_1$ having left the store**.'

The same is true for converb clauses modifying a verb of position:

[11]The string in (76a) is grammatical, but it does not have the required meaning. It is acceptable only if the PRO subject of the converb is controlled by the Causer (Fatima), not by the Causee (Kerim). The sentence means "Fatima$_1$, PRO$_1$ having left the store, made Kerim go down this road". The string in (76b) is also grammatical, but also only if PRO is controlled by the Causer (Fatima), not by the Causee (Kerim). The noun phrase *Kerim* and the PP *bu zol bla* 'this road with' are interpreted as part of the converb clause. In other words, the sentence means "Fatima$_1$, PRO$_1$ having made Kerim leave the store down this road, went". If the PRO subject is to be controlled by the Causee (Kerim), only (76c) is acceptable. In other words, if the *v*P-converb is attached below the Causee, causative morphology **must be** doubled.

(77) Fatima Aslan-ni$_1$ šindik-de
Fatima Aslan-ACC chair-LOC

a. * **[PRO$_1$ meni zɨr-ɨm-ma tɨŋɨla-j]** oltur-**t**-xan-dɨ
my song-1SG-DAT listen-CONV sit-CAUS-PST2-3SG

b. * **[PRO$_1$ meni zɨr-ɨm-ma tɨŋɨla-t-a]** oltur-ʁan-dɨ
my song-1SG-DAT listen-CAUS-CONV sit-PST2-3SG

c. ok **[PRO$_1$ meni zɨr-ɨm-ma tɨŋɨla-t-a]** oltur-**t**-xan-dɨ
my song-1SG-DAT listen-CAUS-CONV sit-CAUS-PST2-3SG

'Fatima **made** Aslan$_1$ sit on the chair, **PRO$_1$ listening to my song**.'

This suggests that the converb clause is, in fact, an optional complement of the main verb. The Clause Union/Restructuring configuration is there, but the higher verb still bears its original lexical meaning.

Notice that this is not the case with all main verbs, only with verbs of motion or position. In particular, while (77a) and (76a) are not acceptable with PRO controlled by the Causee, (78) is perfectly fine, no causative morphology inside the converb clause is required:

(78) ok Fatima$_1$ Aslan-ʁa$_2$ **[PRO$_2$ zɨr-ʁa tɨŋɨla-p]** tüš-ge azɨq et-dir-gen-di
Fatima Aslan-DAT song-DAT listen-CONV sleep-DAT food make-CAUS-PST2-3SG

'Fatima$_1$ made Aslan$_2$ make dinner, **PRO$_2$ having listened to the song**.'

Why can converbs only participate in Clause Union/Restructuring with a verb of position or a verb of motion in Balkar? This relates to a broader question of why only specific classes of verbs across Turkic languages can form complex verb constructions, and to an even broader question of why only certain verbs get grammaticalized into modal/aspectual auxiliaries cross-linguistically. In the paragraphs to follow I will only offer some preliminary speculations on the matter.

It seems that all the verb meanings that participate in complex verb constructions are very basic in some intuitive sense. For example, verbs of motion and position can describe a very big class of eventualities. An event of Fatima going down the road can simultaneously be an event of Fatima singing a song, walking a

dog, or talking to me. An event of Aslan sitting on a chair can simultaneously be an event of Aslan listening to my song, writing a letter, or playing with a dog.[12]

It may be that a *v*P-converb can only directly merge with a verb if the event argument of the converb and the event argument of this verb are identified (see Truswell, 2007 for English and section 2.5 for discussion). Take, for example the sentence in (74). Suppose the *v*P-converb PRO_1 *quancli zirni zirlaj* 'PRO_1 singing a happy song' is interpreted as an <s,t>-type predicate in (79a), and that the main verb *bar* 'go' is an <e,st>-type predicate in (79b). Crucially, the event argument of the converb in (79a) is only bound by the λ-operator.

(79) a. $[\![v\text{P-converb}_1]\!] = \lambda$e. e is an event of PRO_1 singing a happy song.[13]

b. $[\![$ bar 'go' $]\!] = \lambda$x. λe. e is an event of x moving.

These two predicates can combine via Kratzer's (1996) Event Identification rule:

(80) Event Identification

a. The rule (Kratzer, 1996, 122)

f	g	→	h
<e,st>	<s,t>		<e,st>

λx.λe. [f(x)(e) and g(e)]

b. i. f = λx. λe. e is an event of x moving.

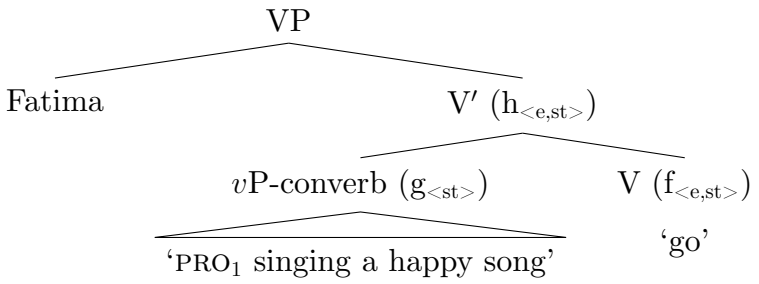
ii. g = λe. e is an event of PRO_1 singing a happy song.

iii. h = λx. λe. e is an event of x moving and e is an event PRO_1 singing a happy song.

[12]This is similar to the observation made by Truswell (2007), who claims that English *ing*-adjuncts are only transparent for movement in the context of a semantically weak predicate. I will discuss those cases in more detail in section 2.5.

[13]The PRO_1 argument is probably bound via λ-abstraction (as soon as its controller is introduced), like other pronouns (Heim and Kratzer, 1998).

(81) Structure:



This will result in two predicates applying to the same event: the same event will have to be an event of Fatima moving and an event of Fatima singing a happy song.[14] Suppose that this is only possible if at least one of those predicates is very weak, that is, if it is true of a big class of events, like a verb of position or a verb of motion.

If *v*P-converbs always have their event argument bound by the λ-operator, as in (79a), this would predict that *v*P-converbs can only modify verbs of position and motion.

This is clearly not the case, as is evident from (78). There the converb is attached within the main *v*P, below the Causee, so it is a *v*P-converb. But the main verb is not a verb of motion or a verb of position. In order to account for these cases, we will have to assume that *v*P-converbs may have another meaning, namely, one where their event argument is $\exists$-bound. It could be something along the following lines:

(82) $[\![\ v\text{P-converb}_2\ ]\!] = \lambda e.\ \exists e'$: $\tau(e') < \tau(e)$ and e' is an event of PRO_2 listening to a song.
Where $\tau(e') < \tau(e)$ means that e' happened before e.

Because this interpretation has two event variables (e and e'), the event argument of the converb clause will no longer be identified with the event argument of the main clause. The converb will combine with the main clause via Predicate

[14] The PRO_1 inside the converb clause is probably bound by the noun phrase *Fatima* after it moves to the subject position.

Modification, not Event Identification. This would allow the converb to modify any verb, regardless of its lexical meaning.

There are three independent assumptions at play here. First, vP-converbs are ambiguous between an interpretation like (79a) with an λ-bound event argument and an interpretation like (82) with an $\exists$-bound event argument. Second, only those vP-converbs that have an interpretation like (79a) can be base generated as structural complements, that is, only they can combine with the main verb via Event Identification. Third, verbs of motion and verbs of position have weak lexical semantics, that is, they can be true of a big class of events.

Together, these assumptions predict that vP-converbs may only serve as complements for verbs of motion or verbs of position. This analysis leaves one potential point of cross-linguistic variation, as to what classes of verbs have weak lexical semantics. This would predict that in different languages different verbs can attach converb clauses as complements and further grammaticalize to form complex verb construction.

Of course, this is only a sketch of an analysis. A more extensive theory will require a more extensive study. What is important for our present purposes is the fact that only certain verbs (verbs of motion and position in Balkar) can attach converb clauses as complements.

2.4.3 Back to extraction

As was shown in section 2.2, it is possible to scramble constituents out of converbs with PRO. But in this respect, they have two important properties that make them distinct from CP-converbs: (a) the main clause is not opaque; and (b) whether extraction is possible depends on the lexical meaning of the main verb.

A PRO-converb is opaque if it modifies a transitive (83a) or an unergative (83b) verb. Extraction out of a PRO-converb is marginally acceptable, if it modifies an unaccusative position verb (83c), and is definitely grammatical in the context of a unaccusative motion verb (83d).

(83) a. * XP_1 ... [$_{main}$ ... [$_{PRO\text{-}conv}$ ... $\__1$ ...] ... $V_{transitive}$] ... (84a)

b. * XP_1 ... [$_{main}$ ... [$_{PRO\text{-}conv}$ ... $\__1$ ...] ... $V_{unergative}$] ... (84b)

c. ? XP_1 ... [$_{main}$ ... [$_{PRO\text{-}conv}$ ... $\__1$ ...] ... $V_{position}$] ... (84c)

d. ok XP_1 ... [$_{main}$ ... [$_{PRO\text{-}conv}$ ... $\__1$ ...] ... V_{motion}] ... (84d)

(84) a. * ***[zarɨq zɨr-nɨ]$_1$*** men [Kerim$_2$ ušuxuuur **[PRO$_2$ $\__1$ **zɨrla-j]** **xazɨrla-ʁan**]
happy song-ACC I Kerim food sing-CONV cook-NZR
sun-a-ma
think-PRS-1SG
'I think that Kerim$_2$ was **making** dinner, **PRO$_2$ singing *a happy song*.**'

b. * ***[zarɨq zɨr-nɨ]$_1$*** men [Kerim$_2$ baxca-da **[PRO$_2$ $\__1$ **zɨrla-j]** **išle-gen**]
happy song-ACC I Kerim garden-LOC sing-CONV work-NZR
sun-a-ma
think-PRS-1SG
'I think that Kerim$_2$ was **working** in the garden, **PRO$_2$ singing *a happy song*.**'

c. ? ***[meni kitab-ɨm-mɨ]$_1$*** men [Kerim$_2$ divan-da **[PRO$_2$ $\__1$ **oqu-j]**
my book-1SG-ACC I Kerim couch-LOC read-CONV
zat-xan] sun-a-ma
lie-NZR think-PRS-1SG
'I think that Kerim$_2$ was **lying** on the couch, **PRO$_2$ reading *my book*.**'

d. ok ***[meni zɨr-ɨm-mɨ]$_1$*** men [Aslan$_2$ zol-da **[PRO$_2$ $\__1$ **zɨrla-j]** **bar-ʁan**]
my song-1SG-ACC I Aslan road-LOC sing-CONV go-NZR
sun-a-ma
think-PRS-1SG
'I think that Aslan$_2$ was **walking** down the road, **PRO$_2$ singing *my song*.**'

In other words, a PRO-converb can only be transparent in the context of those intransitive verbs that can attach a *v*P-converb as a complement. In Balkar these are the verbs that, though not semantically bleached, may show certain restructuring characteristics, as has been shown in the previous section.

These data are easily explained if we assume two things. First, TP-converbs are always opaque. Second, *v*P-converbs are only transparent when they are structural

complements.

This follows automatically from the Spell Out theory. TP-converbs should not be transparent, because they their sister is a phrase that cannot be spelled out, either because it is not of the same category (AspP, NegP, vP) or because it does not have all of its features specified (T′). Meanwhile, vP-converbs can be structural complements (in the context of a verb of motion or position), in which case they are expected to be transparent.

It is also expected that extraction out of a complement converb does not make the main clause opaque. That is, a constituent can be scrambled out of the main clause (85a), out of the low attached converb (85b), or both simultaneously (85c).

(85) a. ok XP_1 ... [$_{main}$ _1 ... [$_{PRO\text{-}conv}$ ... YP_3 ...] ...] ... (86a)

b. ok YP_3 ... [$_{main}$ XP_1 ... [$_{PRO\text{-}conv}$ ... _3 ...] ...] ... (86b)

c. ok XP_1 YP_3 ... [$_{main}$ _1 ... [$_{PRO\text{-}conv}$ ... _3 ...] ...] ... (86c)

(86) a. ok ***zol-da₁*** Fatima [Kerim$_2$ _1 **[PRO$_2$ [ol zɨr-nɨ]$_3$ zɨrla-j]** bar-a
road-LOC Fatima Kerim that song-ACC sing-CONV go-CONV
e-di] de-gen-di
AUX-3SG say-PST2-3SG
'Fatima said Kerim$_2$ was walking ***by the road***, **PRO$_2$ singing that song**.'

b. ok ***[ol zɨr-nɨ]₃*** Fatima [Kerim$_2$ zol-da$_1$ **[PRO$_2$ _3 zɨrla-j]** bar-a
that song-ACC Fatima Kerim road-LOC sing-CONV go-CONV
e-di] de-gen-di
AUX-3SG say-PST2-3SG
'Fatima said Kerim$_2$ was walking by the road, **PRO$_2$ singing *that song***.'

c. ok ***zol-da₁ [ol zɨr-nɨ]₃*** Fatima [Kerim$_2$ _1 **[PRO$_2$ _3 zɨrla-j]** bar-a
road-LOC that song-ACC Fatima Kerim sing-CONV go-CONV
e-di] de-gen-di
AUX-3SG say-PST2-3SG
'Fatima said Kerim$_2$ was walking ***by the road***, **PRO$_2$ singing *that song***.'

Finally, note that, if the PRO subject is controlled by the object of a transitive perception verb, like *kör* 'see', the converb clause is transparent as well:

(87) ok ***[bu at-nɨ]₂*** men Kerim-ni zaš-ɨ-n₁ **[PRO₁ _₂ al-a]**
this horse-ACC I Kerim-GEN son-3-ACC take-CONV
kör-gen-me
see-PST2-1SG
'I saw Kerim's son₁ **PRO₁ taking *this horse***.'

Since we have assumed that PRO has to be controlled by the closest c-commanding noun phrase (see section 2.4.1 above), the converb clause in (87) has to be attached low, namely, below the object of the main clause. This means that it is merged directly with the main verb and is structurally a complement. The Spell Out theory predicts it to be transparent, as is the case.

Importantly, the converb clauses in these cases are still are optional, they do not fill any argument slots of the main predicate. *v*P-converbs are combined with the main verb via Event Identification when they are complements and via Predicate Modification otherwise (see section 2.4.2).

2.4.4 Interim summary

To sum up, Balkar converbs come in three varieties. First, there are CP-converbs with an overt subject and a covert C. They are attached above the subject of the main clause, at the CP level.

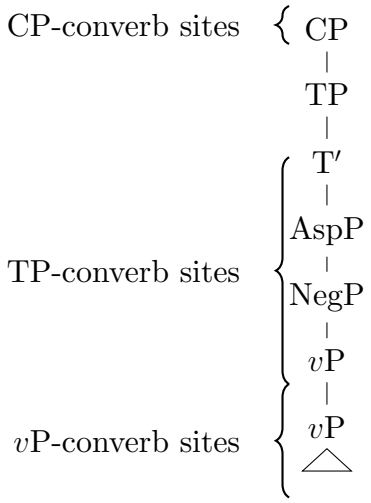
Second, there are TP-converbs without an overt subject, but with enough structure to host various verbal projections (e.g., aspectual auxiliaries). They are attached above the main *v*P, but below the subject of the main clause.

Third, there are *v*P-converbs, which also do not have an overt subject, but have less functional structure. They are attached within the main *v*P. If the main verb is a verb of motion or position, a *v*P-converb may merge directly with the verb, as its complement. Across Turkic languages main verbs in this configuration sometimes lose their lexical semantics and become modal or aspectual auxiliaries.

(88) Converb types in Balkar

Can contain:		causative	negation	Asp	TP-adverb	subject
converbs with subject	CP-converbs	yes	yes	yes	yes	yes
converbs with PRO	TP-converbs	yes	yes	yes	yes	no
	*v*P-converbs	yes	no	no	no	no

(89) Attachment sites



TP-converbs are always opaque. Scrambling is only possible from a CP-converb or a *v*P-converb. A CP-converb is only transparent if it occupies the leftmost position in the main clause and the main clause is opaque, as predicted by the Spell Out theory (4b). A *v*P-converb is only transparent if it is merged directly with the verb (that is, only in the context of a verb of position or motion), as predicted by the Spell Out theory (4a).

In the first case the converb clause is a CP, whose sister is also a CP. The system may choose to spell out either one, resulting in either the converb or the main clause becoming opaque. In the second case the converb clause is structurally a complement and is expected to be transparent.

It is unclear how the modifier accounts could deal with these generalizations. In all the transparent cases the converb clauses are still optional and do not fill any argument slots in the main clause (they combine with the main clause via Predicate Modification or Event Identification). All modifier accounts would have to stipulate that converb clauses stop being modifiers if they are merged with a head or with a spelled out phrase, which would make these theories virtually identical to the Spell Out theory.

2.5 Extracting from English *ing*-clauses

2.5.1 Preliminaries

In this section I will briefly consider extraction from *ing*-clauses in English. The discussion will be limited to *ing*-clauses for two reasons: (a) they seem to be close in meaning and structure to Balkar converbs; and (b) extraction out of them has already been addressed in the literature, most notably by Truswell (2007).

In what follows I will focus on *ing*-clauses that serve as modifiers and have a null subject, like *whistling Ode to Joy* in (90a) or *looking after a cat* in (90b).

(90) a. ok Ludo$_1$ was walking down the street, **[PRO$_1$ whistling Ode to Joy]**.

b. ok Karl$_1$ was doing his homework, **[PRO$_1$ looking after a cat]**.

Truswell (2007) argues that whether an *ing*-clause[15] can be extracted from depends on its semantic relation to the main verb:

(91) Truswell's Generalization

Extraction of a complement from a secondary predicate (including *ing*-clauses – DP) is permitted only if the event denoted by the secondary predicate is identified with an event position in the matrix predicate. (Truswell, 2007, 1374)

[15]Truswell (2007) uses a broader term 'secondary predicate'.

What (91) amounts to is that an *ing*-clause is transparent if and only if its event argument is identified with one of the event arguments in the main clause. This is only possible if the event argument in the main clause is underspecified, which in turn is determined by the lexical semantics of the main verb.

It is not particularly clear how Event Identification should influence possibilities of extraction. However, if Event Identification correlates with the attachment site of the *ing*-clause, the Spell Out theory provides a ready explanation for (91). Event Identification is only possible if the *ing*-clause is a structural complement. In the rest of this section I will go over the cases of transparent *ing*-clauses brought up by Truswell (2007), viewing them from the perspective of the Spell Out theory and assuming that Event Identification correlates with the attachment site (extending the analysis proposed for Balkar above).

According to Truswell (2007), *ing*-clauses are transparent in the context of three classes of main verbs: (a) unaccusative atelic verbs of motion and position, like *lie* or *walk*, (b) some telic unaccusatives, like *arrive* or *die*, and (c) telic transitive verbs with underspecified causing subevent (so-called result verbs), like *anger* or *make happy*. In what follows I will consider the intransitive cases (a-b) and the transitive ones (c) separately.

2.5.2 Intransitives

According to Truswell (2007), there are two classes of intransitive verbs in whose context an *ing*-clause can be transparent: atelic verbs of motion and position and some telic unaccusatives. Let us begin with atelic cases.

In both sentences in (92) the *ing*-clause modifies a verb of position and is transparent for relativization. These examples are judged as grammatical by all the speakers I have consulted.

(92) a. ok **The dish$_2$** that Liz$_1$ was sitting there **[PRO$_1$ eating _$_2$]** was delicious.

b. ok **The book$_2$** that Rosa$_1$ was lying in bed **[PRO$_1$ reading _$_2$]** was boring.

The same is true for verbs of motion:

(93) a. ok **The song$_2$** that Alex$_1$ was jumping around **[PRO$_1$ singing _$_2$]** was dumb.

b. ok **The podcast$_2$** that Ludo$_1$ was walking to the store **[PRO$_1$ listening to _$_2$]** was very interesting.

These examples fall within Truswell's generalization. Atelic verbs of motion or position can be construed as mono-eventive predicates, for example, *walk* specifies a set of simple walking events.

Their event argument is underspecified, so it can be identified with the event argument of the *ing*-clause. An event of Liz sitting there can simultaneously be an event of Liz eating a dish. An event of Ludo walking to the store can simultaneously be an event of Ludo listening to a podcast.

With unergative verbs extraction is slightly worse, although still not completely unacceptable:

(94) ? This is **the house$_2$** that Alex$_1$ worked hard **[PRO$_1$ building _$_2$]**.

As Truswell (2007) argues, the decisive factor here is whether the event argument of the main verb and the event argument of the *ing*-clause can be identified. That, of course, depends on the lexical semantics of the verbs involved. This situation is very similar to vP-converbs in Balkar, discussed in section 2.4 above.

Let us assume that some English *ing*-clauses have a λ-bound event argument:

(95) $[\![$ PRO$_1$ whistling a song $]\!] = \lambda$e. e is an event of PRO$_1$ listening to a podcast.

This meaning can combine with the matrix verb via Event Identification (96), which is only possible, if the main predicate is vague, like a verb of motion or position.

(96) Event Identification (=80)

a. The rule (Kratzer, 1996, 122)

f	g	→	h
<e,st>	<s,t>		<e,st>

$\lambda x.\lambda e.$ [f(x)(e) and g(e)]

b. i. f = λx. λe. e is an event of x walking to the store.

ii. g = λe. e is an event of PRO_1 listening to a podcast.

iii. h = λx. λe. e is an event of x walking to the store and PRO_1 listening to a podcast.

Apart from atelic verbs of motion or position, some telic unaccusatives also allow extraction from *ing*-clauses that modify them (97). Truswell (2007, 1370) reports extraction with *appear*, as in (97c), as ungrammatical, but the speakers I consulted find it acceptable, though, perhaps, a bit degraded.

(97) a. ok I liked **the tune$_2$** that Karl_1 arrived **[PRO$_1$ humming _$_2$]**.

b. ok I know **the tune$_2$** that Liz_1 died **[PRO$_1$ thinking about _$_2$]**.

c. ? I liked **the melody$_2$** that Rosa_1 appeared **[PRO$_1$ whistling _$_2$]**.

Telic predicates, like *die*, *arrive* or *appear*, can be analyzed as bi-eventive. For example, *arrive* can be construed as describing two events e_1 and e_2, e_1 being an event of Alex moving, and e_2 being the state of Alex being here[16], where e_1 causes e_2 (see Dowty, 1979, Levin and Hovav, 1995, Paducheva, 2004, 2009, Ramchand, 2008, Tatevosov, 2015b, among numerous others).

Following Truswell (2007), I will assume that in the case of telic predicates (97) the event argument of the *ing*-clause is identified with the second event argument of the main clause (the result state).[17] This can also be achieved via Event Identification, if the *ing*-clause is merged directly with the main verb (as its complement).

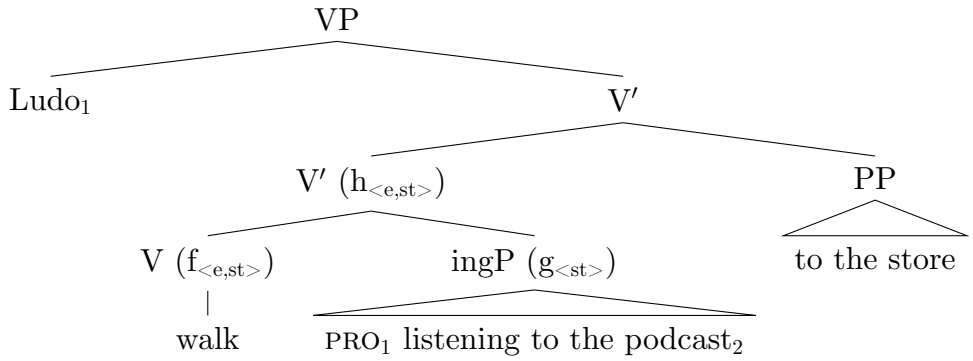
[16]For simplicity I am assuming here that both processes and states have the same semantic type s, to which I refer as the 'event'-type (see Ramchand, 2008 and Tatevosov, 2015b, among many others, for the same ontology). The process vs. state distinction is not relevant for our present purposes.

[17]This would require the event predicate of the *ing*-clause to be atelic. Otherwise it cannot be

These data are compatible with the Spell Out theory. Adopting the analysis proposed for Balkar above, we can assume that combining an *ing*-clause with the main verb via Event Identification is only possible, if the *ing*-clause is base generated as a complement. That is, the *ing*-clause is merged directly with the main verb (*walk* or *arrive*), below the base position of the subject.

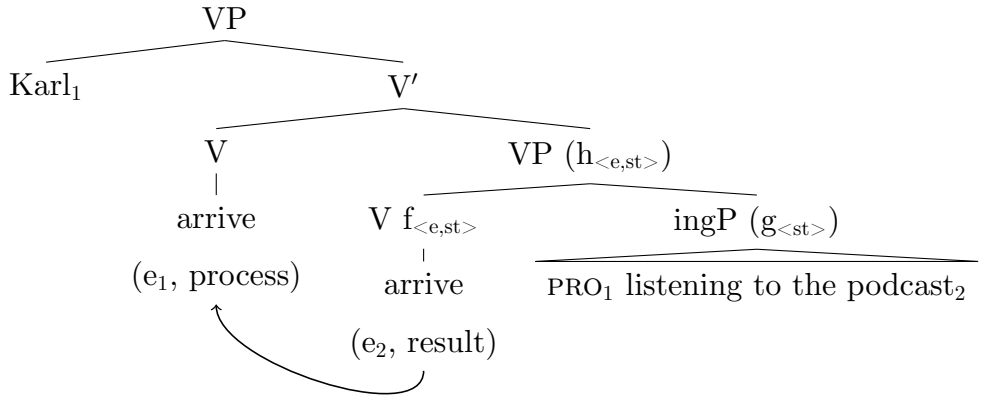
(98) a. Atelic, mono-eventive cases

(the *ing*-clause is identified with the event argument of *walk*)



b. Telic, bi-eventive cases

(the *ing*-clause is identified with the result state of *arrive*)[18]



true of a result state. Indeed, the speakers I consulted found **The door$_2$ that Karl$_1$ arrived* ⌈PRO$_1$ *breaking t$_2$*⌋ unacceptable.

[18]The structure with two recursively embedded VPs for bi-eventive predicates can be found, among many others, in Ramchand (2008). Although in Ramchand's (2008) terminology the lower V, associated with the result state, is labeled as R.

The tree in (98a) does not match the surface word order. The PP *to the store* precedes the *ing*-clause, not follows it. This can be achieved by extraposing the *ing*-clause to a position after the PP. If this is what happens, the Spell Out theory predicts that the subextraction from the *ing*-clause precedes extraposition (derived adjuncts are also islands).

The most crucial assumption here is that for the event argument of the *ing*-clause and to be identified with one of the event arguments of the main clause the *ing*-clause must be merged as a complement, i.e., below the subject. This is an assumption I made for Balkar in section 2.4, but it seems reasonable to extend it to English. For Balkar this analysis is independently supported by restructuring effects. Unfortunately, the evidence in English is not so clear.

There are two independent arguments that can be brought up to support the theory that transparent *ing*-clauses in English are structural complements.

First, if the verb is elided, a transparent *ing*-clause has to be elided together with it.[19] Consider the pair of sentences in (99). In (99a) the *ing*-clause is elided together with the main verb *walk*. The sentence can describe a situation when both Rosa and Karl walked to the store listening to a podcast. In (99b) only the main verb is elided. The sentence can describe a situation when Rosa walked to the store listening to a podcast, while Karl walked to the store thinking about his problems.

(99) a. SITUATION: Rosa walked to the store listening to a podcast, and Karl walked to the store listening to a podcast.
ok Rosa walked to the store listening to a podcast, and Karl_1 did Δ too.

b. SITUATION: Rosa walked to the store listening to a podcast, while Karl walked to the store thinking about his problems.
ok Rosa walked to the store listening to a podcast, and Karl_1 did Δ [PRO_1 thinking about his problems].

What (99) shows is that *ing*-clause does not have to be elided together with the

[19] This argument was pointed out to me by David Pesetsky (p.c.).

main verb. Assuming that eliding a head without its complement is not possible, this means that the *ing*-clause does not have to be the complement of *walk*. It can either attach as a complement, in which case it cannot survive ellipsis, or as an adjunct, in which case it can.

However, if the *ing*-clause is extracted from and the main verb is elided, the *ing*-clause **has to** be elided with it:

(100) a. SITUATION: Rosa walked to the store listening to a podcast, and Karl walked to the store listening to a podcast.
This is **[the podcast]$_2$** that Rosa walked to the store listening to,
and ?this is **[the podcast]$_2$** that Karl$_1$ did Δ.

b. SITUATION: Rosa walked to the store listening to a podcast, while Karl walked to the store thinking about his problems.
This is **[the podcast]$_2$** that Rosa walked to the store listening to,
and *these are **[the problems]$_2$** that Karl$_1$ did Δ **[PRO$_1$ thinking about _$_2$]**.

In both (100a) and (100b) the *ing*-clause is extracted from. In (100a) it is elided together with the main verb, while in (100b) it survives ellipsis, which is only possible if the *ing*-clause is a structural adjunct. All the speakers I consulted perceive a contrast between (100a) and (100b). If the first sentence is acceptable, but degraded, the second sentence is definitely ungrammatical. This suggests that transparent *ing*-clauses have to be structural complements.

Second, with stacked *ing*-clauses only the first one can be transparent for extraction.[20] Thus, all the speakers I consulted perceive a strong contrast between (101b) and (101c), with the former being consistently judged better.

[20]This argument was pointed out to me by Norvin Richards (p.c.).

(101) a. [ok] Rosa$_1$ walked to the store [PRO$_1$ listening to a podcast], [PRO$_1$ thinking about her problems].

b. [ok] This is **[the podcast]$_2$** that Rosa$_1$ walked to the store **[PRO$_1$ listening to _$_2$]**, [PRO$_1$ thinking about her problems].

c. * These are **[the problems]$_2$** that Rosa$_1$ walked to the store [PRO$_1$ listening to a podcast], **[PRO$_1$ thinking about _$_2$]**.

What (101) shows is that, while ing-clauses can be stacked (101a), only one of them, namely, linearly the first one, can be transparent for extraction. This is expected, since there can only be one complement.

2.5.3 Transitives

Extraction out of *ing*-clauses that modify transitive verbs seems to be much more marked. According to Truswell (2007), there are two conditions that have to be satisfied for an *ing*-clause to be transparent in the context of a transitive verb.

First, the main verb has to be an accomplishment specifying result. This is based on the idea that some accomplishments, like *draw* or *write*, specify the manner of a complex eventuality, while others, like *break* or *drive crazy*, specify the result (see Levin and Hovav, 1995 and much subsequent work).

Both classes of verbs can be construed as bi-eventive predicates, describing two events e_1 and e_2, where e_1 causes e_2. Manner verbs specify the first subevent, the causing subevent. Result verbs specify the second subevent, the caused subevent. For example, *draw* describes a pair of events e_1 and e_2 where e_1 is the process of a picture being drawn and e_2 is the state of the picture being complete, and e_1 causes e_2. The verb *draw* specifies e_1. On the other hand, *drive crazy* describes a pair of events e_1 and e_2 where e_1 is the event of making someone crazy, and e_2 is the state of someone being crazy, and e_1 causes e_2. The verb *drive crazy* specifies e_2 and leaves e_1 underspecified (it could be any activity that makes someone crazy).

Extraction from an *ing*-clause is degraded in the context of a stative verb (102a),

a semilfactive verb (102b), or an accomplishment specifying manner (102c). But it is better in the context of an accomplishment specifying result (102d).

(102) a. CONTEXT: The listener is a wizard with magic hats. They put on hat A, and they speak English. They put on hat B, and they speak Arabic.
* **Which of your magic hats$_1$** do you$_1$ know Georgian **[PRO$_1$ wearing _$_2$]**?

b. * This is **the window$_2$** that Karl$_1$ noticed the rain **[PRO$_1$ looking through _$_2$]**.

c. * **Who$_2$** did Alex$_1$ draw a circle **[PRO$_1$ talking to _$_2$]**?

d. ? This is **the car$_2$** that Rosa$_1$ drove Liz crazy **[PRO$_1$ trying to fix _$_2$]**.

Second, the *ing*-clause has to describe the causing subevent. This means that the semantic relation between the *ing*-clause and the main clause is one of immediate causation. The event argument of the *ing*-clause is identified with e_1, the causing subevent.

In particular, indirect causation is out:

(103) A: **What$_2$** did John make himself angry **[PRO$_1$ trying to fix _$_2$]**?
B: The radiator. It just really got to him.
B′: #The radiator. But it wasn't because he was trying to fix the radiator that he made himself angry, it was that he happened to be trying to fix it while his favorite program was on. (Truswell, 2007, 1371)

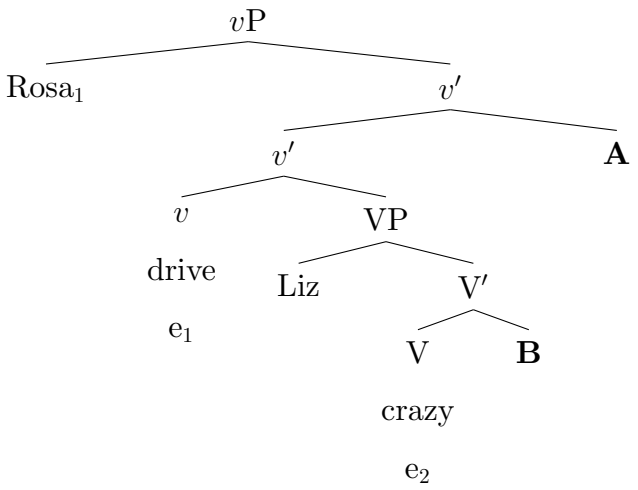
The *ing*-clause has to describe the causing subevent. That is, what caused John to be angry in (103) has to be him trying to fix the radiator, not any other event associated with it.

This, again, is in accordance with Truswell's generalization (91): the event argument of the *ing*-clause is identified with an event argument of the main clause, which is only possible if the event argument of the main clause is underspecified. Because result verbs do not specify the causing subevent, it can be specified by the *ing*-clause. Consequently, the *ing*-clause can be transparent in the context of a

result verb.

If we employ the Event Identification rule again, we will have to conclude that the *ing*-clause is attached high in these cases.

(104) Potential attachment sites for *ing*-clauses modifying transitives



Following Kratzer (1996), Harley (1996, 2013), Folli and Harley (2007), Pylkkänen (2008), and Ramchand (2008), among numerous others, I will assume that the causing subevent e_1 is introduced by a high functional head, like v or Voice, that is also responsible for the introduction of the Agent argument (the external argument). Meanwhile caused subevent e_2 is introduced by some lower head, like V, that is also responsible for the introduction of the Theme argument (the internal argument).

If the event argument of the *ing*-clause is to be identified with the causing subevent e_1, and if the *ing*-clause is combined with the main clause via Event Identification, then it has to attach at position A, as represented by the tree in (104). This means that the *ing*-clause is not a structural complement. The Spell Out theory predicts it to be opaque, contrary to fact.

However, attachment site A also means that the *ing*-clause is base generated higher than the internal argument, and there is some evidence against this view. The evidence comes from Condition C. For all the English speakers that I consulted co-reference between a pronominal internal argument and a full noun phrase inside

the *ing*-clause leads to a condition C violation. All the speakers I consulted perceive a strong contrast between (105a) and (105b), with the latter being consistently judged worse.

(105) a. ? Rosa$_1$ killed *the guy$_3$* [PRO$_1$ hitting *him$_3$* with a poker].

b. * Rosa killed *him$_3$* [PRO$_1$ hitting *the guy$_3$* with a poker].

The same contrast repeats with extraction:

(106) a. ?/* **What$_2$** did Rosa$_1$ kill *the guy$_3$* **[PRO$_1$ hitting *him$_3$* with _$_2$]**?

b. * **What$_2$** did Rosa kill *him$_3$* **[PRO$_1$ hitting *the guy$_3$* with _$_2$]**?

This suggests that the *ing*-clause is base generated below the internal argument, that is, at position B (104), namely, as the structural complement of the main verb.

Furthermore, as in the case of intransitive verbs, among stacked *ing*-clauses only the first one can be transparent for extraction:

(107) a. ok Rosa$_1$ drove me crazy [PRO$_1$ writing down formulas], [PRO$_1$ scratching the blackboard].

b. ? These are **[the formulas]$_2$** that Rosa$_1$ drove me crazy **[PRO$_1$ writing down _$_2$]**, [PRO$_1$ scratching the blackboard].

c. * This is **[the blackboard]$_2$** that Rosa$_1$ drove me crazy [PRO$_1$ writing down formulas], **[PRO$_1$ scratching _$_2$]**.

If the transparent *ing*-clause is merged as a complement, how does it end up describing the causing subevent? As it turns out, this result can be derived if we assume that not all English *ing*-clauses have an λ-bound event argument. It could be that some *ing*-clauses have an $\exists$-bound event argument, and the causation relation comes from the *ing*-clause itself:

(108) $[\![$ PRO$_1$ hitting Karl with a poker $]\!]$ =

λe. $\exists$e′: e′ is the immediate cause of e, and e′ is an event of PRO$_2$ hitting

Karl with a poker.

If a predicate like (108) is base generated as the sister to V, it predicates over the caused subevent e_2 via Event Identification. However, the ∃-bound event argument of the *ing*-clause ends up describing the causing subevent e_1 due to the semantics of the *ing*-clause. In other words, the *ing*-clause itself introduces the causing subevent, which is later identified with the causing subevent introduced by v, simply because there can only be one immediate cause of e_2.

This derives both the semantic relation between the *ing*-clause and the main verb, and Condition C effects in (105-106). Crucially, the *ing*-clause is attached low, as a sister to the main verb. Hence it becomes transparent, as predicted by the Spell Out theory.

2.5.4 Summary

In this section I have discussed extraction out of English *ing*-clauses and the Spell Out theory. This theory gives a structural explanation for Truswell's (2007) generalization, if we assume that the semantic relation between the *ing*-clause and the main clause correlates with the attachment site of the *ing*-clause. Whenever an *ing*-clause combines with the main clause via Event Identification, it is merged directly with the main verb. In these cases it is a structural complement and is expected to be transparent for extraction.

2.6 Concluding remarks and finite adjuncts

In this chapter I have considered the effects of the Adjunct Condition in two case studies: converb clauses in Balkar and *ing*-clauses in English. Both *ing*-clauses and converbs are clausal non-finite modifiers, that is, they are optional and do not fill any argument slots of the main predicate. Nevertheless, both Balkar converbs and English *ing*-clauses can be extracted from, but the possibilities of extraction are limited by the structural position of the clause in question.

This confirms the predictions of the Spell Out theory. The Spell Out theory makes the following claim:

(109) a. Between any two phrasal sisters at least one has to be spelled out.

b. A spelled out phrase does not project its category.

From (122) it follows that all structural adjuncts must be opaque, because they are maximal projections and are merged with a phrase. But it does not follow that all modifiers are opaque, as modifier accounts predict. The Spell Out theory predicts that modifiers can be transparent in two cases:

(110) a. A modifier is transparent if it is merged with a head (is a complement).

b. A modifier is transparent if its sister is spelled out.

These predictions are confirmed by Balkar and English. Balkar converbs are transparent for scrambling in two cases. First, a CP-sized converb with an overt subject that is attached at the CP-level is transparent for extraction, but at the same time the matrix CP becomes opaque.

Second, a vP-sized converb with a covert subject that is attached within the main vP is transparent if the main verb is a verb of motion or position. With the same set of verbs the vP-converbs show a restructuring effect (double causative marking), which suggests that they are merged directly with the main verbs, as their complements.

English *ing*-clauses are also transparent for movement in two cases. First, they are transparent if they modify a limited set of unaccusative verbs. This set primarily consists of verbs of motion and position, that is, precisely the same lexical class of verbs that show the restructuring effect in Balkar. This suggests that transparent *ing*-clauses in English are also attached low, namely, as the complement of the main verb. This assumption if further confirmed by independent evidence from ellipsis and stacked *ing*-clauses.

Second, *ing*-clauses are transparent if they modify a telic transitive verb that

specifies result. In this case the *ing*-clause has to be attached below the main object, as supported by independent evidence from Condition C effects and stacked *ing*-clauses. This, again, makes the transparent *ing*-clause in question a structural complement.

It is not clear how these data can be accounted for under modifier accounts. All the considered cases involve modifiers, which are optional and do not fill any argument slots of the main predicate. Nevertheless, some of them are transparent and some of them are opaque. The defining factor is the attachment site, which correlates with the semantic relation to the main predicate (if the rule of Event Identification is involved).

In this chapter I have only considered non-finite clausal modifiers. Finite clauses that serve as modifiers (e.g., *if*-clauses) are typically always opaque. If the Spell Out theory is correct, it means that these modifiers are never complements. However, there are certain exceptions.

In the normal case the *if*-clause is opaque for extraction:

(111) Russian

* eto – pros'ba, **kotoruju$_1$** on menja pozov-ët, **[esli ty ne vypoln-iš _$_1$]**
this.is request which.ACC he me call.PRS-3SG if you NEG fulfill.PRS-2SG

'This is **the request$_1$** that he will call me **if you don't fulfill** _$_1$.'

(my judgment)

However, as was first discovered by Paducheva and Zaliznyak (1979) for Russian and by Pullum (1987) for English, in some cases *if*-clauses are transparent. Specifically, if the main verb is a verb of perception, like 'be.happy' or 'be.sad':

(112) Russian

[ok] eto – pros'ba, **kotoruju$_1$** on ogorč-it-sja, **[esli ty ne vypoln-iš _$_1$]**
this.is request which.acc he make.sad.prs-3sg-se if you neg fulfill.prs-2sg

'This is **the request$_1$** that he will be upset **if you don't fulfill _$_1$**.'

(Paducheva and Zaliznyak, 1979, 100)

In this case the *if*-clause is attached as the complement of the main verb. Furthermore, it is not interpreted as the antecedent of a conditional. This is usually called the non-logical-if construction (the term from Williams, 1974). For more details on its syntax and semantics, as well as for the arguments in favor of the complement attachment of the *if*-clause see Longenbaugh (2019, 123-133).

Notably, in Longenbaugh's (2019) analysis the *if*-clause still does not fill any argument slots of the main predicate. The Theme argument of the main verb is filled by an expletive *it*, which is presumably null in Russian. The *if*-clause modifies this expletive element in the same way a relative clause would modify the head noun (Longenbaugh, 2019, 132). Thus, it is a modifier, not an argument. But because it is a structural complement, it is transparent for extraction, as is predicted by the Spell Out theory. In fact, the same may be true for *that*-clauses that are complements of attitude predicates. If the so-called Kratzer-Moulton hypothesis is correct (see Kratzer, 2006, Moulton, 2015, among others), *that*-clauses in sentences like *Karl thinks that Rosa is a genius* are also semantic modifiers (but structural complements). The Spell Out theory expects them to be transparent as long as they merge with a head, regardless of the semantic way in which they combine with the main clause.

Interestingly, Paducheva and Zaliznyak (1979) provide a similar example with a *when*-clause. *When*-clauses, like *if*-clauses, are usually opaque:

(113) Russian

* u menja est' novost', **kotoruju$_1$** on menja pozov-ët, **[kogda *pro***
I have news, which.ACC he me call.PRS-3SG when he
uznaj-et $_1$]
learn.PRS-3SG

'I have **some news$_1$** that he will call me **when he learns $_1$**.'

(my judgment)

But again, if the main verb is a verb of perception, extraction becomes better:

(114) Russian

ok u menja est' novost', **kotoruju$_1$** on udiv-it-sja, **[kogda *pro***
I have news, which.ACC he surprise.PRS-3SG-SE when he
uznaj-et $_1$]
learn.PRS-3SG

'I have **some news$_1$** that he will be surprised **when he learns $_1$**.'

(Paducheva and Zaliznyak, 1979, 100)

It is possible that not only *if*-clauses can be structural complements of perception verbs, but *when*-clauses as well.

Chapter 3

The Subject Condition

3.1 Introduction

In this chapter I will talk about the effects of the Subject Condition in two languages: Russian and Balkar. The Subject Condition will be tested against relativization in Russian and scrambling in Balkar. All the data presented in this chapter were collected by elicitation, unless specified otherwise.[1]

In what follows I will argue for the strong version of the Subject Condition, that is, the claim that all specifiers (either base-generated or derived) are opaque for extraction. In particular, I will argue that any apparent extraction out of a base generated specifier is better analyzed as the result of Discontinuous Spell Out (or, in other terms, covert pied-piping), as predicted by the Spell Out theory.

This chapter will focus on two apparent challenges to the Subject Condition. We will see that, under closer consideration, these challenges are not detrimental and, in fact, provide some crucial arguments for the strong version of this condition.

[1]The judgments come from six native speakers of Russian (all were born and grew up in Moscow) and four native speakers of Balkar from the village of Verkhnyaya Balkariya (Republic of Kabardino-Balkaria, Russia). The speakers were offered pairs of sentences and asked to give a relative acceptability judgment (which sentence is better). In addition, they were asked to rank each sentence on the scale from 1 (not acceptable) to 5 (perfectly fine). In most cases the intended interpretation of the sentence was discussed with the speaker in order to make sure they understand the sentence correctly. Marks from 1 to 2 were analyzed as "ungrammatical", and marks 4 to 5 as "grammatical". The examples for which the speakers' evaluations averaged around 3 label $^{?}$ is used (marginally acceptable). Those Russian examples that were not elicited from other speakers are marked as (my judgment). The sign $^{\%}$ is used for cases when the speakers disagreed with each other.

Despite the exceptional cases in Russian and Balkar, one can still observe the effects of the Subject Condition, even if they are obscured by independent factors.

The first apparent challenge (section 3.3) is the fact that subjects of certain verbs are transparent if in-situ. This happens, for example, in Literary Russian.[2] However, a closer look at the data shows that the full paradigm of extraction from in-situ arguments precisely follows the predictions of the Strong Subject Condition. Only those subjects are transparent in-situ that are base-generated as structural complements. This generalization has been supported by experimental evidence both from Russian (Polinsky et al., 2013) and from other languages, namely, German, English, Japanese and Serbian (Jurka, 2010). But in this chapter I will only focus on elicited data from Russian.

The second apparent challenge (sections 3.4 and 3.5) is the fact that in some language grammars, like Balkar or the colloquial register of Russian (Colloquial Russian), noun phrases can be split regardless of their syntactic position or of whether they stay in-situ or not. However, as I will argue below, these cases do not involve genuine subextraction at all. The noun phrases in question are not "deconstructed" in narrow syntax. They are better analyzed as the result of so-called distributed deletion or Discontinuous Spell Out, as proposed by Fanselow and Ćavar (2002) for a variety of languages, and by Pereltsvaig (2008) for Colloquial Russian specifically. Crucially, in Colloquial Russian and Balkar one may still observe certain asymmetries between discontinuous subject noun phrases and discontinuous object noun phrases. Objects may be split more freely than subjects, which suggests that, while objects can be discontinuous as the result of either subextraction or Discontinuous Spelled Out, subjects can only be discontinuous as the result of Discontinuous Spelled Out. Thus, the Subject Condition holds for Colloquial Russian and Balkar as well, although its effects are harder to detect due to the availability of another operation that renders split noun phrases, that is, Discontinuous Spell Out.

The fact that even in languages with Discontinuous Spell Out one may still

[2]Here and below I will use the term "Russian" to refer to the literary register of Russian ("Literary Russian") for brevity.

observe the effects of the Subject Condition speaks strongly in favor of the Subject Condition as a core principle of grammar. Even though young speakers potentially hear sentences that do not seem to obey the Subject Condition on the surface, as adults, they still draw a meaningful distinction between subjects and objects when it comes to subextraction. If the Spell Out theory is correct, the Subject Condition directly follows from the basic principles of syntactic derivation (see Chapter 1), which explains its persistence in speakers' grammars despite them encountering seemingly contradicting evidence during first language acquisition.

Before I begin, I would like to make one disclaimer. As the reader may have noticed, I am assuming that there is a distinction between Colloquial and Literary Russian with respect to the phenomena in question. It does seem that we are dealing with two separate grammars here.[3] The Colloquial Russian system will be discussed in detail in section 3.4. Until then some Russian speaking readers may find themselves not perceiving the contrasts that I am reporting, or rather finding them weaker if one imagines "colloquial speech". Those speakers are kindly asked to withhold their judgment disagreements until section 3.4, where I discuss this phenomenon in more detail.

3.2 Formulating the Subject Condition

3.2.1 Strong and Weak Subject Condition

The Subject Condition was first proposed by Ross (1967, 241-255) and developed by Chomsky (1973), Kayne (1981), Pesetsky (1982, 313-318) and Huang (1982, 503-514), among numerous others.

For Russian the Subject Condition can be illustrated by the contrast in (1). In (1a) *skol'ko* 'how.many' is extracted out of the object noun phrase, and the sentence is fine. In (1b) *skol'ko* 'how.many' is extracted out of the subject noun phrase, and the sentence is not as good. It should be noted that this is a reliable contrast, which

[3]For a list of systematic grammatical differences between these two systems see Zemskaya (1973) and much subsequent work.

is replicated both by elicitation and in carefully controlled acceptability judgment studies: Polinsky et al. (2013) show this for Russian, and Jurka (2010) – for German, English, Japanese and Serbian.

(1) Russian

a. ok **skol'ko$_1$** ty xote-l-a, čto-by ja kupi-l [_$_1$ **botinok**]$_2$?
how.many you want-PST-F that-SBJ I buy-PST.M boots.GEN[4]
'**[How many$_1$ boots]$_2$** did you want me to buy _$_2$?'

b. * **skol'ko$_1$** ty xote-l-a, čto-by [_$_1$ **čelovek**]$_2$ prines-l-i/o[5]
how.many you want-PST-F that-SBJ people.GEN bring-PST-PL/N
knigi?
books.ACC
Intended: '**[How many$_1$ people]$_2$** did you want _$_2$ to bring books?'

The noun phrases that are being extracted from have exactly the same internal structure (*skol'ko botinok/čelovek* 'how.many boots.GEN/people.GEN') and the same pragmatic status (they are both indefinite). The **only** difference is in the structural position of the noun phrase: subject vs. object. This leads us to the following descriptive generalization:

(2) Objects are transparent for extraction, but subjects are opaque.

There are several properties that distinguish subjects and objects. The question is which one of those should the generalization in (2) be attributed to. In the current syntactic literature there are two prevalent answers to this question, and, correspondingly, two prevalent theories of the Subject Condition. Both can be traced back to Cattell (1976), Kayne (1981) and Huang's Condition on Extraction Domain, or CED (Huang, 1982, 505).[6]

[4]In Russian numeral constructions the NP receives genitive case.

[5]In Russian noun phrases with numerals, e.g., 'five NPs', trigger either third person plural or default (third person singular neuter) agreement on the verb. The choice doesn't affect the judgment in (1b).

[6]In Huang's original theory, the crucial difference between subjects and objects is that objects are properly governed, while subjects are not. Depending on how government is defined, CED could draw the line differently. If government is defined in terms of c-command, then CED distinguishes between complements and all specifiers (derived or base-generated). If government is defined in terms of m-command, then CED distinguishes between VP-internal and VP-external arguments.

One difference between subjects and objects is that objects are base-generated as complements, while subjects are base-generated as specifiers. The object is the first argument to merge with the verb, while the subject is not. The object [*skol'ko botinok*] 'how.many boots' is merged with a head, the verb root *kupi-* 'buy', while the subject [*skol'ko čelovek*] is merged with a phrase, the V′ [*prines- knigi*] 'bought books'. If we are to capitalize on this observation, then the subject condition should be formulated as in (3).

(3) **Strong Subject Condition.**

All specifiers are opaque for extraction.

The Spell Out theory, developed in this dissertation predicts (3). Because specifiers are merged with phrases (not heads), they have to be spelled out before they undergo this merge. Spell Out renders them opaque for extraction (see technical implementation in Chapter 1).

Another difference between subjects and objects is that in many languages the subject moves away from the verb that it is an argument of to a designated high position within the clause, for example, Spec,TP.[7] Meanwhile the object may stay in-situ.

If we are to capitalize on this observation, then the Subject Condition can be unified with so-called freezing effects. A freezing effect is an independently observed phenomenon, when a moved constituent becomes opaque for extraction (see Wexler and Culicover, 1981, Takahashi, 1994, Rizzi and Shlonsky, 2007, among many others).

Given the common assumption that any moved constituent occupies a specifier position after movement, this amounts to a strictly weaker version of the Subject Condition:[8]

[7]It has been argued that in Russian preverbal subjects are moved out of the verb phrase, while postverbal subjects stay in-situ. See section 3.3.1 for more details.

[8]If we are not willing to commit to this assumption, we should read (4) as "All derived specifiers and all derived adjuncts are opaque for extraction" (following a more basic assumption that after a constituent is moved, it is merged to a phrase, not a head). In this version it is still a strictly weaker condition than the one posited by the Spell Out theory, because the Spell Out theory does not draw a distinction between specifiers and adjuncts.

(4) **Weak Subject Condition.**

All derived specifiers are opaque for extraction.

Within the minimalist framework this formulation is taken by *freezing-based accounts*, such as Stepanov (2007) and Truswell (2007). The idea is to reduce the Subject Condition to a freezing effect and to explain the Adjunct Condition in a principally different manner.

Notice that (3) is strictly stronger than (4). The Spell Out theory derives (3), and hence (4). Freezing-based accounts only derive (4). Prima facie one should choose the stronger, i.e., the more falsifiable theory. However, there are a number of empirical challenges that lead researchers to abandon (3) in favor of (4), or to deny the Subject Condition altogether. In the rest of this chapter I will address the two most fundamental empirical challenges and argue that neither of them should make us discard the Subject Condition. In fact, under closer consideration, these data are most compatible with its strongest form (3).

In what follows I will focus primarily on the Spell Out theory and the freezing-based accounts. However, I should mention two other approaches. One is the *phase-based theory*, proposed by Müller (2010). This theory relies on the fact that subjects are the highest arguments and tries to draw the line between the outmost specifier and all the other arguments (including inner specifiers, if they exist, and complements). The other approach is the *topicality based theory*, pursued, for example, by Goldberg (2006). This theory relies on the fact that subjects tend to be topics and tries to draw the line between topics and all the other constituents. Neither of these views matches the Russian data, as I will show in section 3.3.2 below. Jurka (2010) reaches the same conclusion for German, Japanese, English and Serbian.

3.2.2 Challenges to the Subject Condition

It is sometimes claimed that the Subject Condition is "weak", that it has a number of exceptions and that it is, probably, not a part of the grammar. Some exceptions

seem to indicate that the strong version is wrong, but the weak version can be preserved. Other exceptions seem to be detrimental to the Subject Condition in any formulation.

In this chapter I will discuss two empirical challenges that are mentioned in the literature. The first challenge is a challenge for the Strong Subject Condition (3), but seems to support the weaker version in (4). The second challenge creates a problem for both. However, as we will see in the rest of this chapter, under closer consideration, a full dismissal of the Subject Condition based on these data is premature.

The first challenge (to be discussed in section 3.3) concerns VP-internal subjects. It is well known that there are languages, like Russian or German, which allow subjects to stay in their base position within the verb phrase (see Chomsky, 1981, among others). It is sometimes claimed that in-situ subjects are transparent (see Stepanov, 2007, among others). This seems to be a problem for the Strong Subject Condition and to the Spell Out theory, and points in the direction of the Weak Subject Condition, that is, freezing-based accounts.

However, as Jurka (2010) shows for German, Japanese, Serbian and English, and as Polinsky et al. (2013) show for Russian, not all in-situ subjects are transparent. As we will see in section 3.3, this is only true for those subjects that are base generated as complements. More precisely, only subjects of certain unaccusative verbs are transparent, but not subjects of transitives or unergatives.

Polinsky et al. (2013) show this experimentally, using left branch extraction of *kakoj* 'which'. Below I will examine data on possessor extraction, collected by elicitation, which leads to the same conclusions. It seems that in Russian it is the base generated position (the position of the first external Merge) that matters for extraction, and the line lies between complements and all specifiers.

If so, this is clearly not a challenge for the Strong Subject Condition. On the contrary, the full paradigm of subextraction from in-situ arguments speaks definitively in its favor. As we will see below, neither freezing-based, nor phase-based, nor topicality-based accounts can deal with these data. Thus, the first apparent

challenge for the Subject Condition, in fact, provides a crucial piece of evidence for its stronger version.

The second apparent challenge (to be discussed in sections 3.4 and 3.5) has to do with discontinuous noun phrases in Colloquial Russian and Balkar. In colloquial speech, Russian can seemingly split noun phrases regardless of their structural position (see Sekerina, 1997, Pereltsvaig, 2008, Bondarenko and Davis, 2020a, among others). "Splitting a noun phrase" means pronouncing different parts of it in different positions within a clause. This is a challenge for all accounts, because discontinuous noun phrases seem to be able to occupy any position (VP-internal or VP-external) and can be base generated specifiers or complements. This is a problem for the Subject Condition in either the weak or the strong form. All of the accounts discussed above fail to capture these data.

However, as argued by Pereltsvaig (2008) and Bondarenko and Davis (2020a), among others, that split noun phrases in Colloquial Russian may not involve genuine subextraction at all. In narrow syntax it is the whole noun phrase that moves and leaves behind a copy, it is never "deconstructed". The distinguishing property of Colloquial Russian (as opposed to Literary Russian) is that the PF interface may choose to pronounce only a part of the higher and a part of the lower copy. This analysis is called *Discontinuous Spell Out*, also known as *distributed deletion* (Fanselow and Ćavar, 2002, Pereltsvaig, 2008) or concealed pied-piping (Bondarenko and Davis, 2020a).

In section 3.4 I will reexamine the existing evidence for this theory and discuss its consequences for the Strong Subject Condition. We will see that, even with the possibility of Discontinuous Spell Out, it is still possible to detect Subject Condition effects in Colloquial Russian.

A similar picture arises in Balkar, which presents an even clearer example of Discontinuous Spell Out. In Balkar, nominal subjects are transparent for extraction, while clausal subjects are not. In section 3.5 I will argue that it is the clausal case that should be taken as basic. Transparent nominal subjects constitute an exception. They involve Discontinuous Spell Out, as in Colloquial Russian.

It is important to note that despite surface evidence to the contrary, the Subject Condition still seems to hold even in Balkar and Colloquial Russian. This suggests that the Subject Condition is a part of the core grammar. The reason is that the Subject Condition is unlikely to be easily acquired from the spoken language, because the spoken language can seemingly violate it at the surface structure.

There are several other challenges to the Subject Condition that have arisen in the literature. I will only mention them briefly here and merely point towards various possible responses to them within the Spell Out theory.

First, Ross (1967) claims that in English, extracting a PP argument is possible out of both subject and object noun phrases, while stranding the preposition creates the subject vs. object asymmetry. However, PP fronting in English may be a hanging topic construction, which does not involve genuine movement (see Jurka, 2010:151-159 for discussion).

Second, Chomsky (2008) claims that Exceptionally Case Marked subjects in English (i.e. *Mary wants* ***a student of linguistics*** *to read this book*) are transparent. This, however, is not confirmed by other speakers (see Jurka, 2010:159-162). Chomsky (2008) also claims that subjects of unaccusative verbs in the *there*-construction are transparent. This follows directly from the Subject Condition in both its weak and its strong form, because those subjects are in-situ and are most probably complements.[9]

Third, the Strong Subject Condition does not seem to affect some instances of covert operator movement. One example is relativization in Turkic languages. Turkic relative clauses do not contain a relative pronoun (only a gap). This gap may be inside a base generated specifier. Stepanov (2007, 90) gives some Turkish examples, citing Hankamer and Knecht (1976) and Kural (1993), see also Kornfilt (1997, 58). The same is true for Balkar relativization. However, pronoun-less relative clause formation may not necessarily involve movement. It is possible that these clauses contain a covert operator that is base generated at the top of the

[9]In section 3.3 I argue that subjects in the locative construction in Russian are base generated as complements. It seems reasonable to assume that the same structure for English there-constructions (see e.g. Deal, 2009).

clause and binds a null pronoun in the position of the gap. This type of binding may not be restricted by the Subject Condition, although it may be restricted by other syntactic constraints. Alternatively, it could be that these cases involve covert pied-piping of the whole phrase. Since the supposed movement is itself covert, it is hard or even impossible to determine which constituent has undergone it.[10]

3.3 Transparent subjects in Literary Russian

3.3.1 Background

The first apparent challenge to the Strong Subject Condition comes from subjects that remain in-situ. Russian is a good language to study this, because Russian freely allows subjects to stay in their original (external Merge) position.

Indeed, as we can see by the contrast in (5), extracting *skol'ko* 'how.many' from a postverbal subject (5b) is considerably better than extracting *skol'ko* 'how.many' from a preverbal one (5a). This seems to undermine the Strong Subject Condition and point in the direction of the Weak Subject Condition.

(5) a. * **skol'ko$_1$** ty xote-l-a, čto-by [_$_1$ **čelovek**]$_2$ prines-l-o
how.many you want-PST-F that-SBJ people.GEN bring-PST-N
knigi?
books.ACC
Intended: '**[How many$_1$ people]$_2$** did you want _$_2$ to bring books?'

b. ok **skol'ko$_1$** ty xote-l-a, čto-by zdes' leža-l-o [_$_1$ **botinok**]$_2$?
how.many you want-PST-F that-SBJ here lie-PST-N boots.GEN
'**[How many$_1$ boots]$_2$** did you want _$_2$ to lie here?'

Before taking a fuller paradigm into consideration, let me introduce a few def-

[10] In addition, there is one potential argument against unifying the Subject Condition and the Adjunct Condition, brought up by Stepanov (2007). The argument is that subject islands may show satiation effects, as is argued by Hiramatsu (1999) and Snyder (2000), among a few others. That is, extraction from subjects may become more acceptable over time for some speakers. This does not seem to be true for adjunct islands. Hence the Subject Condition and the Adjunct Condition should not be unified. However, Snyder (2000) finds only a marginally significant satiation neffect with the Subject Condition, while Hiramatsu (1999) only considers subjects of unaccusative verbs, which are base generated as complements.

initions and make a few preliminary assumptions about the syntax of a simple finite clause in Russian. First and foremost, here and below I will call 'subject' the argument that receives nominative case and agrees with the verb.[11]

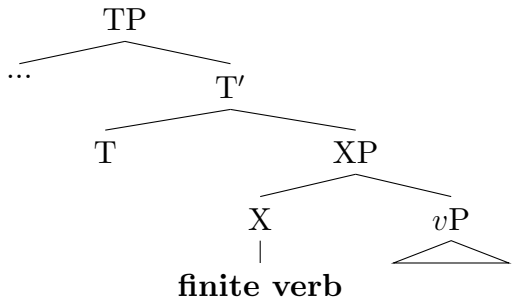
The basic word order is in Russian is SVO (subject-verb-object). However, OVS is also possible, if the subject is in narrow focus:

(6) a. ok Fanni pročita-l-a pis'mo Rozy SVO
Fanni.NOM read-PST-F.SG letter.ACC Rosa.GEN
'Fanny read Rosa's letter.'

b. ok pis'mo Rozy pročita-l-a Fanni OVS
letter.ACC Rosa.GEN read-PST-F.SG Fanni.NOM
'FANNY read Rosa's letter.'

In what follows I will assume that the finite verb in Russian is pronounced in a position above the verb phrase, but lower than T (see Bailyn, 2004, Kallestinova, 2007, Gribanova, 2013, 2017, among many others), which I will call X, as is illustrated by (7). The nature of X is not relevant for us here. For clarity one may assume Gribanova's (2013, 2017) view, according to which X is the head responsible for negative vs. positive polarity.

(7) The syntactic position of the finite verb:



This automatically means that in (6a) the subject has moved out of the verb phrase, and in (6b) the object has moved out of the verb phrase. The remaining two questions are (a) what position do they move to; and (b) whether the other argument stays in-situ.

[11]Russian oblique subjects will not be considered in this dissertation.

As for SVO sentences (6a), I will assume that the preverbal subject is in Spec,TP. The simplest assumption about the postverbal object in (6a) is that it stays in-situ.

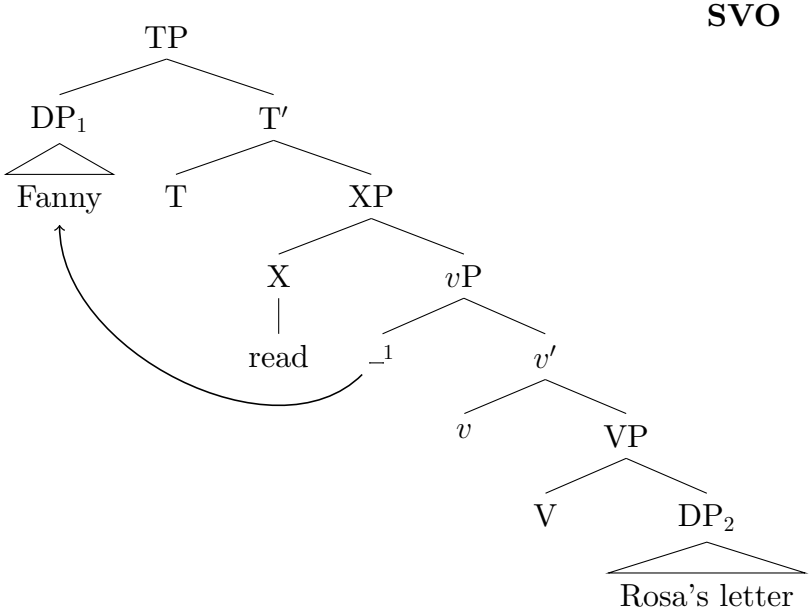
As for the preverbal object in OVS sentences (6b), following Bailyn (2004) and King (1995), I will assume that it is also in Spec,TP. It may not be higher than C, because in embedded clauses it follows the complementizer. It has to occupy an A-position, because the scrambling operation that creates the OVS order creates new binding possibilities for O (Bailyn, 2004).

As for the postverbal subject in (6b), the simplest assumption is that it stays in-situ. One may think that post-verbal subjects also obligatory move, for example, undergo obligatory rightward extraposition. The reason for this view may be that postverbal subjects are obligatorily focused. But according to either Weak or Strong Subject Condition, this should make all the postverbal subjects opaque for movement, which is not the case, as was shown by (5b).

All these assumptions, taken together, are illustrated by the structures in (8-9).

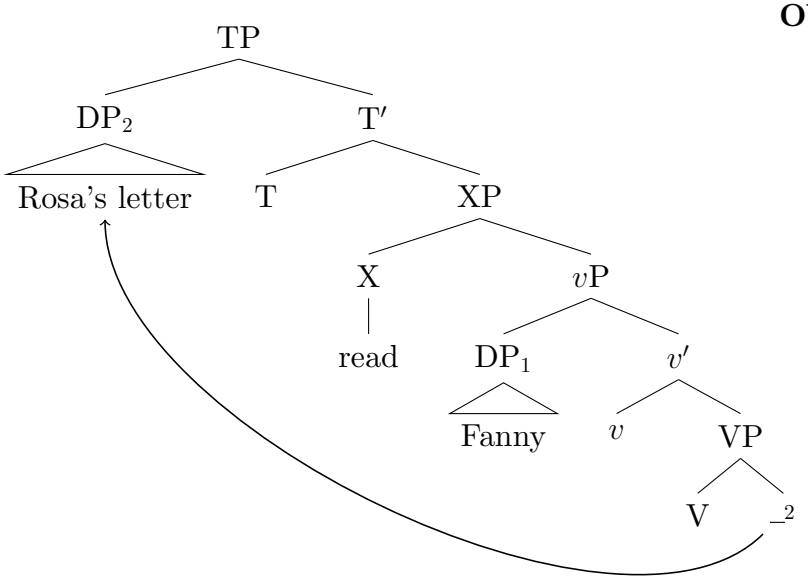
(8) [ok] Fanni pročita-l-a pis'mo Rozy
Fanni.NOM read-PST-F.SG letter.ACC Rosa.GEN
'Fanny read Rosa's letter.'

SVO



(9) [ok] Pis'mo Rozy pročita-l-a Fanni
letter.ACC Rosa.GEN read-PST-F.SG Fanni.NOM
'FANNY read Rosa's letter.'

OVS



In the rest of this section I will discuss which vP-internal and vP-external arguments are transparent for subextraction. The testing ground for this will be relativization of the possessor, replaced by the pronoun *čej/čja/čju/čji* 'whose.M/F/N/PL'. Most of the data below replicate Polinsky et al.'s (2013) experiment with extraction of *kakoj/kakaja/kakoje/kakije* 'which.M/F/N/PL'.

To make sure that the noun phrase is linearly discontinuous I will only use long-distance extraction, namely, across a subjunctive complementizer *čto-by* 'that-SBJ', which embeds finite clauses under *xotet'* 'want' (for more details on long-distance relativization and scrambling in Russian see Testelets, 2006 and Kallestinova, 2007, among others).

3.3.2 Transitive verbs

Let us begin with the two arguments of a transitive verb, like *čitat'* 'read'. In the basic SVO order we observe a clear contrast: the subject is opaque, but the object

is transparent. All the speakers I consulted judged (10a) to be better than (10b):

(10) vot tot čelovek,
here.is that man
'Here is the man...'

a. [ok] **č-ju$_1$** ty xote-l-a, čto-by ja pročita-l [$_1$ **knigu**]$_2$
whose.ACC you want-PST-F that-SBJ I read-PST.M book.ACC
'...**[whose$_1$ book]$_2$** you wanted me to read $_2$.'

b. * **č-ej$_1$** ty xote-l-a, čto-by [$_1$ **brat**]$_2$ pročita-l
whose.NOM you want-PST-F that-SBJ brother.NOM read-PST.M
moju knigu
my.ACC book.ACC
Intended: '...**[whose$_1$ brother]$_2$** you wanted $_2$ to read my book.'

This contrast is compatible with both the Strong Subject Condition and the Weak Subject Condition. The object in (10a) is in the complement position and is expected to be transparent. The subject in (10b) differs from the object in (10a) in two respects. Firstly, it is base generated as a specifier (Spec,vP). Secondly, it has moved out of the verb phrase to Spec,TP. Under both accounts it is expected to be opaque.

Crucially, though, we observe **the same contrast** between postverbal subjects and postverbal objects. If anything, the contrast becomes sharper in these cases:

(11) vot tot čelovek,
here.is that person
'Here is the person...'

a. [ok] **čju$_1$** ty xote-l-a, čto-by ja pročita-l [$_1$ **knigu**]$_2$
whose.ACC you want-PST-F that-SBJ I read-PST.M book.ACC
'...**[whose$_1$ book]$_2$** you wanted me to read $_2$.'

b. * **čej$_1$** ty xote-l-a, čto-by moju knigu pročita-l [$_1$
whose.NOM you want-PST-F that-SBJ my.ACC book.ACC read-PST.M
brat]$_2$
brother.NOM
Intended: '...**[whose$_1$ brother]$_2$** you wanted $_2$ to read my book.'

This fact is a definitive argument for the Strong Subject Condition and hence the Spell Out theory. Freezing accounts would have to stipulate obligatory string vacuous movement for postverbal subjects in Russian in order to explain (11b).

None of the other two theories outlined in section 4.2 can deal with these data either. The phase-based theory would have problems explaining the degraded status of (11b). According to Müller (2010) it would have to be a case of melting, because the object scrambles across the subject. In his theory this would make the subject transparent, contrary to what we observe.

Topicality-based accounts (Goldberg, 2006) also predict (11b) to be fine. The signature property of postverbal subjects in Russian is that they are narrow focused, which would make them transparent under the topicality-based view, again, contrary to what we observe.

Remember that the Strong Subject Condition also applies to derived specifiers. It predicts freezing effects as a special case. Complements should become opaque, if they are moved. Is it the case in Russian? The answer is yes and no.

According to my data, there is a mild freezing effect, when one compares extraction from postverbal objects with extraction from preverbal ones. The former is judged better on the whole, but the effect seems weak:

(12) eto tot samyj čelovek,
this that.NOM same.NOM person.NOM,
'This is the very same person...'

a. ok **čju$_1$** ty xote-l-a, čto-by moj brat pročita-l
whose.ACC you want-PST-F that-SBJ my.NOM brother.NOM read-PST.M
[$\__1$ **knigu**]
book.ACC

b. ? **čju$_1$** ty xote-l-a, čto-by [$\__1$ **knigu**] pročita-l
whose.ACC you want-PST-F that-SBJ book.ACC read-PST.M
moj brat
my.NOM brother.NOM
'...**[whose$_1$ book]$_2$** you wanted me to read $\__2$.'

If we compare extraction from preverbal objects with extraction from preverbal

subjects, we observe a slight contrast in favor of the former:

(13) eto tot samyj čelovek,
this that.NOM same.NOM person.NOM,
'This is the very same person...'

a. ? **čju$_1$** ty xote-l-a, čto-by [_$_1$ **knigu**] pročita-l
whose.ACC you want-PST-F that-SBJ book.ACC read-PST.M
moj brat
my.NOM brother.NOM
'...**[whose$_1$ book]$_2$** you wanted me to read _$_2$.'

b. * **čej$_1$** ty xote-l-a, čto-by [_$_1$ **brat**] pročita-l
whose.ACC you want-PST-F that-SBJ brother.NOM read-PST.M
moju knigu
my.ACC book.ACC
Intended: '...**[whose$_1$ brother]$_2$** you wanted _$_2$ to read my book.'

The full paradigm of extraction from arguments of transitive verbs in Russian is schematized in (14). This replicates the results of Polinsky et al.'s (2013) experiment with extraction of *kakoj* 'which' (Polinsky et al., 2013, figures 4 and 5). Jurka's (2010, 56-71) experiment shows essentially the same pattern for German with the *was-für* split.

(14) Paradigm of subextraction against predictions

		Data	Strong Subject Condition	Weak Subject Condition
a.	ok	S V **[_$_1$ O]**	ok	ok
b.	?	**[_$_1$ O]** V S	*	*
c.	*	**[_$_1$ S]** V O	*	*
d.	*	O V **[_$_1$ S]**	*	ok

It is clear that (a) these data support the Subject Condition; and (b) that they match the Strong Subject Condition better, than its weaker version. It is the base generated position that matters for subextraction, and the line lies between base generated complements and base generated specifiers.

The only problem is that the Strong Subject Condition does not distinguish between derived and non-derived specifiers. What is unexpected is the intermediate status of the freezing configuration in (14b), which is exemplified by (12b=13a).

Notice, however, that (14b) has two potential derivations. The first option is movement of the object with the subsequent subextraction, which is predicted to be impossible under either the Strong or the Weak Subject Condition. The second option is extraction followed by subsequent remnant movement, which is not ruled out by either the Strong or the Weak Subject Condition.[12]

If we assume that remnant movement is possible, although somehow costly, we can explain the intermediate status of (14b). It has a legitimate derivation, namely, the one that involves remnant movement. But remnant movement is costly, which explains the degraded status of the example.

The overall prediction of the Spell Out theory is that moved complements should show freezing effects. But it may be possible to "deconstruct" them first with subsequent remnant movement. Consequently, if we do observe a transparent moved complement, the subextraction must have preceded the remnant movement of the complement itself.

3.3.3 Unergative vs. unaccusative verbs

Let us now turn to verbs with only one argument. Those split into two major syntactic categories: unergatives and unaccusatives, as was originally proposed by Perlmutter (1978).

These two classes behave differently with respect to various syntactic and semantic phenomena. Specifically, the sole argument of unaccusatives behaves like the internal argument (the object) of transitive verbs. Meanwhile the sole argument of unergatives behaves like the external argument (the subject) of transitive verbs (see Perlmutter, 1978, Burzio, 1981, 1986, Pesetsky, 1982, Hale and Keyser, 1993,

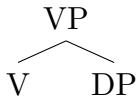
[12]That is, first the possessor *čju* in (12b=13a) is extracted out of the complement noun phrase. Then the remnant of the noun phrase $\__1$ *knigu* is moved and tucked in under the possessor. This could happen at the vP level with subsequent movements of the possessor to the left periphery of the CP and of the remnant to Spec,TP.

Levin and Hovav, 1995, Harley, 1996, Paducheva, 2001, among numerous others).

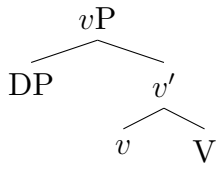
This led many researchers to believe that the verb phrase of an unaccusative verb and the verb phrase of an unergative verb have two different structures. The sole argument of an unaccusative verb is base generated in the position of a transitive object. That is, it is merged with the verb itself.

Meanwhile, the sole argument of an unergative verb is base generated in the position of a transitive subject. It is merged with a more complex structure. Some theories (e.g., Hale and Keyser, 1993) assume that this structure consists of the verb and a silent cognate object. Other theories (e.g., Harley, 1996) assume that this structure consists of the verb and a silent functional head, e.g. v. This does not matter for our purposes. What matters is that the structure that the sole argument of an unergative merges with is more complex:

(15) a. Unaccusative:



b. Unergative:



Which intransitive verbs behave like unaccusatives (15a) and which intransitive verbs behave like unergatives (15b) varies from language to language. But in general intransitive verbs with a sole Theme argument (i.e. 'die', 'fall', 'stand', intransitive 'break') tend to be unaccusative (15a). Meanwhile intransitive verbs with a sole Agent argument (i.e. 'work', 'laugh', intransitive 'read') tend to be unergative (15b), see Sorace (2000) for a cross-linguistic hierarchy of unaccusativity.

For this reason I will focus on small specific classes of verbs in Russian. As unergatives I will consider (a) intransitive agentive activities: *rabotat'* 'work', *igrat'* 'play'; (b) emotive verbs: *smejat'sja* 'laugh', *plakat'* 'cry'; and (c) manner verbs with a dropped object: *čitat'* 'read', *pisat'* 'write'.[13]

[13]For the manner vs. result distinction among transitive verbs see Levin and Hovav (1995), among others.

As unaccusatives I will only consider positional verbs (*sidet'* 'sit', *stojat'* 'stand', *naxodit'sja* 'find.oneself') and the locative *byt'* 'be'. For discussion of some other unaccusative verbs see the next section.

Russian offers a whole variety of unaccusativity diagnostics (see Babby, 1980, Pesetsky, 1982, Babyonyshev et al., 2001, Harves, 2002 and many others). Unaccusativity diagnostics are syntactic and semantic phenomena that distinguish between unaccusative subjects and transitive objects on the one hand, and unergative subjects and transitive subjects on the other. In what follows I will only consider two such diagnostics.

The first diagnostic is *genitive of negation*, proposed by Babby (1980) and Pesetsky (1982), see also Peshkovsky (1922/2001), Chvany (1975), Paducheva (1992, 2008), Borschev and Partee (1998, 2002), Babyonyshev et al. (2001), Harves (2002) and numerous others.

In the context of a clausal negation Russian can use the genitive case instead of the nominative or accusative. This is only possible for internal arguments of transitive verbs and sole arguments of unaccusatives.

It should be noted that this restriction may only be true for bare genitive noun phrases, like *ljudej* 'people.GEN'. At least according to my own judgments, genitive noun phrases with a negative concord determiner, like *ni-kakix ljudej* 'NCI-which.GEN people.GEN', have a broader distribution. To avoid that I will only use genitive of negation on bare noun phrases. Note also that when a nominative subject is replaced with genitive of negation, the agreement on the verb is changed to default (third person, neuter, singular).

Examples in (16-17) show that genitive of negation is possible with internal arguments, but not with external ones.

(16) Internal arguments of transitive verbs:

a. [ok] Volodja **ne** čita-l **knigi**
Volodya.NOM NEG read-PST.M books.ACC

b. [ok] Volodja **ne** čita-l **knig**
Volodya.NOM NEG read-PST.M books.GEN

'Volodya didn't read any books.'

(17) External arguments of transitive verbs:

a. [ok] moju knigu **ne** čita-l-i **ljudi**
my.ACC book.ACC NEG read-PST-PL people.NOM

b. * moju knigu **ne** čita-l-o **ljudej**
my.ACC book.ACC NEG read-PST-N people.GEN

'No people read my book.'

It is also possible for the sole argument of positional verbs and the locative 'be':

(18) a. Locative 'be':

[ok] v stolovoj **ne** by-l-o **škol'nikov**
in the cafeteria NEG be-PST-N schoolkids.GEN

'There were no children playing in the courtyard.'

b. Positional verbs:

[ok] v našej biblioteke **ne** stoja-l-o **novyx** **škafov**
in our library NEG stand-PST-N new.GEN bookcases.GEN

'There were no new bookcases in our library.'

Genitive of negation is impossible for the sole argument of agentive activities (19a), emotive verbs (19b), or manner verbs with a dropped object (19c).

(19) a. Intransitive agentive activities:

* vo dvore **ne** igra-l-o **detej**
in the courtyard NEG play-PST-N children.GEN

Intended: 'There were no children playing in the courtyard.'

b. Emotive verbs:

* na peremene **ne** smeja-l-o-s' **škol'nikov**
during the break NEG laugh-PST-N-REFL schoolkids.GEN
Intended: 'There were no schoolkids laughing during the break.'

c. Manner verbs with a dropped object:

* v našej biblioteke **ne** čita-l-o vzroslyx **učenikov**
in our library NEG read-PST-N adult.GEN students.GEN
Intended: 'There were no adult students reading in our library.'

The simplest description of these data is that the syntactic domain where genitive of negation may be assigned is VP, not vP, see (15). This explains, why it can only be assigned to internal arguments of transitives and sole arguments of unaccusatives. For more specific proposals see Pesetsky (1982), Paducheva (1992), Harves (2002), Borschev and Partee (1998, 2002) and many others.

The second diagnostic is *the scope of the distributive pere-*, originally proposed by Borik (1995) and Schoorlemmer (1995).

Many Russian verbs may take a distributive prefix *pere-*, which requires one of the arguments to be plural and forces a distributive universal interpretation of it. For an analysis of *pere-* see, e.g., Babko-Malaya (1999), and on its scope specifically see Tatevosov (2015a).

The distributive *pere-* may target the internal argument of a transitive verb or the sole argument of an unaccusative verb, but not the external argument of a transitive or the sole argument of an unergative (see, e.g., Tatevosov, 2015a).

Distributive *pere-* may "range over" internal, but not external arguments:

(20) a. Internal arguments of transitive verbs:

ok Volodja **pere**-čita-l **vse** knigi v biblioteke
Volodya.NOM DIST-read-PST.M all.ACC books.ACC in library
'Volodya has read all the books in the library.'

b. External arguments of transitive verbs:

* moju zametku v gazete **pere**-čita-l-i **vse**
my.ACC article.ACC in newspaper DIST-read-PST-PL all.NOM
sotrudniki našego instituta
employees.NOM our.GEN institute.GEN
Intended: 'All the employees of our institute have read my article in the newspaper.'

The sentence in (20b) is acceptable with a different interpretation of *pere-*. Namely, with repetitive *pere-* that roughly means 'again'. If we fix the reading under which the employees read the speaker's article only once, the sentence is not acceptable.

Distributive *pere-* may "range over" sole arguments of unaccusatives:

(21) a. Locative 'be':

ok v etoj biblioteke **pere**-byva-l-i **vse** russkie revoljutsionery
in this library DIST-be-PST-PL all.NOM Russian revolutionaries
'All Russian revolutionaries have been in this library.'

b. Positional verbs:

ok na etom trone **pere**-side-l-i **vse** russkie tsari
on this throne DIST-sit-PST-PL all.NOM Russian.NOM tsars.NOM
'All Russian tsars have sat on this throne.'

But it may not "range over" sole arguments of unergatives:

(22) a. Intransitive agentive activities:

* v etom dvore **pere**-igra-l-i **vse** deti
in this courtyard DIST-play-PST-PL all.NOM children.NOM
s našego rajona
from our district
Intended: 'All the children from our district have played in this courtyard.'

b. Emotive verbs:

* nad mojej šutkoj **pere**-smeja-l-i-s' **vse** sotrudniki
at my joke DIST-laugh-PST-PL-REFL all.NOM employees.NOM
našego instituta
our.GEN institute.GEN
Intended: 'All the employees of our instituted laughed at my joke.'

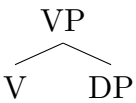
c. Manner verbs with a dropped object:

* v našej biblioteke **pere**-čita-l-i **vse** vedušije učonyje
in our library DIST-read-PST-PL all leading.NOM scientists.NOM
MGU
MSU.GEN
Intended: 'All the leading scientists of Moscow State University have read in this library.'

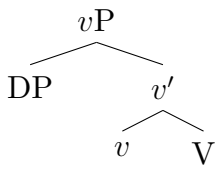
As with genitive of negation, it seems that the scope of *pere-* may only include VP, not vP (see Tatevosov, 2015a for a specific proposal). Notice that we may not simply assume that distributive *pere-* is incompatible with v, since it is fine with an agentive transitive verb (20a).

The syntactic structures for unaccusative and unergative verb phrases are repeated in (23). The sole argument of an unaccusative is base generated as a complement, the sole argument of an unergative is base generated as a specifier, .

(23) a. Unaccusative:



b. Unergative:



Given these assumptions, the Strong Subject Condition predicts in-situ unaccusative subjects to be transparent, and in-situ unergative subjects to be opaque. The Weak Subject Condition predicts no such difference. Both types of subjects should be transparent while in-situ. The results support the Strong Subject Condition.

The sole arguments of the locative 'be' and positional verbs are transparent:

(24) a. Locative 'be':

ok ...čelovek[14] **čja$_1$** ty xote-l-a čto-by u nas na vitrine
person.NOM whose.NOM you want-PST-F that-SBJ on our display
by-l-a [_$_1$ **kniga**]$_2$
be-PST-F book.NOM
'...the person **[whose$_1$ book]$_2$** you wanted _$_2$ to be on our display.'

b. Positional verbs:

ok ...čelovek **čja$_1$** ty xote-l-a čto-by u nas na vitrine
person.NOM whose.NOM you want-PST-F that-SBJ on our display
leža-l-a [_$_1$ **kniga**]$_2$
lie-PST-F book.NOM
'...the person **[whose$_1$ book]$_2$** you wanted _$_2$ to lie on our display.'

The sole arguments of intransitive agentive activities, emotive verbs and manner verbs with a dropped object are opaque:

(25) a. Intransitive agentive activities:

* ...čelovek **čej$_1$** ty xote-l-a čto-by u nas v kafe
person.NOM whose.NOM you want-PST-F that-SBJ in our cafe
rabota-l [_$_1$ **brat**]$_2$
work-PST.M brother.NOM
Intended: '...the person **[whose$_1$ brother]$_2$** you wanted _$_2$ to work in our store.'

b. Emotive verbs:

* ...čelovek **čej$_1$** ty xote-l-a čto-by nad šutkoj
person.NOM whose.NOM you want-PST-F that-SBJ at joke
posmeja-l-sja [_$_1$ **brat**]$_2$
laugh-PST.M-REFL brother.NOM
Intended: '...the person **[whose$_1$ brother]$_2$** you wanted _$_2$ to laugh at the joke.'

[14]All Russian examples with extraction were tested with respect to relativization. The main sentence was always of the form 'this is the person, whose...'. For the purposes of space I will henceforth omit the beginning of the sentence, only providing the head noun 'person' with a relative clause.

c. Manner verbs with a dropped object:

* ...človek **čej$_1$** ty xote-l-a čto-by u nas v kabinete
person.NOM whose.NOM you want-PST-F that-SBJ at my joke
čita-l [_$_1$ **brat**]$_2$
read-PST.M brother.NOM
Intended: '...the person **[whose$_1$ brother]$_2$** you wanted _$_2$ to read in our office.'

Extraction in (24) is reliably judged more acceptable than extraction in (25). These findings, again, replicate the experimental results of Polinsky et al. (2013) with extraction of *kakoj* 'which'. The same has been confirmed experimentally for the German *was-für* split (Jurka, 2010, 86-97).

These data are naturally captured by the Strong Subject Condition without any additional stipulations. If we wanted to adopt the Weak Subject Condition, we would not be able to distinguish between different types of subjects in-situ, or else we would be forced to assume a string vacuous movement that would be obligatory and apply only to external arguments. This is a possible theory, of course, but given that the Strong Subject Condition is prima facie the strongest alternative and captures the data without additional stipulations, there seems to be no reason to advocate for the weaker option.

Interestingly, given the Strong Subject Condition, the possibility of subextraction turns into yet another unaccusativity diagnostic. It seems to target the same set of arguments. However , as we will see in the next section, not all unaccusative subjects seem to be equally transparent.

3.3.4 Among unaccusatives

Not all unaccusative subjects are equally transparent. Extraction from subjects of positional verbs and locative 'be' is possible, but we find a different picture with verbs of directed motion like *prixodit'* 'come' or *priezžat'* 'arrive.driving'.

(26) a. Object of a transitive:

ok ...čelovek **čji$_1$** ty xote-l-a čto-by ja perevodi-l
person.NOM whose.NOM you want-PST-F that-SBJ I translate-PST.M
[$_1$ **memuary**]$_2$
memoir.NOM
'...the person **[whose$_1$ memoir]$_2$** you wanted me to translate $_2$.'

b. Subject of a positional verb:

ok ...čelovek **čja$_1$** ty xote-l-a čto-by u nas na vitrine
person.NOM whose.NOM you want-PST-F that-SBJ on our display
leža-l-a [$_1$ **kniga**]$_2$
lie-PST-F book.NOM
'...the person **[whose$_1$ book]$_2$** you wanted $_2$ to lie on our display.'

c. Subject of a verb of directed motion:

* ...čelovek **čej$_1$** ty xote-l-a čto-by k nam domoj
person.NOM whose.NOM you want-PST-F that-SBJ to our house
prišë-l [$_1$ **drug**]$_2$
come-PST.M friend.NOM
Intended: '...the person **[whose$_1$ friend]$_2$** you wanted $_2$ to come to our house.'

Unlike the data from the previous section, the paradigm in (26) has not yet been studied in an experimental setting, but according to the speakers I have consulted, (26a) and (26b) are relatively on a par, while (26c) is consistently judged worse.

What is the difference between subjects of positional verbs and sujbects of verbs of directed motion? Both types of verbs have two arguments (27). Both types of verbs are unaccusative, given the diagnostics introduced above.[15]

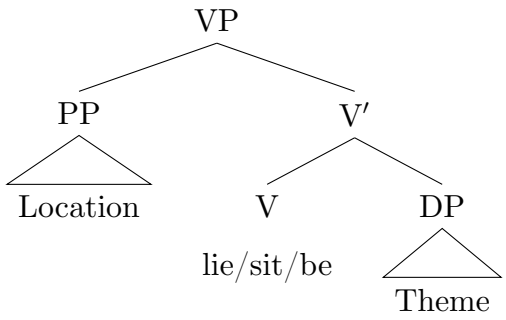
(27) a. Positional verbs (*ležat'* 'lie', *stojat'* 'stand', *naxodit'sja* 'find.oneself'): <Location (PP), Theme (DP)>.

b. Directed motion verbs (*prixodit'* 'come', *prijezžat'* 'arrive.driving'): <Goal (PP), Theme (DP)>.

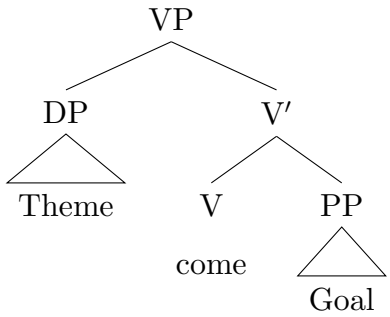
[15]Verbs of directed motion definitely allow genitive subjects under negation (confirmed by elicitation), and, at least according to my intuition, they allow for distributive *pere-* to target their subject: *K zabolevšej Nade **pere**prixodili **vse** členy revolutsyonnogo kružka* 'All the members of the revolutionary group came (at one time or another) to the sick Nadya'.

However, the verb phrase structure for these two verb types in Russian may be different. There is some evidence that for positional verbs the Theme DP can be base-generated lower than the Location PP, as in (28a), see also Borschev and Partee's (2002) perspectival structure for locative 'be'. For directed motion verbs the Theme DP has to be base-generated higher than the Goal PP (28b).

(28) a. Positional verb:



b. Verb of directed motion:



If the structures in (28) are correct, then the contrast in (26) follows naturally from the Strong Subject Condition. The Theme of a positional verb is base generated as a complement, while the Theme of a verb of directed motion is base generated as a specifier.

At the same time the Weak Subject Condition faces difficulties here. We need to stipulate that not only external arguments undergo an obligatory string vacuous movement, but, in fact, all specifiers. Which makes the weak version indistinguishably close to the strong one. Again, we see that, at least for Russian, it is the base generated structural position (specifier vs. complement) that matters for subex-

traction. This goes in line with the Subject Condition in its strong form.

There are at least two independent arguments for the structures in (28). The first argument is *reconstruction for Binding Condition C*. Russian local scrambling, i.e., the operation that moves the argument to the preverbal position, obligatorily reconstructs for Condition C (see e.g. Bailyn, 2004). This means that we could use Condition C to probe the base generated positions of arguments.

Strikingly, there seems to be a sharp contrast in (29).

(29) a. ok [v kabinete **Feliksa$_1$**]$_{\text{Loc}}$ naxodi-l-sja [**on$_1$** (sam)]$_{\text{Theme}}$
in office.LOC Felix.GEN find.oneself-PST.M-REFL he himself
'In Felix$_1$'s office was he$_1$ (himself).'

b. * [v dom **Anny$_1$**]$_{\text{Goal}}$ priš-l-a [**ona$_1$** (sama)]$_{\text{Theme}}$
to home.ACC Anna.GEN come-PST-F she herself
Intended: 'To Anna$_1$'s house came she$_1$ (herself).'

This contrast is easily explainable, if we assume the structures in (28). For positional verbs, as in (29a), the Location argument is (or at least can be) base generated above the Theme argument. There is no position below the Theme, where it would have to reconstruct to and cause a Condition C violation.

For verbs of directed motion, as in (29b), the Goal argument is base generated below the Theme argument. There is a position below the Theme, where it has to reconstruct to, which causes a Condition C violation.

The second argument is *binding of possessive reflexives*. There is a limited set of cases when the reflexive possessive pronoun *svoj* 'self's' can modify a nominative argument and still have a bound interpretation. In particular, it could be bound by a PP, although to a limited extent (see e.g. Paducheva, 1974, 235 and 1983 for discussion). That is, only certain PPs allow for this kind of binding.

Note that local scrambling in Russian does not obey Weak Crossover, that is, it creates new binding possibilities (Bailyn, 2004).[16] This means that a quantified PP that linearly **precedes** a nominative DP with *svoj* 'self's' can always bind it (provided this type of binding is possible for this PP). This is regardless of the base

generated positions of the PP or the nominative DP in question.

Note also that Russian local scrambling may reconstruct for quantifier binding. That is, a pronoun may be reconstructed in order to be bound (Bailyn, 2004). This means that a nominative DP with *svoj* 'self's' can also be bound by a quantified PP that **follows it**, but only if this DP is base generated below this PP (again, provided that this type of binding is possible for the PP in the first place).

We find a difference between positional verbs (at least, the locative 'be') and verbs of directed motion. The sentence in (30a) is consistently judged better than the one in (30b).

(30) a. ok [**svoj$_1$** vrač]$_{\text{Theme}}$ by-l [**v každom gorode$_1$**]$_{\text{Loc}}$
self.NOM doctor.NOM be-PST.M in every.LOC city.LOC
'Every city$_1$ had its$_1$ own doctor.'
Lit.: 'Its$_1$ own doctor was in every city$_1$.'

b. * [**svoj$_1$** vrač]$_{\text{Theme}}$ priexa-l [**v každyj gorod$_1$**]$_{\text{Goal}}$
self.NOM doctor.NOM come-PST-M in every.ACC city.ACC
Intended: 'Every city$_1$ was visited by its$_1$ own doctor.'
Lit.: 'Its$_1$ own doctor came to every city$_1$.'

Again, the structures in (28) naturally explain the contrast in (30). For positional verbs (30a) the Theme may reconstruct to a position lower than the Location and may be bound there. For verbs of directed motion (30b) the Theme may not reconstruct to a position lower than the Goal, because there is no such position.

It should be noted that (30) could alternatively merely show us an idiosyncratic difference between *v* 'in' that takes a locative DP and *v* 'in' that takes an accusative DP. Since not all prepositions allow their argument DPs to bind pronouns outside their PPs, there might be just two different versions of *v* 'in' in Russian.

This alternative can be dismissed on the grounds of (31). To my ear nether (31a) nor (31b) is significantly degraded. This means that both PPs, the Location

[16]This is a slightly puzzling profile for movement. It obligatory reconstructs for Condition C, but also creates new binding possibilities. However, proposing a principled account for this type of movement lies beyond the scope of this dissertation. What matters for us here is that this movement shows both properties.

PP and the Goal PP, can in principle bind the pronoun *svoj* inside the subject. But crucially, the Goal PP may only do so, if it scrambles above the subject, compare (30b) vs. (31b). Meanwhile the Location PP can also do so in-situ, see (30a).

(31) a. ok **[v každom gorode$_1$]**$_{\text{Loc}}$ by-l **[svoj$_1$** vrač]$_{\text{Theme}}$
in every.LOC city.LOC be-PST.M self.NOM doctor.NOM
'Every city$_1$ had its$_1$ own doctor.' (my judgment)

b. ? **[v každyj gorod$_1$]**$_{\text{Goal}}$ priexa-l **[svoj$_1$** vrač]$_{\text{Theme}}$
in every.ACC city.ACC come-PST-M self.NOM doctor.NOM
'Every city$_1$ was visited by its$_1$ own doctor.' (my judgment)

3.3.5 Summary

In this section we have seen that subextraction from a noun phrase in Russian is sensitive to the base generated position of this noun phrase.

Subjects of transitive verbs, unergatives and directed motion verbs are opaque even when they are in-situ. Meanwhile, objects of transitive verbs, subjects of positional verbs and locative 'be' are transparent when they are in-situ. This split is best captured by the complement vs. specifier distinction. The general picture, thus, supports the Subject Condition in its strongest form.[17]

We have also observed a freezing effect with preverbal objects of transitive verbs. This effect seems to be weaker than expected under the Strong Subject Condition. But this may be due to the possibility of an alternative derivation involving subextraction followed by remnant movement.

In colloquial speech all the contrasts discussed above become somewhat blurred. This applies to noun phrases in all positions, in-situ or not. This means that either the Subject Condition is simply not a part of the grammar of Colloquial Russian, or that Colloquial Russian can ameliorate its effects due to phenomena not tied to subextraction. In the next section I will try to argue for the latter option. The

[17]Quite a few of Stepanov's (2007) examples from other languages which seem to be problematic for the Strong Subject Condition involve subjects that are most probably base generated as complements, see Stepanov's (19), (21), (25), (27) (Stepanov, 2007, 89-91). Which makes them not genuine counterexamples.

specific hypothesis that I will argue for is that Colloquial Russian, unlike Literary Russian, can spell out a noun phrase discontinuously in two positions at the same time. However, in narrow syntax the noun phrase in question is never truly deconstructed. This means that the Subject Condition is still enforced, even though its effects become less detectable. Crucially, we will see that even in Colloquial Russian there is a distinction between discontinuous specifiers and discontinuous complements, which can only be explained if the Subject Condition is still a part of the Colloquial Russian grammar.

3.4 DSO in Colloquial Russian

3.4.1 Literary vs. Colloquial

It has been observed in the literature that Colloquial Russian can split noun phrases more freely than Literary Russian (see Zemskaya, 1973, 380-393, Sekerina, 1997 and Pereltsvaig, 2008 among others).[18]

In particular, Colloquial Russian can split subjects of transitive verbs (32). In constructions like this the linearly first part of the noun phrase has to be the Contrastive Topic (see Pereltsvaig, 2008). It should be noted that that the possibility of a split is not influenced by the surface or the base position of the noun phrase in question. This is problematic for all theories of the Subject Condition discussed above, in particular, for both the Strong and the Weak Subject Condition.

(32) ok **nekotorye$_S$** daže do vos'mi turov dela-j-ut **baleriny$_S$**
some even up.to eight tours do-PRS-3PL ballerinas
'**SOME ballerinas$_S$** do even up to EIGHT tours.'

(Zemskaya, 1973, 387)

Obviously, this directly contradicts the observations made in the previous section. Indeed, sometimes the speakers I have consulted did not perceive the contrasts

[18]The same is true for Old Russian (Zaliznyak, 2004, 189-190) and poetic Russian.

reported above. Crucially, they describe sentences like (32) as "acceptable in colloquial speech" (see also the discussion in Sekerina, 1997, 295-296).

It has long been established in the literature that there are a number of systematic grammatical differences between Literary and Colloquial Russian, (see Zemskaya, 1973 and much subsequent work). The ability to split noun phrases regardless of their structural position is among them.

Literary Russian can split only those noun phrases that are base generated as complements (see the previous section). Colloquial Russian can split all noun phrases regardless of their base-generated or derived position. Consequently, if the speakers switch register to Colloquial Russian, they allow examples like (32).

For the present purposes I will treat Colloquial and Literary Russian as two dialects of the same language. From this point of view, we are dealing with cross-linguistic variation. The question is what kind of variation. The simplest option is to assume that the Subject Condition is not universal. Literary Russian obeys it, while Colloquial Russian does not.

But that is only the right conclusion if sentences like (32) in Colloquial Russian involve genuine subextraction. More precisely, if the discontinuous noun phrase in (32) is indeed deconstructed in syntax, then it is a Subject Condition violation. If the noun phrase is never deconstructed in syntax, then (32) is not a counterexample to the Subject Condition.

There are independent reasons to believe the latter. Pereltsvaig (2008) and Bondarenko and Davis (2020a), among a few others, argue that split noun phrases in Colloquial Russian do not split in narrow syntax. The proposed analyses include Discontinuous Spell Out (henceforth DSO), concealed pied-piping and distributed deletion (see Fanselow and Ćavar, 2002). All of these theories share the crucial assumption that the noun phrase is never truly subextracted from. In this chapter I will take the DSO view for concreteness. But it should be noted that any analysis that does not deconstruct subject noun phrases is compatible with the Spell Out theory.

The idea behind the DSO analysis is that in cases like (32) it is the whole noun

phrase that moves to the left periphery in narrow syntax. At the PF interface only a part of the noun phrase is pronounced in the higher position (*nekotorye*), and the other part is pronounced in the lower position (*baleriny*).

If this is correct, then the difference between Literary and Colloquial Russian is not in that only the former obeys the Subject Condition, but in that only the latter allows DSO. Colloquial, but not Literary, Russian can distributively pronounce multiple copies of a moved constituent. Consequently, by providing an alternative parse for examples otherwise parsable as subextraction, Colloquial Russian offers a successful analysis for all strings that would otherwise have to be parsed as violations of the Subject Condition. This means that the real difference between Colloquial and Literary Russian lies at the PF interface, not in narrow syntax.

The remainder of section 3.4 is dedicated to a more detailed discussion of this proposal and its consequences for the Spell Out theory. In section 3.4.2 I will reconsider some of the arguments against the "deconstruction" analysis of examples like (32). In section 3.4.3 I will outline the DSO account. In section 3.4.4 I will point out certain distinctive properties associated with discontinuously spelled out phrases. In section 3.4.5 I will argue that even in languages that allow DSO, like Colloquial Russian, it is still possible to detect certain effects of the Subject Condition. In Colloquial Russian specifiers are split less freely than complements. This means that the Subject Condition is still enforced, even if its effects are obscured.

3.4.2 Arguments against syntactic deconstruction

Consider again the following:

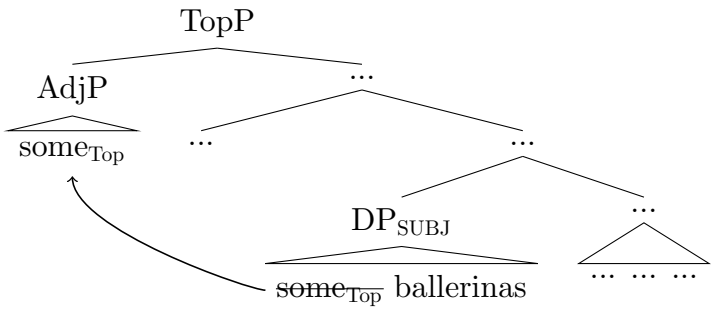
(33) ok **nekotorye$_S$** daže do vos'mi turov dela-j-ut **baleriny$_S$**
some even up.to eight tours do-PRS-3PL ballerinas
'**SOME ballerinas$_S$** do even up to EIGHT tours.'

(Zemskaya, 1973, 387)

There are at least four ways of analyzing a split noun phrase like the one in (33), two of which involve movement that violates the Subject Condition. The first

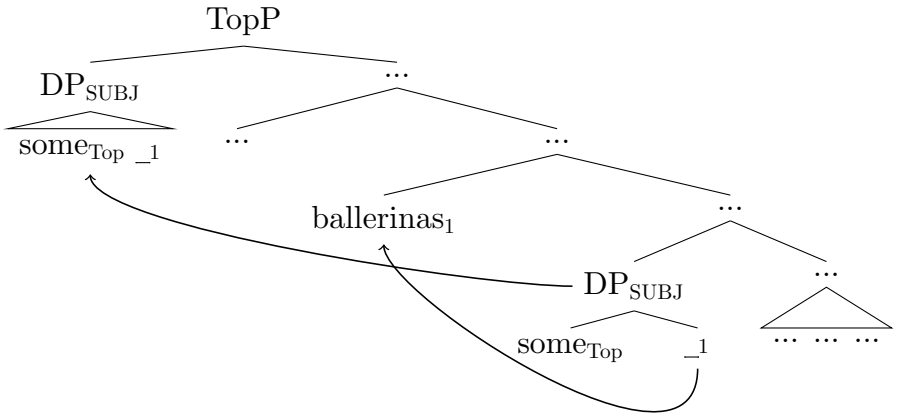
option is direct subextraction, illustrated by (34). The modifier *nekotoryje* 'some' moves out of the noun phrase to the Contrastive Topic position. This movement, obviously, violates the Subject Condition.

(34) Subextraction:



The second option is remnant movement, illustrated by (35). First, the noun *baleriny* 'ballerinas' moves out of its noun phrase and leaves a remnant *nekotorye* _ 'some _'. This movement violates the Subject Condition. Second, the remnant of the noun phrase moves to the Contrastive Topic position. This is an account developed by Franks and Progovac (1994) and Sekerina (1997), among others.

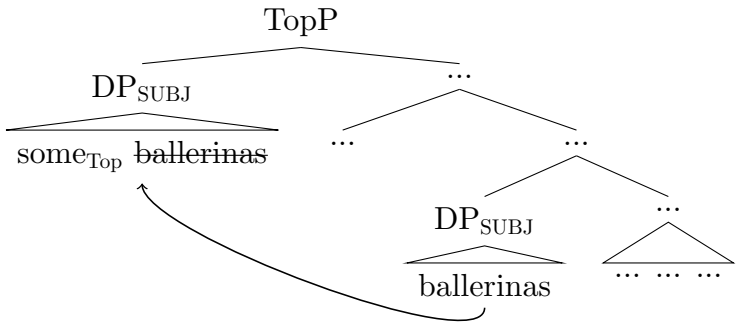
(35) Remnant movement:



The third option is covert movement followed by Late Merge, illustrated by (36). In its base position, the noun phrase in question consists only of the head noun:

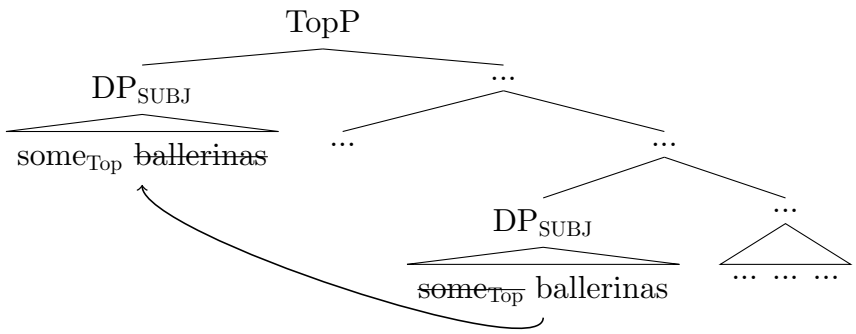
baleriny. It moves covertly to the Contrastive Topic position, where the adjective *nekotorye* is attached to it by Late Merge. This derivation does not violate the Subject Condition. The Late Merge analysis was originally proposed for English relative clause extraposition by Fox (2002).

(36) Late Merge:



The fourth option is Discontinuous Spell Out, illustrated by (37). For Russian, this analysis was first proposed by Pereltsvaig (2008), building on Fanselow and Ćavar (2002). Under the DSO view the noun phrase is externally merged as a whole (*nekotorye baleriny*). It then moves to the Contrastive Topic position, because a part of it (namely, *nekotorye*) is the Contrastive Topic. The rest of the noun phrase is pied-piped. No Subject Condition violation is created. The noun phrase leaves behind an identical copy *nekotorye baleriny*. In Colloquial Russian the PF interface chooses to pronounce a part of the higher copy (the Contrastive Topic *nekotorye*) and a part of the lower copy (the pied-piped part *baleriny*). In other words, the pied-piped part is "reconstructed" to the base position at PF. The distributed deletion and the concealed pied-piping accounts, discussed and developed by Fanselow and Ćavar (2002) and Bondarenko and Davis (2020a), are different formulations of the same theory.

(37) Discontinuous Spell Out (or DSO):



The first two proposals deconstruct the noun phrase in narrow syntax and, thus, create a Subject Condition violation. The last two analyses do not. In the remainder of this section I discuss three arguments against the first two options, and in favor of the DSO view. I will not consider the Late Merge account in detail here.[19] All of the arguments presented below suggest that in split phrase constructions in Colloquial Russian it is the whole phrase that moves in narrow syntax.

Pereltsvaig (2008) offers two arguments in favor of DSO. Her first argument has to do with **weak island effects**. Weak islands (wh-island, negative island, factive island) do not allow non-argument extraction. It should not be possible to move a noun phrase modifier out of a weak island. But in Colloquial Russian, noun phrases can be split across weak island boundaries.

For example, the clausal complement of the factive verb *žalet'* 'regret' is a weak island. Extracting a noun phrase argument out of it is fine (38a); extracting an adverb is worse, at least to my ear (38b).

[19] I believe that the Late Merge account can derive most of the data, but it is unclear how it can deal with split PPs, as in (1). It could be that both the preposition and the adjective are late merged in (1). But notice that the head noun *vlasti* 'regime.GEN' bears a case assigned to it by the preposition (genitive). In fact, it is not licensed in this configuration without a preposition: **on vystupal vlasti* 'he demonstrated regime.GEN'. But under the Late Merge account this is the base generated structure for (1). It is not clear how a case assigning and nominal licensing P head can be merged late without additional stipulations.

(1) [ok] **protiv sovetskoj** on vystupa-l **vlasti**
against Soviet.GEN he demonstrate-PST.M regime.GEN
'It is against the SOVIET regime that he demonstrated.' (Pereltsvaig, 2008, 9)

(38) a. [ok] **nesvežuju ikru** ty žale-eš', čto *pro* poe-l?
past.its.best.ACC caviar.ACC you regret-PRS.2SG that you eat-PST.M
Lit.: 'Do you regret eating NOT-SO-FRESH CAVIAR?'
'Is it the fact that it was not-so-fresh caviar that you regret?'
(my judgment)

b. [??] **včera** ty žale-eš', čto *pro* poe-l nesvežuju ikru?
yesterday you regret-PRS.2SG that you eat-PST.M past.its.best.ACC caviar.ACC
Intended: 'Do you regret eating not-so-fresh caviar YESTERDAY?'
'Is it that fact that your eating was yesterday that you regret?'
(my judgment)

At the same time, splitting an adjective from a noun is definitely possible, as shown in (39).

(39) [ok] **nesvežuju** ty žale-eš', čto *pro* poe-l **ikru**?
past.its.best.ACC you regret-PRS.2SG that you eat-PST.M caviar.ACC
Lit.: 'Do you regret eating NOT-SO-FRESH caviar?'
'Is it the fact that the caviar was not-so-fresh that you regret?'
(Pereltsvaig, 2008, 11)

In the context of a weak island we expect adjectives and adverbs to behave the same, both being non-arguments. This suggests that in (39) it is not the adjective that moves, but rather the whole noun phrase.

Furthermore, it is also possible to split non-argument PPs in Colloquial Russian, but not across a factive island boundary (at least, to my ear):

(40) [??] **v prošlyj** ty žale-eš', čto *pro* poe-l nesvežuju ikru
on last you regret-PRS.2SG that you eat-PST.M past.its.best.ACC caviar.ACC
ponedel'nik?
Monday.ACC
Intended: 'Do you regret eating not-so-fresh caviar on LAST Monday?'
'Is it that fact that your eating was on LAST Monday that you regret?'
(my judgment)

These contrasts are expected if we assume that what moves in (39) and in (40) is the whole phrase, i.e. the whole DP and the whole PP respectively. In the PP case it is a non-argument extraction, hence (40) has the same status as (38b). In the DP case it is an argument extraction, hence (39) has the same status as (38a). The DSO theory assumes exactly that.

Weak island effects observed in (38-40) constitute a strong argument against direct subextraction, but not against the remnant movement analysis. The direct subextraction analysis incorrectly rules out both sentences in (39) and (40), since both would involve a non-argument movement. But the remnant movement account successfully predicts the contrast. It is the remnant DP that moves in (39) and the remnant PP in (40).

The second argument from Pereltsvaig (2008) has to do with **non-constituent splits**. In Colloquial Russian the part that splits from a noun phrase does not have to be a constituent:

(41) ok **protiv sovetskoj** on vystupa-l **vlasti**
against Soviet.GEN he demonstrate-PST.M regime.GEN
'It is against the SOVIET regime that he demonstrated.' (Pereltsvaig, 2008, 9)

Assuming that non-constituents may not be moved, this is an argument against the direct subextraction account. The sentence in (41) can, of course, be generated by remnant movement. The noun *vlasti* 'regime.GEN' first moves out of the PP, and then the remnant PP moves to the left periphery.

However, neither part of a split phrase has to be a constituent:

(42) ok **odna očen'** est' **elegantnaja rubaška** u Peti
one very be.PRS.3SG elegant shirt at Petya
'Petya has one VERY elegant shirt.' (Pereltsvaig, 2008, 13)

Neither *odna očen'* 'one very' nor *elegantnaja rubaška* 'elegant shirt' are constituents. There is no straightforward way to derive (42) under either the direct subextraction analysis or the remnant movement analysis.

Meanwhile, the DSO view does not have any problems with (41-42). The whole PP moves in (41) and the whole DP moves in (42). There is no a priori restriction that would force the pronounced part of the higher or the lower copy to be a constituent.

One other argument for the DSO account that I will mention briefly here comes from Bondarenko and Davis (2020a). This argument is based on **licensing parasitic gaps**.

Bondarenko and Davis (2020a) report that a gap inside an adjunct island which is co-indexed with the object in the main clause is not acceptable if the object stays in-situ (43a). At the same time, a moved object licenses the gap (43b). This pair of sentences establishes a typical parasitic gap pattern.

(43) a. * Vasja voznenavide-l **[etot podarok]$_1$**, [ne obnaruživ ***pg$_1$*** pod
V.NOM hate-PST.M this.ACC gift.ACC NEG discover.CONV under
ëlkoj]
pine.tree
'Vasya hated this **gift$_1$**, not having found ***pg$_1$*** under the New Year tree.'

b. ok **[kakoj podarok]$_1$** Vasja voznenavide-l _$_1$, [ne obnaruživ ***pg$_1$***
which.ACC gift.ACC V.NOM hate-PST.M NEG discover.CONV
pod ëlkoj]?
under pine.tree
'**Which gift$_1$** did Vasya hate _$_1$, not having found ***pg$_1$*** under the New Year tree?'

c. ok **kakoj$_1$** Vasja voznenavide-l **podarok$_1$**, [ne obnaruživ ***pg$_1$***
which.ACC V.NOM hate-PST.M gift.ACC NEG discover.CONV
pod ëlkoj]?
under pine.tree
'**Which gift$_1$** did Vasya hate _$_1$, not having found ***pg$_1$*** under the New Year tree?'

(Bondarenko and Davis, 2020a, 13-14)

Crucially, splitting the object noun phrase also licenses the gap, see (43c). Yet again we see that a split noun phrase behaves "as if" the whole noun phrase has been moved. Importantly, the gap is co-indexed with the whole phrase, not just with the

split element, in this case, the determiner *kakoj* 'which' (for more discussion see Bondarenko and Davis, 2020a).

None of these three arguments is definitive, but, taken together, they suggest that split phrases in Colloquial Russian are only split at PF. In narrow syntax it is the whole phrase moves from one position to the other.

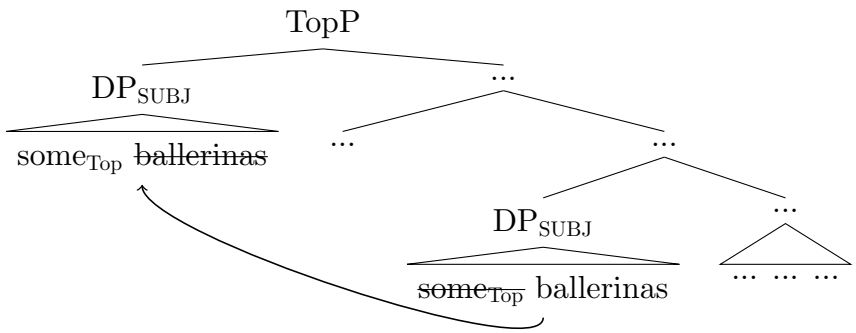
3.4.3 Discontinuous Spell Out

A fully developed theory of Discontinuous Spell Out lies beyond the scope of this chapter, but in what follows I will give an outline of how such a theory may work and what properties DSO derivations may have. Consider the basic example again, repeated below.

(44) ok **nekotorye$_{\mathbf{S}}$** daže do vos'mi turov dela-j-ut
some.NOM even up.to eight.GEN tours.GEN do-PRS-3PL
baleriny$_{\mathbf{S}}$
ballerinas.NOM
'SOME ballerinas do even up to EIGHT tours.' (Zemskaya, 1973, 387)

The core idea of the DSO view, as stated above, is that the whole noun phrase *nekotorye baleriny* moves to the Contrastive Topic position, because a part of it is the Contrastive Topic (the adjective *nekotorye*). The rest of the noun phrase is pied-piped, so no Subject Condition violation is created:

(45) Discontinuous Spell Out (or DSO):



When dealing with a structure that contains multiple copies of the same element, the PF interface has to choose which part of which copy to pronounce. Usually it chooses between only two options: either to pronounce all of the higher copy and none of the lower one (overt movement); or to pronounce all of the lower copy and none of the higher one (covert movement). This is, perhaps, due to the PF interface trying to preserve overt adjacency relations between the terminals of the moved constituent, possibly, because a moved constituent had been spelled out before it was merged into the matrix structure, and thus, the said adjacency relations have already been established.

However, in some languages, like Colloquial Russian, the PF interface may choose to pronounce only a part of the higher copy (namely, the Contrastive Topic: *nekotorye*) and a part of the lower copy (namely, the part that is not the Contrastive Topic and has merely been pied-piped: *baleriny*). The reason may be that in Colloquial Russian the PF interface prioritizes pronouncing nothing but the Contrastive Topic in the Contrastive Topic position over keeping already established adjacency relations.

As Zaliznyak (2004) puts it, "...in colloquial speech (both old and modern) the higher priority is usually given to a different principle <...>: first the main part of the message (i.e. Topic – DP), and then the comment"[20] (Zaliznyak, 2004, 190).

As Pereltsvaig (2008) points out, this is not a unique example of an interface distributively interpreting a chain of copies. For example, in (46) the LF has to interpret *which photos* in the left periphery, otherwise the sentence would not have had the semantics of a question. At the same time, *of himself* has to be interpreted in-situ for binding purposes:

(46) [Which photos ~~of himself~~] does Joe like [~~which photos~~ of himself]?

(Pereltsvaig, 2008)

We can further develop these ideas in Optimality Theory (see Prince and Smolensky, 1993 and subsequent work).

[20]"...в разговорной речи (и древней, и современной) приоритет обычно отдается другому принципу <...>: вначале главная часть сообщения, затем уточняющая".

Suppose that there is a faithfulness constraint that demands that the elements that were pronounced adjacent when they are first spelled out must be pronounced adjacent in all the subsequent iterations of Spell Out. Call it KA for "keep adjacency". In the Spell Out theory, presented in Chapter 1, any moved constituent is spelled out at least twice. First, it is spelled out before it is externally merged into the main sentence. Second, it is spelled out as a part of the main sentence. For example, the noun phrase *nekotorye baleriny* 'some ballerinas' in (44) is spelled out before it is externally merged with the rest of the sentence. As the result, the adjective is spelled out as adjacent to the noun. Later the whole sentence is spelled out, including the two copies of the moved noun phrase in it. The constraint KA demands that the PF interface pronounce the adjective and the noun adjacent to each other. This means that the PF interface must either pronounce all of the higher copy or all of the lower copy. This is what happens in languages that do not allow Discontinuous Spell Out, like Literary Russian or English.

Suppose further that there is also a markedness constraint that requires the PF interface to pronounce only the element that is Contrastive Topic in the Contrastive Topic position, without the pied-piped material. Call it NO-PIED, for "don't pronounce pied-piped material in the derived position" or "reconstruct the pied-piped material" ("only pronounce the material that is Topic in the Topic position").

If KA is ranked higher than NO-PIED, no DSO is allowed. Either all of the higher copy or all of the lower copy must be pronounced. However, if NO-PIED is ranked higher than KA, the pied-piped material will be pronounced in the base position, while the Contrastive Topic part of the moved constituent will be pronounced in the Contrastive Topic position. We will observe DSO, as in (44).

3.4.4 Restrictions on Discontinuous Spell Out

Although Colloquial Russian allows discontinuous noun phrases regardless of their structural position, there are certain restrictions that these split phrases must obey. In this section I will discuss two of them, which will be important later.

The first restriction has to do with **the relative order of the split elements**.

According to Pereltsvaig (2008), Colloquial Russian allows so-called inverse and so-called direct noun phrase splits. A direct split is the one where the order of the split elements is the same as the default order within the noun phrase, as in (47a). An inverse split is the one where the order of the split elements is not the same as the default order within the noun phrase, as in (47b).

(47) a. ok **vologodskogo** net **masla**, devuška?
Vologda.GEN be.NEG.PRS.3SG butter.GEN girl
'Do you have **Vologda butter**, Miss?'

b. ok **brillianty** u tebja **xorošije**, neskol'ko karat
diamonds.NOM at you good.NOM several carats
'You have **good diamonds**, several carats.' (Pereltsvaig, 2008, 7)

Notice, however, that both word orders are possible even when the noun phrase is not split. With the appropriate intonation adjectives may either follow or precede the head noun (at least, to my ear):

(48) a. ok Net **[vologodskogo masla]**, devuška?
be.NEG.PRS.3SG Vologda.GEN butter.GEN girl
'Do you have **Vologda butter**, Miss?'

b. ok U tebja **[brillianty xorošije]**, neskol'ko karat
at you diamonds.NOM good.NOM several carats
'You have **good diamonds**, several carats.' (my judgments)

However, when a PP is split, the preposition has to come first:

(49) a. ok **po novoj** my poexa-l-i **doroge**
on new.LOC we go-PST-PL road.LOC
'We went **by the new road**.' (my judgment)

b. * **novoj** my poexa-l-i **po doroge**
new.LOC we go-PST-PL on road.LOC
'We went **by the new road**.' (Pereltsvaig, 2008, 33)

c. * **doroge** my poexa-l-i **po novoj**
road.LOC we go-PST-PL on new.LOC
'We went **by the new road**.' (Pereltsvaig, 2008, 33)

This is also true for non-split PPs (at least, according to my intuition). The preposition may not be preceded by any phonological material that is part of its complement:[21]

(50) a. ok my poexa-l-i **[po novoj doroge]**
we go-PST-PL on new.LOC road.LOC
'We went **by the new road**.'

b. * my poexa-l-i **[novoj po doroge]**
we go-PST-PL new.LOC on road.LOC
'We went **by the new road**.'

c. * my poexa-l-i **[doroge po novoj]**
we go-PST-PL road.LOC on new.LOC
'We went **by the new road**.' (my judgments)

Pereltsvaig (2008), building on Pesetsky (1998), states this constraint as a phase-head-first constraint. The idea is that the PF interface demands the head of a phase to be pronounced before the rest of the phase.

Alternatively, we may say that Discontinuous Spell Out has to preserve the internal order of the spelled out constituent. Russian noun phrases have more or less free word order with respect to adjectives and nouns, and the same freedom persists after they are split. Russian preposition phrases have a rigid order in the sense that the preposition has to come first, and the same rigidity persists after they are split.

(51) **Discontinuous Spell Out. Restriction 1.**
Discontinuous Spell Out preserves the internal order between the elements of the spelled out constituent.

Within the Optimality Theoretic approach to DSO, presented in the previous section, we can account for (51) by introducing another faithfulness constraint. Suppose that apart from KA, there is also a constraint that enforces the PF interface to keep the linearization relations created by the first Spell Out operation, call it

[21] Russian does have a couple of postpositions, but I am leaving them aside here.

KL for "keep linearization". In Literary Russian both KL and KA outrank NO-PIED, which results rules out Discontinuous Spell Out. In Colloquial Russian the ranking is KL, NO-PIED > KA. The NO-PIED constraint outranks the KA constraint. This allows Discontinuous Spell Out. At the same time, the KL constraint is still ranked high, which predicts (51).

The second restriction has to do with **the phonological material between the split parts of a phrase**. Split elements should not be too far from each other. What constitutes as "too far" may be a subject to cross-linguistic variation (see section 3.5 on Balkar). To determine the exact nature of this restriction would require a more careful investigation, which remains beyond the scope of the present study. However, I will outline certain preliminary observations.

(Sekerina, 1997, 186-188) claims that noun phrases in Colloquial Russian may not be split across a clausal boundary. But Pereltsvaig (2008) offers some counterexamples to this generalization. It seems that phrase splits can be non-local, but only to a limited extent.

Both Sekerina (1997) and Pereltsvaig (2008) agree that even though it is possible to have more than one split noun phrase per clause, as in (52a), the splits may not cross or contain each other, see (52b) and (52c).

(52) a. ? **interesnuju$_1$** oni **rabotu$_1$** **dočke$_2$** predloži-l-i **mojej$_2$**
interesting.ACC they work.ACC daughter.DAT offer-PST-PL my.DAT
'They offered **[interesting work]$_1$ [to my daughter]$_2$**.'

(Pereltsvaig, 2008, 33)

b. * **po$_1$ novoj$_1$ na$_2$ letnjuju$_2$** my poexa-l-i **daču$_2$** **doroge$_1$**
on new.LOC to summer.ACC we go-PST-PL cottage.ACC road.LOC
'We went **[to the summer cottage]$_2$ [by a new road]$_1$**.'

(Pereltsvaig, 2008, 32)

c. * **po$_1$ novoj$_1$ na$_2$ letnjuju$_2$** my poexa-l-i **doroge$_1$** **daču$_2$**
on new.LOC to summer.ACC we go-PST-PL road.LOC cottage.ACC
'We went **[to the summer cottage]$_2$ [by a new road]$_1$**.'

(my judgment)

This could also be viewed as a "too far" effect. Perhaps, for Colloquial Russian "across material from another split" counts as "too far". Tentatively, I will state this observation as follows:

(53) **Discontinuous Spell Out. Restriction 2.**
No component of a split may intervene between the components of a distinct split.

These data can be incorporated into the Optimality Theoretic analysis from the previous section by switching to gradual evaluations, as in Harmonic Grammars (see Legendre et al., 1990 and subsequent work). The KA constraint is assigned a violation for each phonological word between the split parts of a phrase. The further the split parts are the more violations of KA they create. Even though KA is ranked low in Colloquial Russian, too many violations of it may end up overriding the other constraints.

To sum up, discontinuous phrases in Colloquial Russian have to obey two restrictions. First, the order of the split elements has to match an acceptable order of elements within a non-split phrase. Second, no component of a split may intervene between the components of a distinct split. Both restrictions can be accommodated into the Discontinuous Spell Out theory presented in the previous section through the two faithfulness constraints: KL "keep linearization" and KA "keep adjacency", with the latter constraint assigning a violation for each phonological word between the split parts of a phrase.

In the previous two sections I have established a theory of Discontinuous Spell Out and two additional restrictions on split phrases created by it. In the next section we will see that, even with the possibility of DSO, Colloquial Russian still shows clear subject vs. object asymmetries when it comes to discontinuous noun phrases. In other words, the Subject Condition is still detectable.

3.4.5 Detectable Subject Condition effects

If Colloquial Russian has DSO, it seems impossible to see whether any version of the Subject Condition still holds in this language. For any split subject there will be a possible derivation involving DSO, which will make the sentence acceptable.

However, whether we can see Subject Condition effects or not depends on whether Colloquial Russian allows direct subextraction from noun phrases **in addition to** DSO, that is, subextraction in narrow syntax.

If Colloquial Russian does have direct subextraction and if the Subject Condition is universal, we might expect to find some subject vs. object asymmetries even in colloquial speech. In such a system, overtly split objects can be derived in two ways: direct subextraction and DSO. Meanwhile, overtly split subjects can only be derived as the result of DSO.

Hence we expect objects to split more easily than subjects. In particular, split subjects will necessarily obey the two restrictions on DSO outlined above. While split objects would not (they could be derived by subextraction). There is indeed some preliminary evidence that points in this direction. There are at least two ways in which subject splits are more restricted than object splits.

The **first asymmetry** concerns restriction (53). It can be illustrated by the contrast in (54). All speakers I consulted find (54a) significantly better than (54b).

(54) a. ok eto **moju$_{O}$ Mašina$_{S}$** včera **sestra$_{S}$** kupi-l-a **knigu$_{O}$**
it.is my.ACC Masha's.NOM yesterday sister.NOM buy-PST-F book.ACC
'It is **MY book$_{O}$** that **Mary's sister$_{S}$** bought yesterday.'

b. * eto **moja$_{S}$ Mašinu$_{O}$** včera **knigu$_{O}$** kupi-l-a **sestra$_{S}$**
it.is my.ACC Masha's.NOM yesterday sister.NOM buy-PST-F book.ACC
'It is **MY sister$_{S}$** that bought **Mary's book$_{O}$** yesterday.'

What is the difference between (54a) and (54b)? In (54a) the object is split "across" the subject, which is also split. The sentence is fine. In (54b) the subject is split "across" the object, which is also split. The sentence is significantly worse.

Clearly, we are dealing with a subject vs. object asymmetry. Splitting the subject is more restricted than splitting the object. This can be explained if splitting

the subject can only be derived as the result of DSO, while spitting the object may also be derived via subextraction.

The sentence in (54b) contains two split noun phrases. The subject noun phrase could not have undergone subextraction, because that would have violated the Subject Condition. So the only option left for it is DSO. The object noun phrase could not have undergone subextraction either, because the object is preverbal. The only option left is DSO. But, as we have seen in the previous section, no component of a DSO split may intervene between the components of another DSO split (53). Hence the sentence is bad.

The sentence in (54a) also contains two split noun phrases. The subject noun phrase could not have undergone subextraction, because that would have violated the Subject Condition. So the only option left for it is DSO. The object noun phrase, however, could have undergone subextraction, because it is a complement and is in-situ. The split of the subject noun phrase does not violate any restrictions on DSO, the subextraction from the object noun phrase does not violate any constraints on movement, so the sentence is fine.

The **second asymmetry** has to do with Weak Crossover effects. Consider, first, the pair of sentences in (55a) and (55b). In (55a) the pronoun *ix* 'them' is co-indexed with the noun phrase *tridcat' igrušek* '30 toys'. More accurately: it is co-indexed with the domain NP of the numeral '30'. In the context for this sentence *ix* 'them' refers to the salient set of toys that we brought from the store. This co-indexation is expected to be possible, because it does not violate any known binding principles.

In (55b) the noun phrase *skol'ko igrušek* 'how.many toys' is moved across the pronoun *ix* 'them', creating a Weak Crossover effect. As the result, the co-indexed interpretation is no longer available.[22]

[22]It should be noted that Weak Crossover effects are stronger with *how many* phrases than with *which* phrases, so the contrast may not replicate with *which*. In addition, in Russian only long distance movement shows Weak Crossover effects. Local movement may involve local scrambling, which, as I have already discussed in section 3.3, does not obey Weak Crossover.

(55) a. [ok] [postčitav **ix$_1$**], Volodja skaza-l, čto my kupi-l-i
count.CONV them Volodya.NOM say-PST.M that we buy-PST-PL
tridcat' igrušek$_1$
30.ACC toys.GEN
'Having counted **them$_1$**, Volodya said that we bought **30 toys$_1$**.'

b. * **skol'ko igrušek$_1$**, [postčitav **ix$_1$**], Volodja skaza-l, čto
how.many toys.GEN count.CONV them Volodya.NOM say-PST.M that
my kupi-l-i _$_1$?
we buy-PST-PL
'**How many toys$_1$**, having counted **them$_1$**, Volodya said that we bought _$_1$?'

Having established the contrast in (55), we can now compare it with the sentence in (56). This is a split object noun phrase. It is either derived by DSO or by subextraction of *skol'ko*. Some speakers perceive a contrast between (56) and (55b), with the latter being better than the former. This is easily explained, if by subextracting *skol'ko* 'how.many' (without the NP) these speakers can avoid a Weak Crossover violation. The NP of *skol'ko* 'how.many', that is, *igrušek* 'toys', is left in-situ and thus can still be co-indexed with *ix* 'them'.

(56) [%] **skol'ko**, [postčitav **ix$_1$**], Volodja skaza-l, čto my
how.many count.CONV them Volodya.NOM say-PST.M that we
kupi-l-i **igrušek$_1$**?
buy-PST-PL toys.GEN
'**How many toys$_1$**, having counted **them$_1$**, Volodya said that we bought _$_1$?'

Importantly, the same speakers who do perceive the contrast between (55b) and (56) do not perceive it between (57b) and (57c), which are both ungrammatical.

(57) a. [ok] [postčitav **ix$_1$**], Volodja skaza-l, čto
count.CONV them Volodya.NOM say-PST.M that
tridcat' muzykantov$_1$ igra-j-ut pol'ku
30.NOM musicians.GEN play-PRS-PL Polka.ACC
'Having counted **them$_1$**, Volodya said **30 musicians$_1$** are playing Polka.'

b. * **skol'ko muzykantov$_1$** [postčitav **ix$_1$**], Volodja skaza-l,
how.many musicians.GEN count.CONV them Volodya.NOM say-PST.M
čto igra-j-ut pol'ku?
that play-PRS-PL Polka.ACC
'**How many musicians$_1$**, having counted **them$_1$**, Volodya said _$_1$ are playing Polka?'

c. * **skol'ko** [postčitav **ix$_1$**], Volodja skaza-l, čto
how.many count.CONV them Volodya.NOM say-PST.M that
muzykantov$_1$ igra-j-ut pol'ku?
musicians.GEN play-PRS-PL Polka.ACC
'**How many musicians$_1$**, having counted **them$_1$**, Volodya said _$_1$ are playing Polka?'

This is an effect of the Subject Condition. Speakers who do allow subextraction of *skol'ko* from object noun phrases and thus can avoid the Weak Crossover effect in (56) cannot do so in (57c). In other words, if subextraction is allowed, it is only allowed for objects.

Thus, there are at least two respects in which complements can be split more freely than specifiers even in Colloquial Russian. Hence, despite the possibility of DSO, Colloquial Russian still shows some effects of the Subject Condition.

3.4.6 Summary

To sum up, Colloquial Russian, unlike Literary Russian, allows Discontinuous Spell Out. This means that in Colloquial Russian the PF interface may choose to pronounce only a part of the higher copy of a moved noun phrase (the part that triggers the movement, i.e., the Contrastive Topic), and pronounce the rest of it (the pied-piped material) in its base position. As a consequence, Colloquial Russian may seemingly violate the Subject Condition.

In addition, Colloquial Russian may also allow subextraction from noun phrases, but only out of complements (in accordance with the Subject Condition).

Thus, the difference between the Literary and the Colloquial grammar is not in that only the former obeys the Subject Condition, but rather in that only the latter

allows Discontinuous Spell Out:

(58) Point of variation.

	Literary Russian	Colloquial Russian
Subject Condition	yes	yes
Extraction from Noun Phrases	yes	yes
Discontinuous Spell Out	**no**	**yes**

Given the fact that we are dealing with two registers of the same language here, which are frequently mixed, it is hard to empirically diagnose the difference. In the next section we will see a more clear example of a language that allows for DSO, namely, Balkar. Crucially, it is possible to show that Balkar also obeys the Subject Condition.

3.5 DSO in Balkar

3.5.1 Background

Balkar is a dialect of Karachay-Balkar (Turkic), spoken in the Republic of Kabardino-Balkaria. Data for this section were collected from speakers from the village of Verkhnaya Balkaria. Balkar is a head-final language with a basic SOV order, but OSV order is also possible if the subject is in narrow focus:

(59) a. ok Alim seni et-iŋ-ŋi aš-a-di̵
Alim your meat-2SG-ACC eat-PRS-3SG
'Alim is eating your meat.'

b. ok seni et-iŋ-ŋi Alim aš-a-di̵
your meat-2SG-ACC Alim eat-PRS-3SG
'ALIM is eating your meat.'

The Balkar noun phrase has a more or less rigid internal word order. The genitive marked possessor usually occupies the most peripheral left position, as in (60). The

head noun agrees with the possessor in person and number, as is exemplified in (60) by the suffix *I*[23] on *nöger-i* marking third person singular possessive agreement.

(60) ok Fatima-ni beš nöger-i
Fatima-GEN five friend-3
'Fatima's five friends.'

In what follows I will show that even though Balkar noun phrases can be linearly discontinuous regardless of their syntactic position (section 3.5.2), Balkar nominalized clauses can only be discontinuous if they are base generated as complements (section 3.5.3). That is, the Subject Condition is seemingly enforced for nominalized clauses, but not for noun phrases. As I will argue in sections 3.5.4 and 3.5.5, this pattern is best analyzed if we assume that the Subject Condition is, after all, active in Balkar, but noun phrases constitute a special case.

The first argument comes from the fact that the Subject Condition is enforced not only for nominalized clauses, but also for complex noun phrases (section 3.5.4). The second argument comes from the fact that even among simple noun phrases Balkar splits complements more freely than specifiers, showing the same set of restrictions on split specifiers, as Colloquial Russian (section 3.5.5). This suggests that Balkar, like Colloquial Russian, allows both subextraction and Discontinuous Spell Out.

3.5.2 Extraction from noun phrases

In Balkar it is possible to split the possessor from both the object and the subject of a transitive verb (61a, 61b), and from the subject of an unaccusative verb (61c).

(61) a. ok **Fatima-ni$_O$** tünene Kerim **ineg-i-n$_O$** kör-gen-di
Fatima-GEN yesterday Kerim cow-3-ACC see-PST2-3SG
'Kerim saw **Fatima's cow$_O$** yesterday.

[23]Balkar has vowel harmony in backness and roundness, typical for Turkic languages. For naming morphemes I will conventionally use capitalized vowels.

b. ok **Aslan-nɨ$_S$** tünene **it-i$_S$** Madina-nɨ qap-xan-dɨ
Aslan-GEN yesterday dog-3 Madina-ACC bite-PST2-3SG
'**Aslan's dog$_S$** bit Madina yesterday.'

c. ok **Kerim-ni$_S$** tünene bu stol-da **kitab-ɨ$_S$** tur-a e-di
Kerim-GEN yesterday this table-LOC book-3 stand-CONV AUX-3SG
'**Kerim's book$_S$** was lying on this table yesterday.'

There are speakers who find (61a) and (61c) better than (61b). Those speakers clearly obey the Subject Condition even for split noun phrases. Their judgments are not interesting for the present discussion, so I will disregard them from now on. That is, I will only report the judgments of those speakers who find all of the sentences in (61) acceptable.

The question is whether the grammar represented by (61) does not have the Subject Condition at all, or the Subject Condition is active, but its effects are obscured by the possibility of Discontinuous Spell Out, as in Colloquial Russian.

3.5.3 Extraction from clauses

While Balkar may seemingly disobey the Subject Condition when it comes to noun phrases, nominalized clauses can only be linearly discontinuous if they are base generated as complements.

Before discussing the extraction data, I will introduce nominalized clauses and their syntactic position in more detail. An example of the Balkar nominalized clause is given in (62).

(62) ok Kerim **[*pro* sabij-i bu kitap-nɨ**[24] **oqu-ʁan-i-n]** kör-gen-di
Kerim his kid-3 this book-ACC read-NZR-3-ACC see-PST2-3SG
'Kerim saw **his kid reading this book**.'

The head of the clause is marked with the suffix *-gAn*[25] (also used to form a relative clause and one of the two past tenses). It agrees with the subject of the clause,

[24]Balkar has differential object marking, which means that the object may or may not bear the accusative case. Inside a nominalized clause the object may be accusative (62).

using the same agreement markers as possessed nouns, e.g. *I* for third person singular in (62). The head of the nominalized clause may receive case itself, depending on the structural position of the clause. In (62) the clause is the complement of a transitive verb, so its head is marked accusative.

The subject of a nominalized clause may receive nominative case, as in (62). Genitive and, in rare cases, accusative marking is also possible. However, nominalized clauses with non-nominative subjects will not be considered here. Scrambling out of those seems to be more restricted in general, which may have to do with the syntactic position of the subject or the size of the clause (see Bondarenko, 2018b and Bondarenko and Davis, 2020b for discussion).

Following Bondarenko (2018b), I will assume that Balkar nominalized clauses with nominative marked subjects contain a large verbal structure, at least, TP. Their subject occupies the Spec,TP position.

Nominalized clauses can be objects of perception verbs, as in (63a), objects of psych verbs, as in (63b), and subjects of emotive causatives, as in (63c). The case-marking on the head of the clause tracks its structural position. In (63a) it is marked accusative, in (63b) the nominalized clause receives dative, and in (63c) it is nominative.

(63) a. ok men **[sabij ol kitap-nɨ oqu-ʁan-ɨ-n]** kör-gen-me
1SG.NOM kid that book-ACC read-NZR-3-ACC see-PST2-1SG
'I saw **the kid reading that book**.'

b. ok men **[Madina bu kitap-nɨ oqu-ʁan-ɨ-na]**
1SG.NOM Madina this book-ACC read-NZR-3-DAT
büsür-ej-me
be.grateful-PRS-1SG
'I like **Madina reading this book**.'

c. ok meni **[sabij ol kitap-nɨ oqu-ʁan-ɨ]** aculan-dɨr-ʁan-dɨ
1SG.ACC kid that book-ACC read-NZR-3 get.angry-CAUS-PST2-3SG
'**The kid reading that book** angered me.'

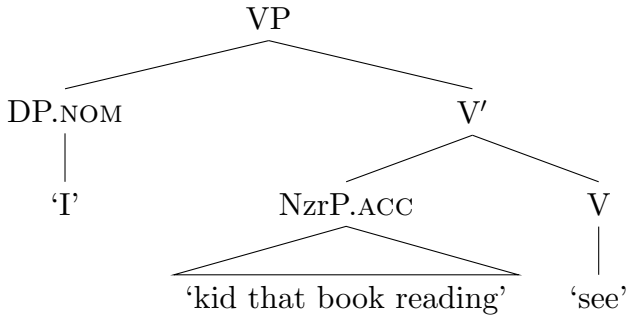
[25]Suffixes that start with a velar consonant show regular phonologically conditioned allomorphy. They may start with *g*, *ʁ*, *x*, *k*, *q* or *ŋ* depending on the previous sound and the following vowel.

In all the examples in (63) the nominalized clause may either follow or precede the other argument of the main verb (*men* 'I' or *meni* 'me'). To keep the examples maximally parallel, though, I will always put the nominalized clause in the immediately preverbal position.

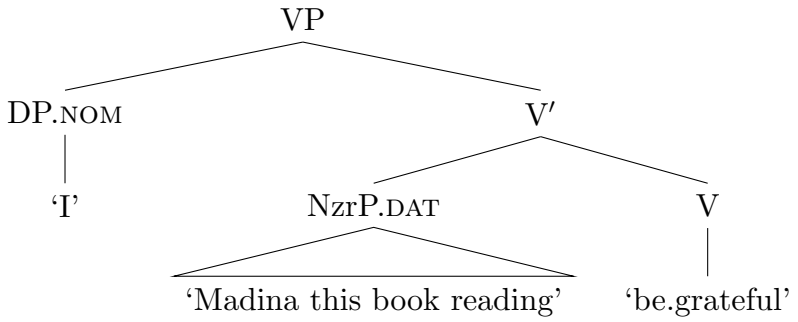
Under the simplest assumptions, in (63a) and (63b) the nominalized clause is base generated as the complement of the verb and receives either accusative or dative (depending on the verb). The nominal argument (*men* 'I') is base generated as the specifier of the same verb. Meanwhile in (63c) the nominalized clause is base generated as the specifier and the nominal argument (*meni* 'me') is base generated as the complement.

This analysis is illustrated by the structures in (64).

(64) a. The tree for *kör* 'see' (63a).[26]

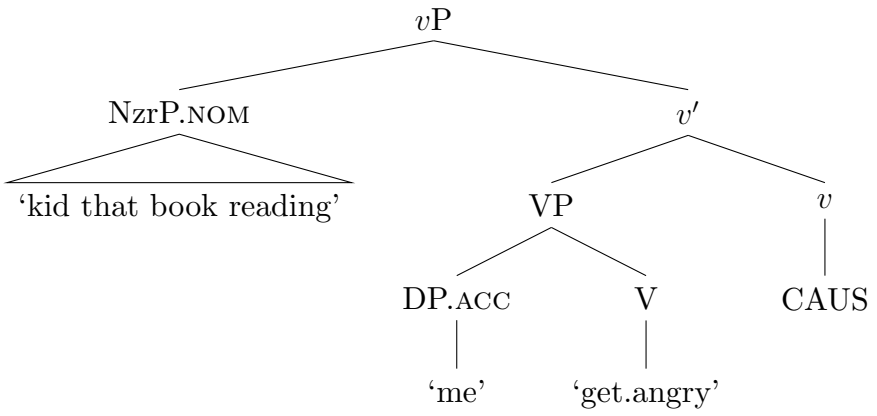


b. The tree for *büsür* 'be.grateful' (63b).



[26]The verb phrases of 'see' and 'be grateful' may or may not have a v. If they do, their subjects are probably base generated in Spec,vP. This, however, is immaterial for the present purposes. For a comprehensive syntactic and semantic analysis of Balkar argument structure see Lyutikova et al. (2006).

c. The tree for *aculan-dɨr* 'get.angry-CAUS' (63c).[27]



Unlike with noun phrases, nominalized clauses can only be discontinuous if they are base generated as complements. More precisely, scrambling is possible out of the objects of perception verbs (65a), the objects of psych verbs (65b), but crucially not out of the subjects of emotive verbs (65c).

(65) a. ok **[ol kitap-nɨ$_1$]** men **[sabij $_1$ oqu-ʁan-ɨ-n]** kör-gen-me
that book-ACC 1SG.NOM kid read-NZR-3-ACC see-PST2-1SG
'I saw **the kid reading THAT BOOK**.'

b. ok **[bu kitap-nɨ]$_1$** men **[Madina $_1$ oqu-ʁan-ɨ-na]**
this book-ACC 1SG.NOM Madina read-NZR-3-DAT
büsür-ej-me
be.grateful-PRS-1SG
'I like **Madina reading THIS BOOK**.'

c. * **[ol kitap-nɨ]$_1$** meni **[sabij $_1$ oqu-ʁan-ɨ]**
that book-ACC 1SG.ACC kid read-NZR-3
aculan-dɨr-ʁan-dɨ
get.angry-CAUS-PST2-3SG
Intended: '**The kid reading THAT BOOK** angered me.'

The data in (65) follow automatically from the Subject Condition, if we assume the structures in (64). This brings us back to the question posited in the end of the previous section. Does Balkar obey the Subject Condition? At the surface level,

[27] I am following Lyutikova et al. (2006) in analyzing the Balkar causative marker as v.

it looks like the Subject Condition is enforced for clauses (65), but not for noun phrases (61). There are, in principle, two ways of reconciling these data.

The first option is to assume that Balkar does have the Subject Condition, which explains the data in (65), but also allows Discontinuous Spell Out for noun phrases, which explains the data in (61). Then Balkar shows us another restriction on DSO. DSO is only available for noun phrases, but not for clauses.

The second option is to assume that Balkar does not have the Subject Condition, which explains the data in (61), while the contrast in (65) is due to some other distinction. One option is the Complex NP Constraint. One can assume that the clausal subject of 'anger' in Balkar necessarily has a silent nominal head, while the clausal objects of 'see' and 'be.grateful' do not. Morphologically, there is no difference between those clauses (they are all nominalized), but it is conceivable that their internal syntactic structures are different in this way.

In the remainder of this section I will argue that the first option is correct. First, in section 3.5.4 we will see that the Complex NP Constraint is not active in Balkar, which leaves (65) without an explanation, unless we assume the Subject Condition. Second, in section 3.5.5 we will see that even when it comes to simple discontinuous noun phrases, there is a meaningful difference between specifiers and complements, which suggests that the Subject Condition is still enforced.

3.5.4 Extraction from complex noun phrases

Apart from nominalized clauses, Balkar has complex noun phrases. Here I will focus on noun phrases headed by *belgi* 'sign', like the boldfaced one in (66).

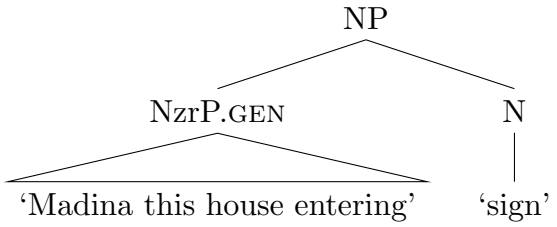
(66) ok Kerim **[[Madina bu üj-ge kir-gen-i-ni] belgi-si-n]**
Kerim Madina this house-DAT enter-NZR-3-GEN sign-3-ACC
kör-dü
see-PST1.3SG
'Kerim saw **signs of Madina having entered the house**.'

The head noun bears third person singular possessive agreement (presumably agreeing with the nominalized clause) and case assigned from the matrix clause. The

nominalized clause is marked genitive (*Madina bu üjge kirgenini* 'Madina having entered the house').

In what follows I will assume that complex noun phrases have the structure in (67). Namely, the nominalized clause is base generated as the complement of the head noun 'sign'.[28]

(67) Complex noun phrase with *belgi* 'sign' (66)



A complex noun phrase with *belgi* 'sign' can be the subject (68a) or the object (68b) of a transitive verb, as well as the subject of a locative copula (68c).

(68) a. ok meni **[[Fatima qoj-nu bišer-gen-i-ni] belgi-si]**
1SG.ACC Fatima meat-ACC cook-NZR-3-GEN sign-3
sejirsin-dir-di
wonder-CAUS-PST1.3SG
'**Signs of Fatima having cooked the meat** surprised me (lit.: made me wonder).'

b. ok Aslan **[[Madina qoj-nu bišer-gen-i-ni] belgi-si-n]** kör-gen-di
Aslan Madina meat-ACC cook-NZR-3-GEN sign-3-ACC see-PST2-3SG
'Aslan saw **signs of Madina having cooked the meat**.'

c. ok aš üj-de **[[Madina qoj-nu bišer-gen-i-ni] belgi-si]**
eat house-LOC Madina meat-ACC cook-NZR-3-GEN sign-3
bar-dɨ
exist.PRS-3SG
'There are **signs of Madina having cooked the meat** in the kitchen.'

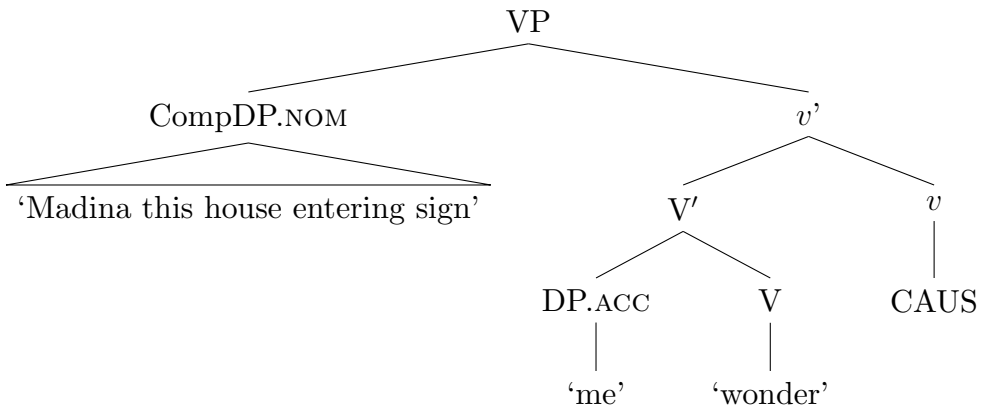
As before, the relative order between *meni* 'me' and the complex noun phrase

[28]It is possible that it later moves to a higher position within the noun phrase of 'sign', but I will leave this for the future research.

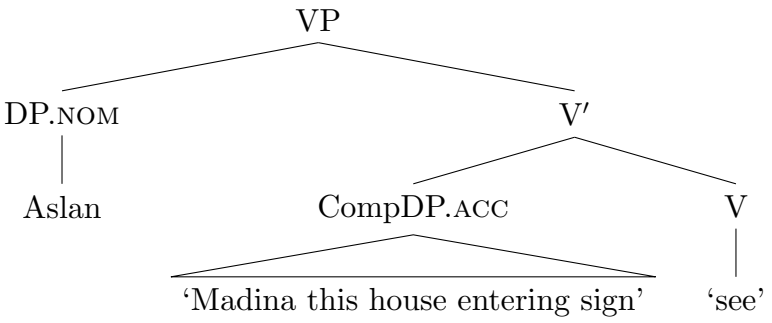
in (68a), between *Aslan* 'Aslan' and the complex noun phrase in (68b) and between *aš üjde* 'in the kitchen' and the complex noun phrase in (68c) is not fixed. In all cases the complex noun phrase may either be immediately preverbal or clause-initial. To keep the examples parallel I will keep all the complex noun phrases in the immediately preverbal position.

In what follows I will assume that Balkar and Russian have the same syntactic structure for their locative copulas (see section 3.3.4 above). If so, then the verb phrase structures in (68) look like (69).

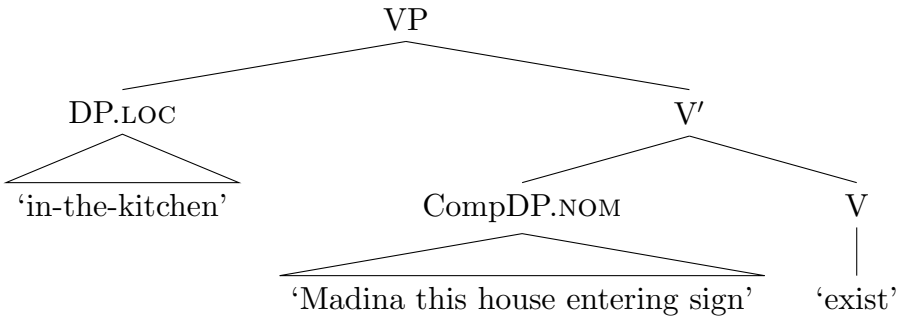
(69) a. The tree for *sejirsin-dir* 'wonder-CAUS' (68a).



b. The tree for *kör* 'see' (68b).



c. The tree for *bar* 'exist' (68c).



Crucially, scrambling out of complex noun phrases is possible in Balkar, but only out of those complex noun phrases that are base generated as complements:

(70) a. * **qoj-nu$_1$** meni **[[Fatima** $_1$ **bišer-gen-i-ni]** **belgi-si]**
meat-ACC 1SG.ACC Fatima cook-NZR-3-GEN sign-3
sejirsin-dir-di
wonder-CAUS-PST1.3SG
'**Signs of Fatima having cooked the meat** surprised me (lit.: made me wonder).'

b. % **qoj-nu$_1$** Aslan **[[Madina** $_1$ **bišer-gen-i-ni]** **belgi-si-n]**
meat-ACC Aslan Madina cook-NZR-3-GEN sign-3-ACC
kör-gen-di
see-PST2-3SG
'Aslan saw **signs of Madina having cooked the meat**.'

c. % **qoj-nu** aš üj-de **[[Madina** $_1$ **bišer-gen-i-ni]** **belgi-si]**
meat-ACC eat house-LOC Madina cook-NZR-3-GEN sign-3
bar-dı
exist.PRS-3SG
'There are **signs of Madina having cooked the meat** in the kitchen.'

Although the sentences in (70b) and (70c) are not acceptable for all speakers, the sentence in (70a) was rejected by all my consultants. What (70) shows us is that Balkar scrambling does not obey the Complex NP Constraint. At the same time, it has to obey the Subject Condition, grouping unaccusative subjects with objects of transitive verbs.

For some speakers it is even possible to scramble out of relative clauses, but again, only those relative clauses that modify complements:

(71) Relative clause modifying the object:

a. ok Fatima **[tambla [meni at-ɨm-mɨ] sat-ɨp al-lɨq adam-nɨ]**
Fatima tomorrow my horse-1SG-ACC buy-CONV take-FUT man-ACC
kör-gen-di
see-PST2-3SG

b. % **[meni at-ɨm-mɨ]$_1$** Fatima **[tambla** _$_1$ **sat-ɨp al-lɨq**
my horse-1SG-ACC Fatima tomorrow buy-CONV take-FUT
adam-nɨ] kör-gen-di
man-ACC see-PST2-3SG
'Fatima saw **the man who is going to buy my horse tomorrow**.'

(72) Relative clause modifying the subject:

a. ok Fatima-nɨ **[tambla [meni at-ɨm-mɨ] sat-ɨp al-lɨq adam]**
Fatima-ACC tomorrow my horse-1SG-ACC buy-CONV take-FUT man
kör-gen-di
see-PST2-3SG

b. * **[meni at-ɨm-mɨ]$_1$** Fatima-nɨ **[tambla** _$_1$ **sat-ɨp al-lɨq**
my horse-1SG-ACC Fatima-ACC tomorrow buy-CONV take-FUT
adam] kör-gen-di
man see-PST2-3SG
'**The man who is going to buy my horse tomorrow** saw Fatima.'

This makes a Complex NP Constraint explanation of the data presented in the previous section untenable. It seems that the best way to explain the restrictions on scrambling from nominalized clauses and complex noun phrases in Balkar is to appeal to the Subject Condition.

3.5.5 DSO and Subject Condition effects

Consider split noun phrases again:

(73) a. ok **Fatima-niɨ$_{O}$** tünene Kerim **ineg-i-n$_{O}$** kör-gen-di
Fatima-GEN yesterday Kerim cow-3-ACC see-PST2-3SG
'Kerim saw **Fatima's cow$_{O}$** yesterday.

b. ok **Aslan-niɨ$_{S}$** tünene **it-i$_{S}$** Madina-niɨ qap-xan-diɨ
Aslan-GEN yesterday dog-3 Madina-ACC bite-PST2-3SG
'**Aslan's dog$_{S}$** bit Madina yesterday.'

If Balkar obeys the Subject Condition and also allows Discontinuous Spell Out, we expect to find some subject vs. object asymmetries. More precisely, we expect to find objects to be split more freely than subjects. Split objects, as in (73a), can be derived either by subextraction or as the result of DSO. Split subjects, as in (73b), may only be derived by DSO. There are two data points that suggest that this is, in fact, correct.

The first data point has to do with **the linear order of the split elements**. Consider the contrast in (74).

(74) a. ok **[beš at-i-n]$_{1}$** tünene Kerim **[Fatima-niɨ _$_{1}$]** al-ʁan-diɨ
five horse-3-ACC yesterday Kerim Fatima-GEN take-PST2-3SG
'Yesterday Kerim took **Fatima's five horses**.'

b. * **[beš nöger-i]$_{1}$** tünene **[Fatima-niɨ _$_{1}$]** meni illau-m-mu
five friend-3 yesterday Fatima-GEN my toy-1SG-ACC
al-ʁan-diɨ-la
take-PST2-3-PL
Intended: 'Yesterday **Fatima's five friends** took my toy.'

We saw that it is possible to split the possessor from the rest of the noun phrase in both subject and object position (73). But, as we see from (74), it is not possible to move out an NP and leave the possessor in-situ if the noun phrase is in the subject position (74b). Crucially, it is possible to do so with a noun phrase in the object position (74a).

How can we reconcile the data in (73) with the data in (74)? The answer comes from the first property of Discontinuous Spell Out, as stated in (51). Discontinuous Spell Out keeps the internal order of the elements within the phrase. Since in Balkar the possessor is on the left periphery, it should be the first element pronounced, even

if the noun phrase is discontinuously spelled out. In the same way as for split PPs in Colloquial Russian: the preposition must always come first.

This means that neither (74a) nor (74b) may be derived by Discontinuous Spell Out. The only option left is subextraction. As expected under the Subject Condition, subextraction is possible in (74a), but not in (74b).

The second data point has to do with **multiple splits**. Consider the contrast in (75).

(75) a. ok **meni$_{O}$** **Fatima-ni$_{S}$** tünene **šujox-u$_{S}$** **kitab-ɨm-mi$_{O}$**
my Fatima-GEN yesterday friend-3 book-1SG-ACC
oqu-ʁan-dɨ
read-PST2-3SG
'Yesterday **Fatima's friend$_{S}$** read **MY book$_{O}$**.'

b. * **meni$_{S}$** **Fatima-ni$_{O}$** tünene **kitab-ɨn$_{O}$** **egec-ɨm$_{S}$** oqu-ʁan-dɨ
my Fatima-GEN yesterday book-3-ACC sister-1SG read-PST2-3SG
'Yesterday **MY sister$_{S}$** read **Fatima's book$_{O}$**.'

As in Colloquial Russian, in Balkar splitting the subject noun phrase is more restricted than splitting the object noun phrase. In particular, it is possible to split the object "across" the split subject, but not vice versa. This can be explained, if we assume that splitting the subject can only be achieved via DSO, while splitting the object can also be done by subextraction.

In fact, DSO in Balkar seems to be even more restricted than in Colloquial Russian. In particular, Balkar is more sensitive to the violations of the "keeping adjacency" constraint. Not much phonological material can come between the two parts of a split subject:

(76) a. ok **Fatima-ni$_{S}$** **nöger-i$_{S}$** tünene iŋer-de bu illau-nu sɨn-dɨr-ʁan-dɨ
Fatima-GEN friend-3 yesterday evening-LOC this toy-ACC break-CAUS-PST2-3SG

b. ok **Fatima-ni$_{S}$** tünene iŋer-de **nöger-i$_{S}$** bu illau-nu sɨn-dɨr-ʁan-dɨ
Fatima-GEN yesterday evening-LOC friend-3 this toy-ACC break-CAUS-PST2-3SG

c. * **Fatima-ni$_{S}$** tünene iŋer-de bu illau-nu **nöger-i$_{S}$** sɨn-dɨr-ʁan-dɨ
Fatima-GEN yesterday evening-LOC this toy-ACC friend-3 break-CAUS-PST2-3SG
'Yesterday **Fatima's friend$_{S}$** broke this toy.'

Meanwhile, for split objects there is no such restriction:

(77) a. ok **Fatima-ni$_O$ qarɨndaš-ɨ-n$_O$** šaxar-ʁa ustaz elt-di
Fatima-GEN brother-3-ACC city-DAT teacher drive-PST1.3SG

b. ok **Fatima-ni$_O$** šaxar-ʁa **qarɨndaš-ɨ-n$_O$** ustaz elt-di
Fatima-GEN city-DAT brother-3-ACC teacher drive-PST1.3SG

c. ok **Fatima-ni$_O$** šaxar-ʁa ustaz **qarɨndaš-ɨ-n$_O$** elt-di
Fatima-GEN city-DAT teacher brother-3-ACC drive-PST1.3SG
'The teacher drove **Fatima's brother$_O$** to school.'

This is as expected. There are two derivational paths to split objects, but only one for split subjects. With subextraction all the sentences in (77) should be fine, because subextraction is not sensitive to the amount of the intervening phonological material. The only option for (76), however, is DSO, and DSO does not tolerate too much intervening phonological material.

These two data points, taken together, constitute another argument that split noun phrases in Balkar can be derived by DSO, and thus seemingly avoid a Subject Condition violation.

3.5.6 Summary

To sum up, Balkar obeys the Subject Condition. It also allows DSO, like Colloquial Russian, which obscures the effects of the Subject Condition for noun phrases.

If this analysis is correct, we have to concede that DSO (at least in Balkar) is for some reason limited to noun phrase material. It is not possible to discontinuously spell out a clause. For the present I do not have an explanation for this fact. This would require a more fully worked out theory of Discontinuous Spell Out, which lies beyond the scope of this dissertation.

The emerging typology (based on the comparison of the two versions of modern Russian and Balkar) looks as follows:

(78) Point of variation.

	Literary Russian	Colloquial Russian	Balkar
Subject Condition	yes	yes	yes
Extraction from DPs	yes	yes	yes
DSO	**no**	**yes**	**yes**

This suggests that the true point of variation is not the Subject Condition, which is active in all the three systems. The true point of variation is located at PF. The supposed parameter is whether the PF of a given language could distributively interpret multiple copies of one noun phrase.

3.6 Conclusion

In this chapter I have argued for the Strong Subject Condition, based on data from Literary and Colloquial Russian and Balkar. The condition itself is repeated below.

(79) **Strong Subject Condition.**
All specifiers are opaque for extraction.

Two challenges for the Subject Condition have been discussed.

The first challenge has to do with subjects in-situ. In some languages some in-situ subjects are transparent. An example of this is Literary Russian. This fact has lead some researchers to believe that (79) is too strong and should be relaxed. However, as I have shown in section 3.3, only those subjects are transparent in-situ that are base generated as complements (subjects of certain unaccusative verbs). As the result, subject transparency in-situ provides an argument in favor of the Strong Subject Condition, not against it.

The second challenge comes from Colloquial Russian and Balkar. These two grammar systems allow to split even those noun phrases that are base generated as specifiers. This is a problem for either the weak or the strong formulation of the Subject Condition. However, as I have shown in sections 3.4 and 3.5, split noun

phrases of this kind do not involve direct subextraction or remnant movement. They should be analyzed in terms of Discontinuous Spell Out, as was proposed by Pereltsvaig (2008) and others. According to this analysis, split noun phrases in Balkar or Colloquial Russian are not split in narrow syntax. The whole noun phrase is moved, but only a part of it is pronounced in the higher position, namely, the movement trigger. The pied-piped material is pronounced in-situ.

There seems to be real cross-linguistic variation as to whether a language allows its PF to discontinuously parse a moved constituent. Meanwhile, the Subject Condition seems to be universal. Crucially, even in Colloquial Russian and Balkar we still observe its effects. Even in those languages splitting a noun phrase that is base generated as a complement is less restricted than splitting a noun phrase that is base generated as a specifier.

This means that even in languages that on the surface allow Subject Condition violations, this condition is still an active part of the grammar. This strongly suggests that the Subject Condition is universal. The reason is that most of the examples that are encountered by a first language learner seemingly violate the Subject Condition at the surface structure. Nevertheless, adult speakers demonstrate its effects in more complex sentences. This is easily explained, if the Subject Condition is not acquired, but rather follows from the basic principles of syntactic derivation, in accordance with the Spell Out theory, presented in Chapter 1.

Chapter 4

Spell Out at LF: The Island Condition

4.1 The meaning of Spell Out

In this chapter I will discuss the semantic effects of Spell Out, in particular, how it interacts with discourse anaphora. For most of the chapter I will consider data from English, but see Appendix B, which shows how the same generalizations apply to Russian.[1]

Consider the two main claims of the Spell Out theory, repeated in (1). From (1a) and (1b), taken together, it follows that all adjuncts and all specifiers must be spelled out before they are merged with the rest of the sentence, because all adjuncts and all specifiers are, by definition, maximal projections that merge with a phrase.

(1) a. Between any two phrasal sisters at least one has to be spelled out.

b. A spelled out phrase does not project its category.

[1]All the data for this chapter and Appendix B were collected by elicitation with five Russian speakers and four English speakers. Every piece of data (with a couple of exceptions) is a pair of sentences. In each case the speakers were asked to compare the sentences and give a relative grammaticality judgment with the given co-indexations between noun phrases and pronouns. They were also asked to evaluate each member of the pair individually (on the scale from 1 to 5). Sentences evaluated at 4 or 5 are analyzed as acceptable (marked ^{ok}); at 1 or 2 – as unacceptable (marked *); and at 3 – as marginally acceptable (marked $^{?}$).

The result of Spell Out in narrow syntax is opacity for movement. A spelled out constituent is assigned its phonological and semantic interpretation and becomes a terminal, like a lexical item. Hence, from (1) it follows that all specifiers and all adjuncts are opaque.

Since Spell Out assigns semantics, it also follows that all specifiers and all adjuncts are interpreted before their sisters. One may plausibly expect this to have some effect at the syntax-semantics interface. However, to my knowledge, there has been little or no discussion of any semantic consequences of Spell Out that would have been independent from movement. In this chapter I will argue that there is at least one such consequence, namely, "the direction" of discourse anaphora.

By *discourse anaphora* I will understand the anaphoric relation between an indefinite and a pronoun where the indefinite is not interpreted in the scope of any other operator (no negation, quantifiers etc.), as in (2).

(2) $^{\text{ok}}$ Rosa$_1$ came in with **a woman$_2$** and offered **her$_2$** drinks.

There are many accounts of discourse anaphora, most prominently, within dynamic and pseudodynamic frameworks (see Heim, 1982; Groenendijk and Stokhof, 1991; Chierchia, 1995; Schlenker, 2009; Mandelkern, 2020, among many others).

All these theories assume that the indefinite, like *a woman$_2$* in (2), must be *interpreted before* the pronoun, like *her$_2$*, in (2). The indefinite creates a local context, in which the presupposition of the pronoun can be satisfied. The question that this chapter will focus on is what "interpreted before" is determined by. To my knowledge, most theories of discourse anaphora assume that "interpreted before" is equivalent to "linearly precedes". That is, they assume that the semantic component has access to the linear order between the terminals in a given sentence and processes it, accordingly, from left to right. Consequently, for a discourse anaphoric relation to be possible the indefinite must linearly precede the pronoun.

Indeed, in a coordinate structure discourse anaphora "proceeds" from the left conjunct to the right one, and not vice-versa, as is evident from the contrast in

(3). Furthermore, discourse anaphora "proceeds" from a specifier on the right to its sister on the left, and not vice-versa, as is illustrated by (4). However, it can also "proceed" from an adjunct on the right to the main clause on the left, while the same is not possible for a complement on the right, see (5). In other words, cataphora is possible, but in a restricted set of cases. Any theory must rule in cataphora in (5a), but crucially, not in (3b), (4b) or (5b)

(3) a. ok Rosa$_1$ [came in with **a woman$_2$**] and offered **her$_2$** drinks.

b. * Rosa$_1$ [came in with **her$_2$**] and offered **a woman$_2$** drinks.

(4) a. ok [A person who came in with **a woman$_2$**] offered **her$_2$** drinks.

b. * [A person who came in with **her$_2$**] offered **a woman$_2$** drinks.

(5) a. ok Rosa informed **his$_1$** parents [when she caught **a student$_1$** smoking].

b. * Rosa informed **his$_1$** parents [that she caught **a student$_1$** smoking].

In order to make (5a) acceptable, existing theories have to make some special assumptions in addition to the general 'left-to-right' principle.[2] This leads to a less predictive account. There is no difference in the interpretation of the indefinite and its anaphoric relation to the pronoun throughout (3-5), which means that whatever stipulations can be added to the theory to make (5a) work can also make (3b), (4b) and (5b) work. All these sentences are episodic, all of them involve discourse anaphora, no generic or adnominal quantifiers involved. There seems to be no obvious *semantic* generalization that would accommodate all the contrasts in (3-5). But it is possible to find a *syntactic* one.

[2]For example, we may say that (5a) contains a dynamic quantifier/connective (perhaps, the complementizer *when*) that licenses the cataphoric relation in this particular case. The indefinite is interpreted in its restrictor (the *when*-clause) and the pronoun is in its scope (the main clause). Crucially, the meaning of this quantifier/connective is not quantificational, because the sentence is interpreted episodically. As a result, there is no reason why such a quantifier/connective could not be present in (5b) as well, which would mistakenly rule the bad sentence in. There is no *semantic* reason why a dynamic quantifier/connective couldn't take the complement CP as its restrictor and the main clause as its scope.

The starting observation is that the difference between the bad cases and the good ones is in the syntactic structure, not in the interpretation of the pronoun or the indefinite. In all the good cases the indefinite is inside a specifier or an adjunct that c-commands the pronoun, see (4a) and (5a). In neither (4b) nor (5b) is there a specifier or an adjunct that contains the indefinite and c-commands the pronoun. If we assume a ConjP-structure for coordination, this explains (3) as well. The first conjunct is the specifier of ConjP, and the second conjunct is the complement of Conj. In what follows I will call this generalization *the Island Condition.*

The Island Condition is not surprising from the perspective of the Spell Out theory. Discourse anaphora "proceeds" from a spelled out to a non-spelled out sister. That is, any specifier is interpreted before its sister (3, 4) and any adjunct is interpreted before its sister (5). The Island Condition is merely a consequence of how the semantic component processes a syntactic structure. It tries to update the context with all the information it has at any given moment of interpretation. Given two sisters, a spelled out α, whose meaning is "known", and a non-spelled out β, whose meaning is not yet "known", the context is updated by the content of the spelled out sister α before β is interpreted. Thus, α creates the local context for β.

In the remainder of the chapter I will, first, introduce some background assumptions about anaphora and formulate the Island Condition in more precise terms (section 4.2); second, argue for the Island Condition by showing how it can accommodate all the three basic configurations exemplified by (3-5) without additional unmotivated stipulations (section 4.3); third, propose an analysis of this condition in terms of Spell Out at LF (sections 4.4 and 4.5); and finally, discuss some problems with the proposed theory (section 4.6).

4.2 Formulating the Island Condition

4.2.1 Background and terminology

In this section I will establish the basic terminology, formulate the Island Condition and briefly discuss its relation to other conditions on anaphoric relations.

By *anaphoric relation* here and throughout I will understand the relation of referential dependency between a noun phrase and a pronoun. That is, a situation when the interpretation of a pronoun is dependent on the interpretation of a noun phrase. In what follows I will distinguish between four different types of anaphoric relations.

An anaphoric relation between a pronoun and a quantified noun phrase, as in (6), will be called *bound anaphora*. Following numerous authors (Paducheva, 1974, 1985; Partee, 1975, 1978; May, 1977; Heim, 1982; Haïk, 1984; Chierchia, 1995; Heim and Kratzer, 1998, and others), I will assume that in these cases the pronoun is interpreted as a variable bound by the quantified noun phrase.

(6) [ok] **Every girl$_1$** submitted **her$_1$** paper on time.

An anaphoric relation between a pronoun and an indefinite illustrated by (7) will be called *discourse anaphora*. Here and below I will reserve the term 'discourse anaphora' specifically for those cases when the indefinite introduces a text-level discourse referent. In other words, the indefinite is not 'quantified over', it is not interpreted in the scope of another quantificational operator.

(7) [ok] A person who came with **a woman$_1$** offered **her$_1$** drinks.

An anaphoric relation between a pronoun and an indefinite illustrated by (8) will be called *donkey anaphora*. Donkey anaphora involves the same two elements, as discourse anaphora: an indefinite and a pronoun. The key difference is that in sentences with donkey anaphora the indefinite does not introduce a text-level discourse referent. It is interpreted in the nuclear scope (or in the restrictor) of a quantificational operator, in this case it is in the restrictor of *every*.

(8) [ok] Every person who came with **a woman$_1$** offered **her$_1$** drinks. $\forall > \exists$

An anaphoric relation between a pronoun and a definite illustrated by (9) will be called *co-reference*. Co-reference will not be given much attention in this dissertation.

(9) [ok] A person who came with **Rosa Luxemburg$_1$** offered **her$_1$** drinks.

The focus of this chapter will be on discourse and donkey anaphora. There are many theories of discourse and donkey anaphora, each offering a different view on the semantics of indefinites. There are *quantificational theories* (Geach, 1962/1980), *pragmatic theories* (Lewis, 1973; Kripke, 1977), and *E-type theories* (Evans, 1980). These three types of approaches are discussed at length by Heim (1982, chapter 1).

Alternatives include theories treating *indefinites as variables* (Paducheva, 1974, 1985, 1989a,b; Heim, 1982; Diesing, 1992) and *dynamic accounts* (Kamp, 1981; Heim, 1982, 1983, 1992; Chierchia, 1995; Rothschild and Mandelkern, 2017, and others).

The dynamic framework has been criticized for not being restrictive enough, and several analyses have been proposed in order to derive the empirical results of dynamic semantics by more restrictive and more conservative means (Schlenker, 2009, 2011; Rothschild, 2011; Mandelkern, 2020, and others). Borrowing the term from Mandelkern (2020), I will call these *pseudo-dynamic accounts*.

The claim that this chapter pushes forward is that both discourse and donkey anaphora are governed by a structural generalization that I will call the Island Condition. Consequently, any theory of discourse and donkey anaphora, regardless of the framework, must provide a principled account for it.

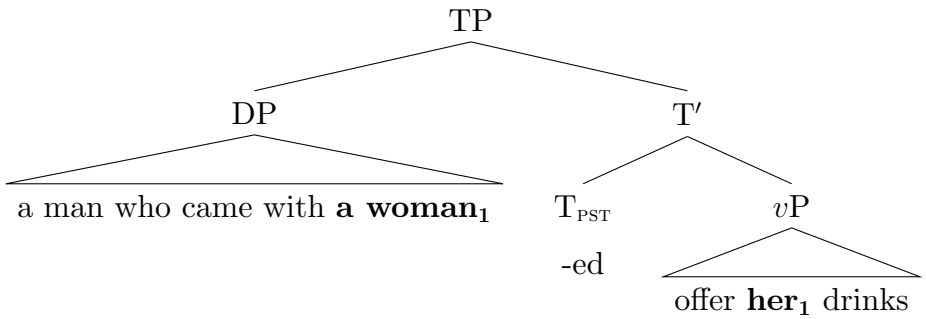
In sections 4.4 and 4.5 I will propose an analysis of the Island Condition in pseudo-dynamic terms, building on Schlenker (2009) and Mandelkern (2020). However, the Island Condition and the Spell Out theory could be incorporated within other dynamic and pseudo-dynamic systems as well.

4.2.2 The Island Condition

In order to formulate the Island Condition, I will need three basic syntactic notions, two of which have been defined in chapter 1. I will briefly reiterate those definitions here.

The first is the notion of *constituency*. It is a standard syntactic assumption that sentences in natural languages are structured. In particular, the string *a person who came in with a woman$_1$* in the sentence in (10) forms a constituent. The same is true for the string *offered her$_1$ drinks*.

(10) ^{ok} [A person who came with **a woman$_1$**] [offered **her$_1$** drinks].



The second is the notion of *projection*. By assumption, all the terminals on a syntactic tree bear a syntactic category, which determines, among other things, their syntactic distribution. For example, *a* is a determiner (D), *person* is a noun (N). Furthermore, all non-terminal nodes also bear a syntactic category, more precisely, the category of one of their immediate daughters.[3] One of the daughters projects its category to its mother. For example, in (10) the node that dominates the constituent *a man who came with a woman$_1$* bears the category of its daughter *a*, hence it is labeled DP. In other words, between D (*a*) and NP (*man who came with a woman$_1$*) it is D that projects its category. The node that dominates the constituent *offered her$_1$ drinks* bears the category of its daughter T$_{PST}$, hence it is labeled T′. In other words, between T$_{PST}$ (*-ed*) and *v*P (*offer her$_1$ drinks*) it is T$_{PST}$ that projects its category. The root of the tree in (10) bears the category of T′, that is, between DP

and T′ it is T′ that projects its category.

A node that does not project its category to its mother is called *a maximal projection*. The DP *a man who came with a woman$_1$* and the TP *a man who came with a woman$_1$ offered her$_1$ drinks* are maximal projections. Meanwhile, the T′ *offered her$_1$ drinks* is not. By convention, maximal projections are labeled XP, non-maximal projections are labeled X′.

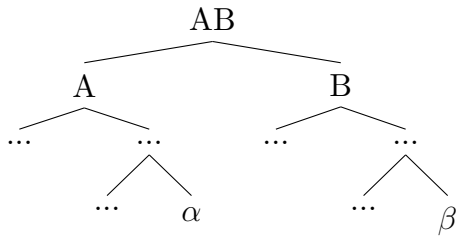
The third and the new notion is the notion of SO-*command* (SO for Spell Out), defined in terms of maximal projection and c-command (Reinhart, 1976) as follows:

(11) **SO-Command**

A node α SO-commands a node β if and only if the node that (reflexively) dominates α and c-commands β is a maximal projection.[4]

Notice that for any two nodes α and β on the same syntactic tree there is always a node that dominates α and c-commands β, furthermore, there is always only one. The reason is that for any α and β there is always one and only one minimal node that dominates both of them, call it AB, as is schematized in (12). This node has at least two immediate daughters: one that dominates α, call it A, and one that dominates β, call it B.

(12)



The node A c-commands β by the definition of c-command. Only nodes that dominate A or are dominated by A can also dominate α. But no node that dominates A c-commands β and no node that is dominated by A c-commands β by the

[3]Each non-terminal node bears the category of the daughter that contains the head of the constituent that this node dominates.

[4]It is easy to see that, if branching is always binary, SO-command is necessarily asymmetric. By the definition of projection, if a node has exactly two daughters, at most one is a maximal projection.

definition of c-command. Hence there is one and only one node (namely, A) that both dominates α and c-commands β.[5]

For example, in (10) the indefinite *a woman*$_1$ SO-commands the pronoun *her*$_1$, because the node that dominates *a woman*$_1$ and c-commands *her*$_1$ is a maximal projection, that is, a DP. One can think of α SO-commanding β as of α being inside a specifier or an adjunct (a maximal projection) that c-commands β. In particular, the indefinite in (10) is inside a specifier that c-commands the pronoun.

Now we can formulate the Island Condition:

(13) **The Island Condition**

Discourse or donkey anaphora is possible between an indefinite and a pronoun if and only if the indefinite SO-commands the pronoun.

4.2.3 Other conditions on anaphoric relations

Before examining the predictions of the Island Condition in more detail, let me point out a broad generalization concerning all four types of anaphoric relations introduced above.

All the configurations that license bound anaphora license discourse and donkey anaphora (and co-reference as well), while the opposite is not true. In any configuration in which bound anaphora is possible between a quantified noun phrase and a pronoun, if the quantified noun phrase is replaced by an indefinite, discourse/donkey[6] anaphora will be possible as well.

(14) Sets of syntactic configurations that license anaphoric relations

Bound Anaphora $\subseteq$ Discourse/Donkey Anaphora, Co-Reference

In what follows I will assume that there are three distinct semantic mechanisms

[5]If α c-commands β, either α is a maximal projection and then it also SO-commands β (note the word 'reflexively' in the definition of SO-command); or the sister of α that dominates β is a maximal projection, in which case β SO-commands α.

[6]Whether it will be discourse or donkey anaphora depends on the indefinite being in the scope of an operator.

responsible for establishing anaphoric relations: *variable binding*, *dynamic binding* and *simple co-reference* (see Heim, 1982; Reinhart, 1983; Heim and Kratzer, 1998, and others).

Variable binding is accessible not only quantified noun phrases, but also for indefinites and definites. In other words, all quantified, indefinite and definite noun phrases can bind pronouns in their scope as variables. Apart from principles A, B and C of the classical binding theory (Reinhart, 1976; Chomsky, 1981), variable binding requires the pronoun to be interpreted in the scope of the noun phrase. Here and throughout I will assume the standard view that scope taking is achieved via Quantifier Raising at LF (Heim and Kratzer, 1998).

Dynamic binding is only accessible for indefinites (discourse and donkey anaphora). Apart from principles A, B and C, it requires the indefinite to be interpreted before the pronoun. In addition, all the operators that take scope over the indefinite have to take scope over the pronoun (see Heim, 1982, 130 and Haïk, 1984).

Simple co-reference is only accesible for definites and is only restricted by A, B and C.

(15) Semantic mechanisms establishing anaphoric relations

Mechanism	Participants	Conditions
Variable Binding	$DP_{quantified}$ – pro (bound) $DP_{indefinite}$ – pro (discourse/donkey) $DP_{definite}$ – pro (co-reference)	DP takes scope over pro A, B, C of the classical binding theory
Dynamic Binding	$DP_{indefinite}$ – pro (discourse/donkey)	**DP is interpreted before pro (Island Condition)** All operators taking scope over DP take scope over pro A, B, C of the classical binding theory
Simple Co-reference	$DP_{definite}$ – pro (co-reference)	A, B, C of the classical binding theory

This chapter argues that the "interpreted before" relation for dynamic binding is determined by the Island Condition. For a pronoun and an indefinite to establish a discourse or donkey anaphoric relation via dynamic binding the indefinite must so-command the pronoun. In the next section I will argue that, in most cases, the Island Condition successfully predicts when discourse or donkey anaphora is possible and when it is not.

4.3 Indefinite anaphora and structure

4.3.1 The main argument

The main argument for the Island Condition is that it can account for all the three basic contrasts established in section 4.1 and repeated below as (16-18) without additional stipulations. That is, if we assume independently motivated syntactic structures for the constructions involved, the indefinite so-commands the pronoun in (16a), (17a) and (18a), but not in (16b), (17b) or (18b).

(16) a. ok Rosa$_1$ [came in with **a woman$_2$**] and offered **her$_2$** drinks.
b. * Rosa$_1$ [came in with **her$_2$**] and offered **a woman$_2$** drinks.

(17) a. ok [A person who came in with **a woman$_2$**] offered **her$_2$** drinks.
b. * [A person who came in with **her$_2$**] offered **a woman$_2$** drinks.

(18) a. ok Rosa informed **his$_1$** parents [when she caught **a student$_1$** smoking].
b. * Rosa informed **his$_1$** parents [that she caught **a student$_1$** smoking].

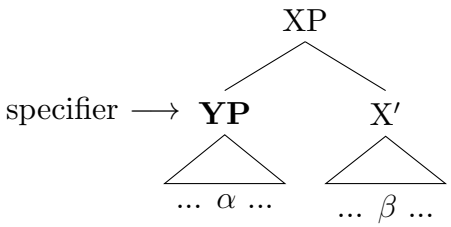
In what follows I will discuss these three syntactic configurations separately. Anaphora between a specifier and its sister, as in (17), will be considered in section 4.3.2, anaphora between an adjunct and its sister, as in (18) – in section 4.3.3, and

anaphora between two conjuncts in a coordinate structure, as in (16) – in section 4.3.4. In addition, I will briefly discuss the interaction between the Island Condition and movement (section 4.3.5).

4.3.2 Specifiers

A specifier is, by definition, a maximal projection that is an argument (is obligatory) and merged with a phrase (see chapter 1), as is schematized in (19).

(19) YP is a specifier of XP



The Island Condition predicts that any indefinite inside a specifier creates an accessible antecedent for any pronoun inside its sister, but not vice-versa. In (19) α so-commands β, because the node that dominates α and c-commands β is a maximal projection (it is YP). At the same time β does not so-command α, because the node that dominates β and c-commands α is not a maximal projection (it is X′).

(20) **Prediction 1.**
Any indefinite inside a specifier creates an accessible antecedent for any pronoun inside its sister, but not vice-versa.

This prediction is borne out for discourse anaphora, as is evident from (4), repeated below as (21). All the speakers I have consulted perceive a strong contrast between (21a), where the indefinite is inside the subject DP and the pronoun is inside the T′, and (21b), where the situation is reversed.

(21) a. ok [$_{TP}$ [$_{DP}$ A person who came in with **a woman$_2$**] [$_{T'}$ offered **her$_2$** drinks]].

b. * [$_{TP}$ [$_{DP}$ A person who came in with **her$_2$**] [$_{T'}$ offered **a woman$_2$** drinks]].

Importantly, the contrast in (21) has to do with the structural configuration and not with the semantic context of the indefinite.

For example, one may think that what is crucial in (21) is the relative clause. A relative clause is interpreted as a restrictor of an adnominal quantifier, and an indefinite inside it can create an accessible antecedent for any pronoun in the scope of this quantifier. In other words, one may think that (21) shows us that discourse anaphora is possible between an indefinite inside the restrictor and a pronoun inside the scope of an adnominal quantifier, but not vice-versa.

Consider, however, the contrast in (22). Here in both cases the indefinite is embedded inside the complement of an attitude predicate. If the attitude predicate itself is embedded inside a specifier, as in (22a), the indefinite inside it creates an accessible antecedent for a pronoun inside the sister of this specifier. At the same time an indefinite inside the complement of an attitude predicate embedded inside a T′, as in (22b), does not create an accessible antecedent for a pronoun inside Spec,TP.

(22) a. ok [$_{TP}$[$_{DP}$The proof that **a woman$_1$** was in the building at the moment of the crime] [$_{T'}$means that we will have to question **her$_1$** in court]].

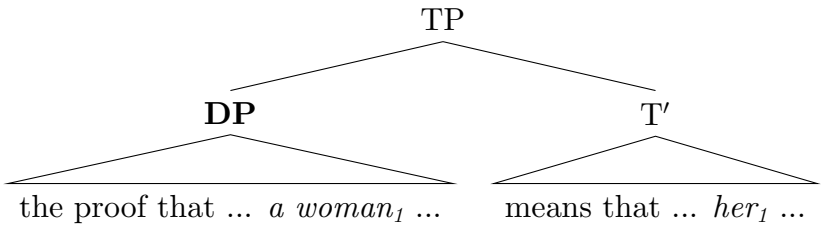
b. * [$_{TP}$[$_{DP}$The proof that **she$_1$** was in the building at the moment of the crime] [$_{T'}$means that we will have to question **a woman$_1$** in court]].

In (22a) and (22b) the indefinite is inside CP complements of the attitude predicates *proof* and *means* respectively. There is no reason to believe that the complement of *proof* is interpreted in any different way from the complement of *means*. In fact, there is no obvious semantic asymmetry between the two positions for the indefinite. Nevertheless, in (22a) discourse anaphora is possible, while in (22b) it is not. Without additional stipulations, there seems to be no semantic explanation

for the contrast.

Meanwhile, the Island Condition predicts exactly what we observe. In (22a) the indefinite so-commands the pronoun, while in (22b) it is not the case. The reason is that in (22a) the indefinite is inside a specifier that c-commands the pronoun:

(23) The structure for (22a)



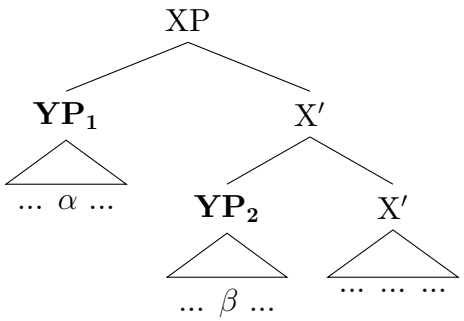
The prediction in (20) is also confirmed in cases when the indefinite is 'quantified over', i.e., in donkey anaphoric configurations. There is a contrast between (24a) and (24b), where the indefinite is interpreted in the scope of *every*. This is in accordance with the Island Condition: the indefinite so-commands the pronoun in (24a), but not in (24b).

(24) a. ok [$_{TP}$ [$_{DP}$ Every professor who supervised **a student$_1$**] [$_{T'}$ read **her$_1$** thesis]]. ∀>∃

b. * [$_{TP}$ [$_{DP}$ Every professor who supervised **her$_1$**] [$_{T'}$ read **a student$_1$'s** thesis]]. ∀>∃

In the case of multiple specifiers the Island Condition predicts that an indefinite inside a higher specifier will create an accessible antecedent for a pronoun inside a lower specifier, but not vice-versa. As is schematized in (25), a node inside a higher specifier (α) always so-commands a node inside a lower one (β). The node that dominates α and c-commands β is a maximal projection, namely, YP_1.

(25) Multiple specifiers



In English it is hard to find a configuration with overt multiple specifiers. But Russian clauses with SOV word order may be an example of that. It has been argued that both preverbal objects and preverbal subjects in Russian occupy the Spec,TP position (see Bailyn, 2004; Testelets, 2006; Kallestinova, 2007 and chapter 2 of this dissertation for discussion). If both the object and the subject appear before the verb, we may assume that they are both specifiers of the TP.

With this word order an indefinite inside the subject can create an accessible antecedent for the pronoun inside the object, but not the other way around, as the Island Condition predicts:

(26) Russian

a. ok [S ženŝina, kotoraja vzjala **odnu iz moix knig$_1$**],
woman.NOM which.NOM take.PFV.PST one.ACC of my.GEN books.GEN
[O **eë$_1$**] tak i ne pročitala
she.ACC such and NEG read.PFV.PST
'[S The woman who took **one of my books$_1$**] ended up never reading [O **it$_1$**].'

b. * [S ženŝina, kotoraja **eë$_1$** vzjala], **[O odnu iz moix knig$_1$]**
woman.NOM which.NOM she.ACC take.PFV.PST one.ACC of my.GEN books.GEN
tak i ne pročitala
such and NEG read.PFV.PST
'[S The woman who took **it$_1$**] ended up never reading [O **one of my books$_1$**].'

The prediction in (20) can be violated if the indefinite is interpreted as specific. In particular, if it is modified by the adjective *certain* or the PP *of mine*. Thus, in (27) discourse anaphora is possible with the indefinite inside the T′ and the pronoun inside Spec,TP.

(27) $^{\text{ok}}$ [$_{\text{TP}}$ [$_{\text{DP}}$ A professor who knows **her$_1$**] [$_{\text{T}'}$ thinks that **a student of mine$_1$** got a job]].

Specific indefinites tend to take the highest scope, even when they are inside a scope island (see Fodor and Sag, 1982; Kratzer, 1998; Charlow, 2014, 2020, and others). If the indefinite in (27) is indeed specific, it may take exceptional scope encompassing the whole sentence, including the pronoun.[7] Thus, it could bind the pronoun via variable binding, not via dynamic binding. Since the Island Condition only applies to dynamic binding (see section 4.2.3 above), it makes no predictions in this case.

The claim that the prediction in (20) can only be violated when a specific indefinite is involved is further supported by the following contrast:

(28) [$_{\text{TP}}$ [$_{\text{DP}}$ Every professor who knows **her$_1$**] [$_{\text{T}'}$ thinks that **a student of mine$_1$** got a job]].

a. $^{\text{ok}}$ $\exists > \forall$

b. * $\forall > \exists$

Donkey anaphora is only possible in (28) if the indefinite has the highest scope (28a). It is not possible if the indefinite takes scope below the universal quantifier (28b), a reading that can be reinforced by modifying the indefinite with the adjective *different*. With *a different student of mine* the sentence in (28) becomes considerably worse.

This is easily explained, if we assume that donkey anaphora in a configuration

[7] According to some theories this is achieved via binding of a choice function variable inside the indefinite (Kratzer, 1998), while other accounts argue for movement of the specific indefinite at LF with pied-piping of the whole scope island (Charlow, 2014, 2020). In the latter case at LF the specific indefinite will also so-command the pronoun, as soon as the pied-piped island c-commands it.

like (28) is only possible with a specific indefinite. Specific indefinites have exceptional scope properties and will not be considered in detail in this dissertation.

4.3.3 Adjuncts

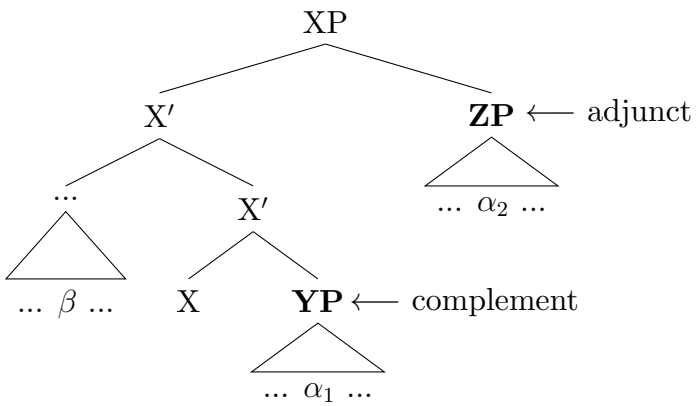
Indefinites inside adjuncts

In this section I will consider two further predictions of the Island Condition concerning indefinites inside adjuncts.

The first prediction is that an indefinite inside an adjunct can be an antecedent of the pronoun in the main clause, but an indefinite inside a complement cannot.

A complement is, by definition, a maximal projection that is merged with a head, like YP in (29). An adjunct is, by definition, a maximal projection that is a modifier (is optional) and merged with a phrase, like ZP in (29). For the definitions see chapter 1.

(29) YP is the complement, ZP is an adjunct



In (29) α_1 does not so-command β, but α_2 does. The node that dominates α_1 and c-commands β is not a maximal projection, it is X′. Meanwhile the node that dominates α_2 c-commands β is a maximal projection, namely, the adjunct ZP.

Consequently, the Island Condition predicts that a pronoun can in the main clause be anaphoric to an indefinite inside an adjunct, but not to an indefinite inside the complement:

(30) **Prediction 2.**

An indefinite inside an adjunct can create an accessible antecedent for a pronoun inside the main clause, while an indefinite inside the complement cannot.

This prediction is confirmed for discourse anaphora, as is evident from the contrast in (31). In (31a) the indefinite is inside an adjunct clause, and discourse anaphora is possible. In (31b) the indefinite is inside a complement clause, and discourse anaphora is worse.

Crucially, this contrast cannot be attributed to condition C, since if we replace the indefinite with a definite, for example, a proper name, like *Karl*, the contrast disappears.

(31) a. ok Ms. Brodie$_2$ [$_{vP}$ [$_{v'}$ informed **his$_1$** mother] [$_{CP}$ after she caught **an eight-grader$_1$** smoking in the bathroom]].

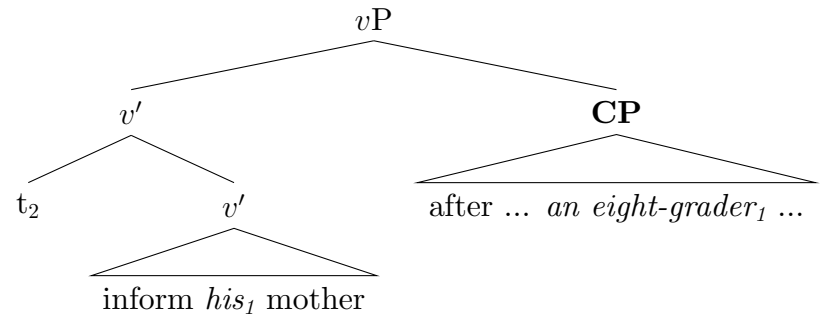
b. * Ms. Brodie$_2$ [$_{vP}$ informed **his$_1$** mother [$_{CP}$ that she caught **an eight-grader$_1$** smoking in the bathroom]].

It can be argued independently, based on condition C effects, that in English the postposed temporal adjunct clause is attached below the subject and above the addressee argument *his$_1$ mother* (see, e.g. Iatridou, 1991). For simplicity, I will assume that it is attached at the vP level. However, the predictions of the Island Condition will be the same, if the adjunct clause is attached at any level above vP as well. What is crucial is that the adjunct clause is attached above the addressee argument *his$_1$ mother*. These assumptions are summarized in (32a).

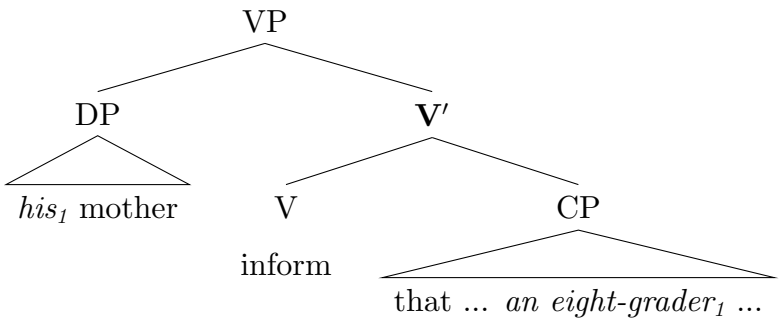
Both the complement clause and the addressee DP *his$_1$ mother* are arguments of the verb *inform*. However, the complement clause is attached below the addressee, as can be shown independently, based on condition C effects.[8] These assumptions are summarized in (32b).

[8]If *an eight-grader$_1$* is replaced by *Karl$_1$*, the sentence in (31b) becomes grammatical. But if, in addition, *his$_1$ mother* is replaced by *him$_1$*, the sentence becomes bad. This can be explained as a

(32) a. The structure for (31a)[9]



b. The structure for (31b)



In (32a) the indefinite so-commands the pronoun, because the node that dominates the indefinite and c-commands the pronoun is a maximal projection, i.e., the adjunct CP. Meanwhile, in (32b) the indefinite does not so-command the pronoun, because the node that dominates the indefinite and c-commands the pronoun is the verb phrase of *inform* to the exception of the addressee argument. This constituent is V′, not the whole verb phrase and not a maximal projection.

This contrast is not particular to temporal *when/after/before*-clauses. Cataphora is possible with a variety of adjuncts, for example, with an *if*-clause adjunct (33a), a purpose clause adjunct (33b) and a locative preposition phrase (33c).[10] According to speakers' judgments, (33b-c) are not ideal sentences, but they are

Condition C effect, but only under the assumption that the addressee c-commands the complement CP.

[9]Here and throughout I follow the standard assumption for English that the subject is base-generated as a specifier of *v*P and later moves to Spec,TP.

definitely better than (31b).

(33) a. [ok] Rosa will send **him$_1$** to the hospital [if **a boy$_1$** breaks his$_1$ leg].

b. [?] Recently Mr. Smith [$_{vP}$ [$_{v'}$ asked me to give him **her$_1$** father's phone number], [$_{CP}$in order to discuss the progress of **one of the eight-graders$_1$**]].

c. [?] Peter tells me he [$_{vP}$ [$_{v'}$ screened some of **her$_1$** movies] [$_{PP}$at the party of **one of the female directors$_1$**]] a couple of days ago.

The contrast between complements and adjuncts becomes even sharper, if we consider donkey cataphora, as in (34). In both (34a) and (34b) the indefinite is interpreted in the scope of a universal quantifier *each time*. In both cases the indefinite linearly follows the pronoun. However, in (34a) the indefinite is inside an adjunct clause, and donkey anaphora is possible, while in (34b) the indefinite is inside a complement clause, and donkey anaphora is worse.

(34) CONTEXT: Last year all the eight-graders smoked in the bathroom (separately, each on a different day). Ms. Brodie caught all of them and reprimanded all of them.

a. [ok] Each time, Ms. Brodie [$_{vP}$ [$_{v'}$ informed **his$_1$** mother] [$_{CP}$ after she caught **one of the eight-graders$_1$** smoking in the bathroom]].

b. * Each time, Ms. Brodie [$_{vP}$ informed **his$_1$** mother [$_{CP}$ that she caught **one of the eight-graders$_1$** smoking in the bathroom]].

The second prediction concerning adjuncts is that an indefinite inside an adjunct can only create an accessible antecedent for those pronouns that this adjunct c-commands.

(35) **Prediction 3.**

An indefinite inside an adjunct can only create an accessible antecedent for a pronoun inside the main clause if the adjunct c-commands the pronoun.

[10]However, for other adjuncts see section 4.6.1.

Consider the contrast in (36). In (36a) the adjunct containing the indefinite c-commands the pronoun, and discourse anaphora is possible. In (36b) the adjunct containing the indefinite does not c-command the pronoun (the pronoun is inside the subject DP), and the anaphoric interpretation is worse.

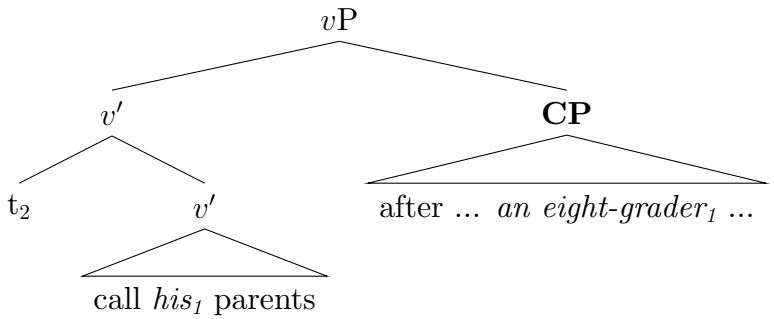
(36) a. ok Ms. Brodie$_2$ [$_{v\text{P}}$ [$_{v'}$ called **his$_1$** parents] [$_{\text{CP}}$ after I caught **an eight-grader$_1$** smoking in the bathroom]].

b. * [$_{\text{TP}}$ [$_{\text{DP}}$ **His$_1$** parents]$_2$ [$_{\text{T}'}$ called Ms. Brodie after I caught **an eight-grader$_1$** smoking in the bathroom]].

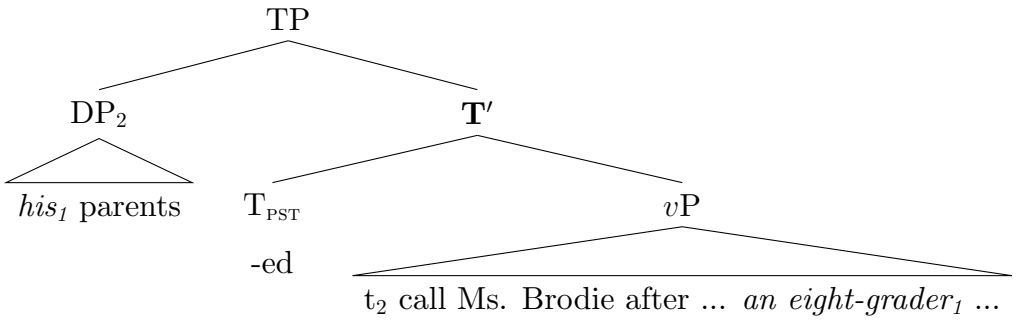
In (36a) the structure is the same as before, see (37a). The indefinite so-commands the pronoun, because the node that dominates the indefinite and c-commands the pronoun is the adjunct CP, a maximal projection.

Meanwhile, in (36b) the indefinite does not so-command the pronoun, because the pronoun is higher up in the structure, see (37b). Here the node that dominates the indefinite and c-commands the pronoun is the T′, not a maximal projection.

(37) a. The structure for (36a)



b. The structure for (36b)



This prediction is not only borne out for temporal adjunct clauses. It can also be confirmed for purpose clauses (38) and locative PPs (39).

(38) a. ? Recently Mr. Smith asked me to give him **her$_1$** father's phone number, in order to discuss the progress of **one of the eight-graders$_1$**.

b. * Recently **her$_1$** father asked me to give him Mr. Smith' phone number, in order to discuss the progress of **one of the eight-graders$_1$**.

(39) a. ? Peter tells me he screened some of **her$_1$** movies at the party of **one of the female directors$_1$** a couple of days ago.

b. * Some of **her$_1$** friends tell me they screened a movie at the party of **one of the female directors$_1$** a couple of days ago.

As before, the contrast becomes even sharper with donkey anaphora:

(40) a. CONTEXT: Last year Ms. Brodie visited me regularly and told me the school news.

ok Each time, Ms. Brodie$_2$ told me that she [$_{vP}$ [$_{v'}$ called **his$_1$** parents to school] [$_{CP}$ after PRO$_2$ catching **one of the eight-graders$_1$** smoking in the bathroom]].

b. CONTEXT: Last year the mothers of all the eight-graders all visited me regularly and told me the school news.

* Each time, [$_{TP}$ [$_{DP}$ **his$_1$** mother]$_2$ [$_{T'}$ told me that she went to Ms.

Brodie after PRO_2 catching **one of the eight-graders$_1$** smoking in the bathroom]].

Indefinites inside the main clause

The Island Condition makes obviously wrong predictions for cases when the indefinite is inside the main clause and the pronoun is inside an adjunct. Remember that any node inside an adjunct SO-commands any node that this adjunct c-commands (see 30, 35 above). Because SO-command is asymmetric, the Island Condition predicts that, if an adjunct c-commands an indefinite inside the main clause, it cannot contain a pronoun anaphoric to this indefinite, contrary to fact:

(41) THE SPEAKER KNOWS: Mary is a journalist and writes a blog. There was a long court case recently. There were five witnesses. Masha was present at each hearing. After hearing one of the testimonies she wrote about the witness who testified.

a. $^{\text{ok}}$ Mary_2 [$_{v\text{P}}$[$_{v'}$wrote about **one of the witnesses$_1$**] [$_{\text{CP}}$after PRO_2 hearing **his$_1$** testimony]].

b. $^{\text{ok}}$ Mary_2 [$_{v\text{P}}$[$_{v'}$wrote that **one of the witnesses$_1$** was lying] [$_{\text{CP}}$after PRO_2 hearing **his$_1$** testimony]].

In neither example in (41) does the indefinite SO-command the pronoun. In both cases the node that dominates the indefinite and c-commands the pronoun is the verb phrase of *write* to the exception of the adjunct. This constituent is a v', not the whole verb phrase, not a maximal projection.

However, we may not need to discard the Island Condition based on examples like (41). Remember that the Island Condition is a condition on dynamic binding, and dynamic binding is not the only mechanism that can establish an anaphoric dependency between an indefinite and a pronoun (see section 4.2.3). The other option is variable binding, available for all noun phrases (quantified, definite and indefinite). It is possible that the anaphoric relations in (41) are established by variable binding, as the result of the indefinite taking scope over the pronoun.

If the only way in which the anaphoric relation can be established in (41) is via variable binding, we expect that bound anaphora will be possible in the same configuration. If a non-specific indefinite inside the main clause can take scope over a pronoun inside an adjunct, then other quantifiers should be able to do so as well.

This prediction is indeed borne out:

(42) The speaker knows: Mary is a journalist and writes a blog. There was a long court case recently. There were five witnesses. Masha was present at each hearing. After every testimony she wrote about the witness who gave it.

a. ok Mary$_2$ [$_{vP}$[$_{v'}$wrote about **every witness$_1$**] [$_{CP}$after PRO$_2$ hearing **his$_1$** testimony]].

b. ok Mary$_2$ [$_{vP}$[$_{v'}$wrote that **every witness$_1$** was lying] [$_{CP}$after PRO$_2$ hearing **his$_1$** testimony]].

If scope taking is achieved via Quantifier Raising, that is, a covert movement of the noun phrase to its scope position, then in both (41) and (42) this covert movement violates the Weak Crossover condition (see Postal, 1971, and subsequent work). The noun phrase moves from the object position, which does not c-command the pronoun inside the adjunct, to a position that does.

However, it has been established in the literature that Weak Crossover can be violated when binding from the object position into a postposed adjunct is involved (see Lasnik and Stowell, 1991; Pesetsky, 1995; Chierchia, 2020, and others). Possibly, in these cases the covert movement targets an A-position. Perhaps, it is the same position that is targeted by so-called object shift in some Germanic languages (see Holmberg, 1986 and subsequent work). If so, then it is not expected to obey Weak Crossover in the first place, since A-movements in general do not.

4.3.4 Coordination

Famously, in coordination discourse anaphora "proceeds" from left to right. An indefinite inside the first conjunct creates an accessible antecedent for a pronoun

inside the second conjunct, but not vice-versa:

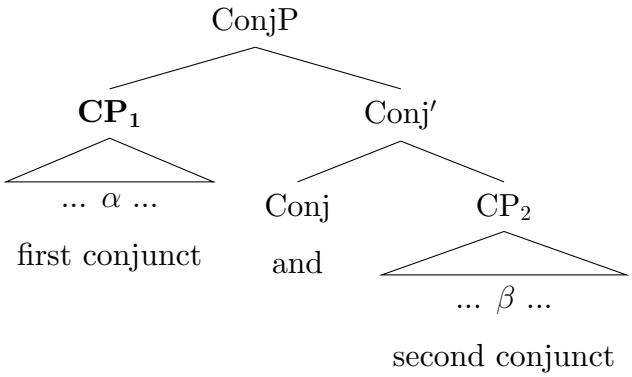
(43) a. ok [**Some woman$_1$** came in] and [the host offered **her$_1$** drinks].

b. * [**She$_1$** came in] and [the host offered **some woman$_1$** drinks].

This fact has lead most theories of discourse anaphora to postulate a basic 'left-to-right' principle and account for occasional instances of cataphora by additional stipulations.

However, the Island Condition may cover (43) as well, if we take into account independently established facts about the syntax of coordination. It has been argued in the syntactic literature that in a symmetric coordination, as in (43), the connective *and* forms a constituent with the second conjunct (see Ross, 1967 and much subsequent work). This results in a structure where the first conjunct is the specifier of *and* and the second conjunct is its complement (which is equivalent to saying that the whole coordination is a projection of its connective). This delivers the structure in (44).

(44) The structure for (43)



As a result, any node inside the first conjunct, like α in (44), so-commands any node inside the second conjunct, like β in (44), but not vice-versa. The minimal node that dominates α and c-commands β in (44) is the first conjunct CP_1, which is a maximal projection, because it's the specifier of ConjP. Meanwhile, the minimal node that dominates β and c-commands α is Conj′, the constituent that includes

and and the second conjunct, which is not a maximal projection.

The structure in (44), thus, predicts that an indefinite inside the first conjunct can create an accessible antecedent for the pronoun inside the second one, but not the other way around.

Interestingly, cataphora is sometimes acceptable even in coordination. If the Island Condition is correct, this should only be possible if the coordination does not have the syntax in (44). In the remainder of this section I will consider two such cases.

The first case is so-called *conditional conjunction* or *left-subordinating and*, first discussed in the generative literature by Culicover and Jackendoff (1997), see also Russell (2007), Kaufmann (2012), Keshet (2012), von Fintel and Iatridou (2017), and others.

If the first conjunct is a noun phrase or an imperative clause, coordination can be interpreted as a conditional with the first conjunct as the (partially elided) antecedent:

(45) a. ok A picture of him_1 in our newspaper and Bill_1 will have high name recognition.
≈ If a picture of him_1 is in our newspaper, Bill will have high name recognition.

b. ok Ignore your homework and you will fail.
≈ If you ignore your homework, you will fail.

(von Fintel and Iatridou, 2017, 297ff)

Indeed, in these conjunctions a pronoun inside the first conjunct can be anaphoric to an indefinite inside the second one:

(46) a. ok [A picture of **him$_1$** in the newspaper] and [**a politician$_1$** will have high name recognition].

b. ok [Give **it$_1$** fresh fish], and [**a cat$_1$** will love you forever].

The same is true for the fronted antecedent of a conditional. That is, a pronoun inside the fronted antecedent can be anaphoric to an indefinite inside the consequent:

(47) ok [If you give **it$_1$** fresh fish], [**a cat$_1$** will love you forever].

In fact, as Culicover and Jackendoff (1997) first pointed out, there are many syntactic similarities between conditional conjunctions and conditionals, of which I will only mention one more here. A quantified noun phrase in the second conjunct of a conditional conjunction can bind a pronoun inside the first one:

(48) a. ok [A picture of **him$_1$** in the newspaper] and [**every politician$_1$** will have high name recognition].

b. ok [Give **it$_1$** fresh fish], and [**every cat$_1$**, no matter how wild it is, will love you forever].

This means that a noun phrase inside the second conjunct can take scope over the first conjunct. The same is true for fronted antecedents, that is, a quantified noun phrase inside the consequent can take scope over the fronted antecedent:

(49) ok [If you give **it$_1$** fresh fish], [**every cat$_1$**, no matter how wild it is, will love you forever].

Since the noun phrase in question can take scope over the pronoun in the first conjunct or the fronted antecedent of the conditional, the anaphoric relation can be established via Variable Binding, not via Dynamic Binding and thus does not have to obey the Island Condition. The question of the exact syntactic structure of conditional conjunctions will be left open in this dissertation.

The second case is *concessive and* or *but*, which also allows cataphora:

(50) a. ok You can [give **it$_1$** fresh meat every day], [and still not make **a tiger$_1$** your friend].

b. ok You can [give **it$_1$** fresh meat every day], [but still not make **a tiger$_1$** your friend].

Unlike in conditional conjunctions, in concessive conjunctions a quantified noun phrase inside the second conjunct may not bind a pronoun in the first one, which rules out the explanation given above:

(51) a. * You can [give **it$_1$** fresh meat every day], [and still not make **every tiger$_1$** your friend].

b. * You can [give **it$_1$** fresh meat every day], [but still not make **every tiger$_1$** your friend].

At the same time, unlike conditional conjunctions, concessive conjunctions freely allow extraction out of the first conjunct (52), and less so out of the second conjunct (53).

(52) a. ok **How much$_1$** can you [drink _$_1$], [and still stay sober]?

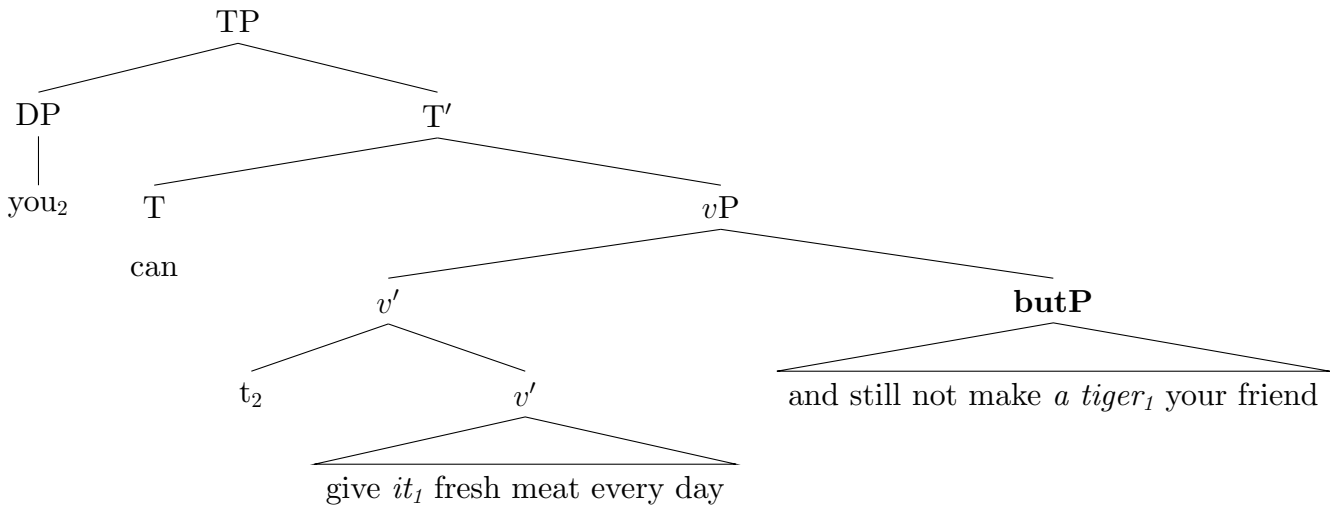
b. ok **How much$_1$** can you [drink _$_1$], [but still stay sober]?

(53) a. ?/* **What$_1$** can you [drink a lot of liquor], [and still be able to do _$_1$]?

b. ?/* **What$_1$** can you [drink a lot of liquor], [but still be able to do _$_1$]?

These data are easily explained if we assume that the second concessive conjunct is, in fact, an adjunct to the main vP, as in (54).

(54) The structure for (50)



This explains (a) that the concessive conjunct is opaque for extraction (53), because it is an adjunct; (b) that the first conjunct is transparent (52), because

it is the main clause; and (c) that a quantified noun phrase inside the concessive conjunct may not bind a pronoun in the main clause (51), because adjuncts are scope islands.

Finally, it explains why an indefinite inside the concessive conjunct is able to create an accessible antecedent for a pronoun inside the main clause (50). If the structure in (54) is correct, then the indefinite SO-commands the pronoun.

Thus, the Island Condition not only successfully predicts that cataphora is impossible in symmetric coordination, but also that it may be possible in certain cases of asymmetric coordination, in particular, in conditional and concessive conjunctions.

4.3.5 The Island Condition and movement

Throughout this section I have referred to various kinds of movement, like fronting of the antecedent of a conditional or covert object shift. If the Island Condition is a true binding principle, it is important to know how it interacts with different types of movement. A comprehensive research into this question lies beyond the scope of this dissertation, but in what follows I will lay out some preliminary observations.

Remember that an indefinite inside a complement clause cannot create an accessible antecedent for a pronoun inside the main clause. However, if the complement CP is topicalized, discourse anaphora becomes possible, as is evident from the contrast in (55).

(55) a. * Ms. Brodie told **his$_1$** parents [$_{CP}$that she caught **an eight-grader$_1$** smoking in the bathroom].

b. ? [$_{CP}$[$_{CP}$That Ms. Brodie caught **an eight-grader$_1$** smoking in the bathroom]$_2$, [$_{C'}$she told **his$_1$** parents _$_2$]].

This can be explained, if CP-topicalization occurs before the Island Condition is evaluated and does not have to reconstruct. The derived position of the fronted clause in (55b) is presumably Spec,CP. If only this position is taken into account, the indefinite does indeed SO-command the pronoun. The node that dominates the

indefinite and c-commands the pronoun is a maximal projection, it is the specifier of the main CP, occupied by the embedded CP.

In general, there are two major types of movement, namely, A and A′ (see Chomsky, 1981, among numerous others). They differ in how they interact with different binding principles, for example, Conditions A and C of the classical binding theory (see Pesetsky, 2001, and many others).

In English the A vs. A′ distinction can be exemplified by raising and question formation respectively, see (56a) and (56b). Both sentences in (56) contain an indefinite (*a child*$_1$) and a pronoun anaphoric to it (*her*$_1$). In both examples the Island Condition is satisfied after the movement, but not before.

(56) a. ok [A toy that **a child$_1$** liked]$_2$ seemed to [**her$_1$** parents] **_$_2$** to be too expensive.

b. ?/* [Which toy that **a child$_1$** liked]$_2$ did [**her$_1$** parents] find **_$_2$** too expensive?

Interestingly, English speakers I have consulted report a slight contrast between (56a) and (56b). If there is indeed a contrast here, it shows that the Island Condition interacts with overt A and A′ movements in different ways. A-movement does not have to construct for the Island Condition (56a), while A′-movement always does (56b). This may be because the Island Condition applies at LF, and at LF only the operator is interpreted in a derived A′-position (e.g. the *wh*-element), while the rest of the phrase has to reconstruct to one of the lower A-positions.

A and A′-movement interact differently with bound anaphora as well. A-movement, but not A′-movement, can create new possibilities for bound anaphora. This is usually stated as the Weak Crossover condition (Postal, 1971, and others). A quantifier may bind a pronoun from a derived A position, but not from a derived A′-position:

(57) a. ok [**Every girl$_1$**] seems to [**her$_1$** parents] **_$_1$** to be a genius.

b. ?/* [**Which girl$_1$**] did [**her$_1$** parents] send **_$_1$** to the Linguistic Olympiad?

The contrast in (57) mirrors the one in (56), which leads us to the following tentative generalization:

(58) If movement creates new binding possibilities for bound anaphora, it creates new binding possibilities for discourse and donkey anaphora as well.

Observe next that in (59) discourse anaphora is possible.[11]

(59) THE SPEAKER KNOWS: Mary is a journalist. Some time ago there was a long court case. There were five witnesses, each called by a different **female** lawyer on a different day. Mary knew one of the witnesses, and his testimony seemed interesting to her. I don't know which witness it was, but I do know that it was **a guy**. After his testimony Mary interviewed the lawyer who called him.

ok Mary$_2$ [interviewed [the lawyer who called **one of the witnesses$_1$**]] [after PRO$_2$ hearing **his$_1$** testimony in court].

It is easy to see that discourse anaphora here violates the Island Condition. The indefinite does not SO-command the pronoun. Furthermore, bound anaphora in this configuration is also not possible, see (60). This means that a noun phrase in this position cannot take scope over the pronoun. This is as expected, because the quantifier is embedded inside a complex noun phrase, which is a scope island.

(60) THE SPEAKER KNOWS: Mary is a journalist. Some time ago there was a long court case. There were five witnesses, each called by a different female lawyer on a different day. After each testimony Marty interviewed the lawyer who called the witness who testified.

* Mary$_2$ [interviewed [the lawyer who called **every witness$_1$**]] [after PRO$_2$ hearing **his$_1$** testimony in court].

If variable binding is not an option, what explains the possibility of discourse anaphora in (59)? A potential solution may come from covert movement. It is possible that the whole complex noun phrase *[the lawyer who called one of the witnesses$_1$]* in (59) covertly moves to a derived specifier position that c-commands the adjunct

[11]The somewhat degraded status of (59) may be due to the interference from 'the lawyer' as a potential antecedent for the pronoun.

(see, e.g., Charlow, 2014, 2020 for a similar proposal). After this movement the Island Condition is satisfied.

Given the tentative generalization in (58), this analysis presupposes that covert movement of the object to a position that c-commands an adjunct must create new possibilities for bound anaphora as well.

That can be shown to be true independently, because a quantified noun phrase in the object position can bind into an adjunct, see (42). If binding in (42) is achieved via the same movement, as in (59), this movement has to be the type of movement that creates new binding possibilities for both discourse and bound anaphora. This is not surprising if the movement in question is an instance A-movement, for example, a covert object shift.

In what follows I will assume that the Island Condition is evaluated at LF, after all the overt or covert movements have taken place. While A-movements do not have to reconstruct at LF, A′-movements do.

4.3.6 Summary

To sum up, given independently motivated assumptions about the syntactic structure of the constructions involved, the Island Condition does not only successfully derive indefinite anaphora, but also successfully predicts indefinite cataphora in a restricted set of cases *without* additional stipulations. This constitutes an argument in favor of the Island Condition as the basic principle that restricts dynamic binding.

4.4 Analysis

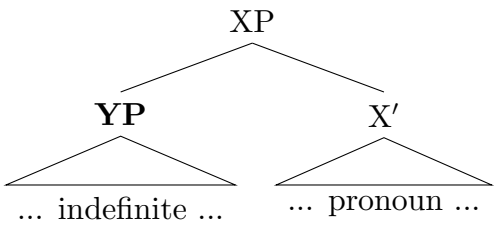
4.4.1 The Island Condition and Spell Out

In this section I will propose a pseudodynamic account, building on Schlenker (2009) and Mandelkern (2020), which derives the Island Condition as a consequence of the way in which the semantic component processes syntactic structure.

If the Island Condition is satisfied, i.e., if an indefinite so-commands a pronoun,

the indefinite is inside some maximal projection whose sister contains the pronoun:

(61) α so-commands β



The minimal node that dominates both the pronoun and the indefinite (XP in 61) has at least two immediate daughters. One daughter is a maximal projection that dominates the indefinite (YP in 61); the other is a non-maximal projection that dominates the pronoun (X′ in 61).

Remember the core claims of the Spell Out theory: between any two phrasal sisters at least one must be spelled out, and a spelled out constituent does not project its category. This means that in (61) YP is spelled out, while X′ is not. At the moment when the semantic component is about to calculate the meaning of XP it already "knows" the meaning of YP, but not the meaning of X′. The key assumption of the current proposal is that if at some moment of interpretation the semantic component can update the context, given the information available to it, it always does so. Hence, at the moment when the semantic component is about to interpret XP, it will update the context by the content of YP before calculating the meaning of X′. Thus, YP, which contains the indefinite creates the local context for X′, which contains the pronoun. In other words, the indefinite is interpreted before the pronoun.

In what follows, in section 4.4.2 I will introduce some basic assumptions about the *Logical Form*; in section 4.4.3 I will lay out the algorithm by which the semantic component processes LF, i.e., the algorithm of Spell Out; finally, in sections 4.4.4 and 4.4.5 I will give the formal definitions for the rules of interpretation and the rules of context update.

4.4.2 Assumptions about LF

Logical Form, or LF, is, by assumption, the syntactic representation that serves as the input to the semantic component. Before describing the mechanism of Spell Out, I will formulate three basic assumptions about LF, which I will rely on henceforth.

First, I will distinguish between four types of noun phrases: *quantified*, *indefinite*, *definite* and *pronouns/traces*. All these noun phrases bear numerical indexes at LF. Quantified and indefinite noun phrases have the type of generalized quantifiers and can take scope. Definite noun phrases, pronouns and traces do not take scope. However, they may still undergo covert or overt movement and not be interpreted at their base position at LF.

Second, following Heim (1982) and Heim and Kratzer (1998), among many others, I will assume that at LF all the scopal relations have been established unambiguously. All scope taking noun phrases (quantified and indefinite) must move either overtly or covertly to their scope positions, leaving behind a co-indexed trace. The scope of any noun phrase at LF is its sister, which is prefixed by a λ-operator bearing its index (λ-abstraction). As a result, any pronoun or trace in the scope of a noun phrase at LF that bears its index will end up bound by the λ-operator associated with this noun phrase (see May, 1977, Partee, 1978, Heim, 1982, Heim and Kratzer, 1998 and others).

Third, I will assume that apart from variable binding there are two other ways in which anaphoric relations can be established, namely, *simple co-reference* (when the index of a definite noun phrase matches the index of a pronoun) and *dynamic binding*. Dynamic binding is a relation between an indefinite and a pronoun, where the indefinite introduces a discourse referent as the result of context update and thus satisfies the presupposition of the pronoun. Dynamic binding requires the indefinite to be interpreted before the pronoun.

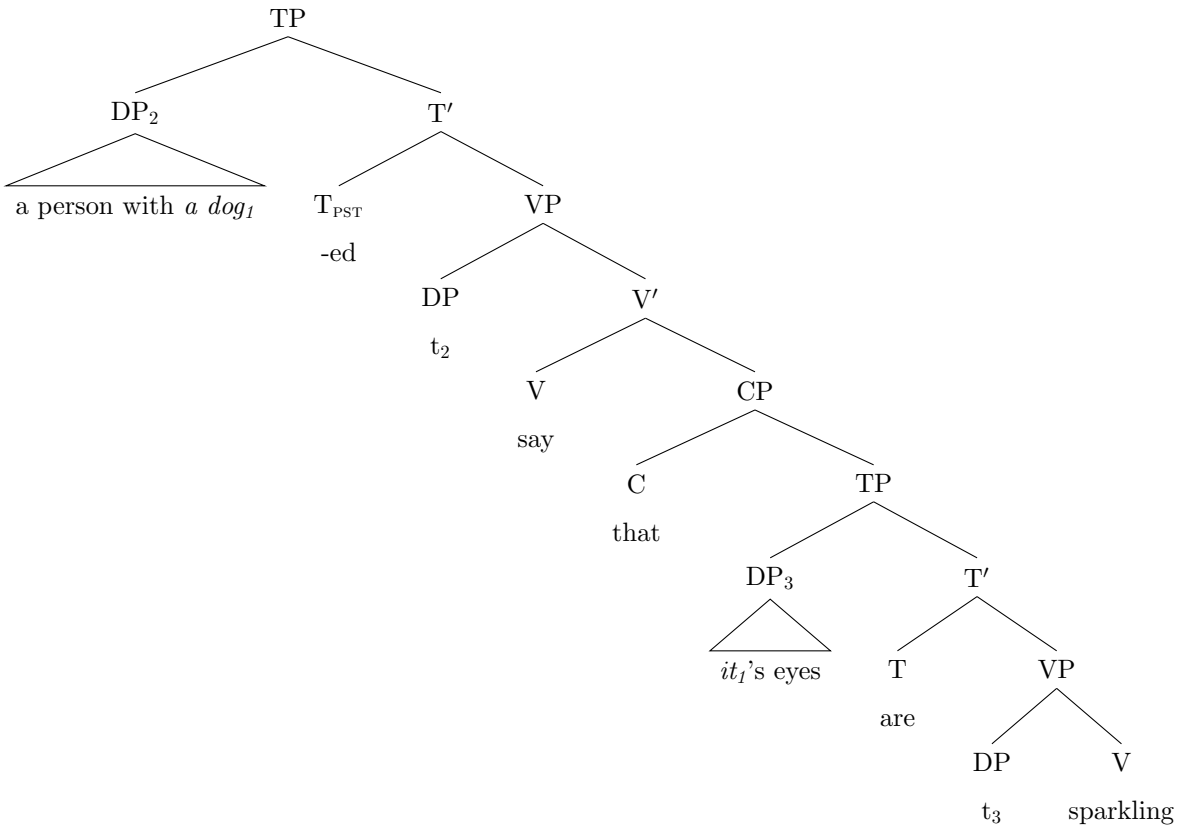
4.4.3 Spell Out at LF

Spell Out takes as its input the Logical Form and returns two things: its truth-conditional meaning (that is, a proposition[12]) and its pragmatic contribution (that is, a series of context updates and their felicity conditions). Spell Out proceeds in a particular order, which determines the order of the context updates it creates.

Consider the sentence in (62a) and its LF in (62b). Here the indefinite *a dog$_1$* so-commands the pronoun *it$_1$*.

(62) a. ^{ok} [A person with **a dog$_1$**]$_2$ [said that **it$_1$**'s eyes are sparkling].

b. Logical Form (omitting λ-operators for simplicity):



The proposal consists of four assumptions. The first assumption is that Spell Out receives LF as its input. When it is about to interpret the sentence in (62a),

[12]I will only consider assertions in this dissertation, other speech acts, like questions or imperatives, remain beyond the scope of the present study.

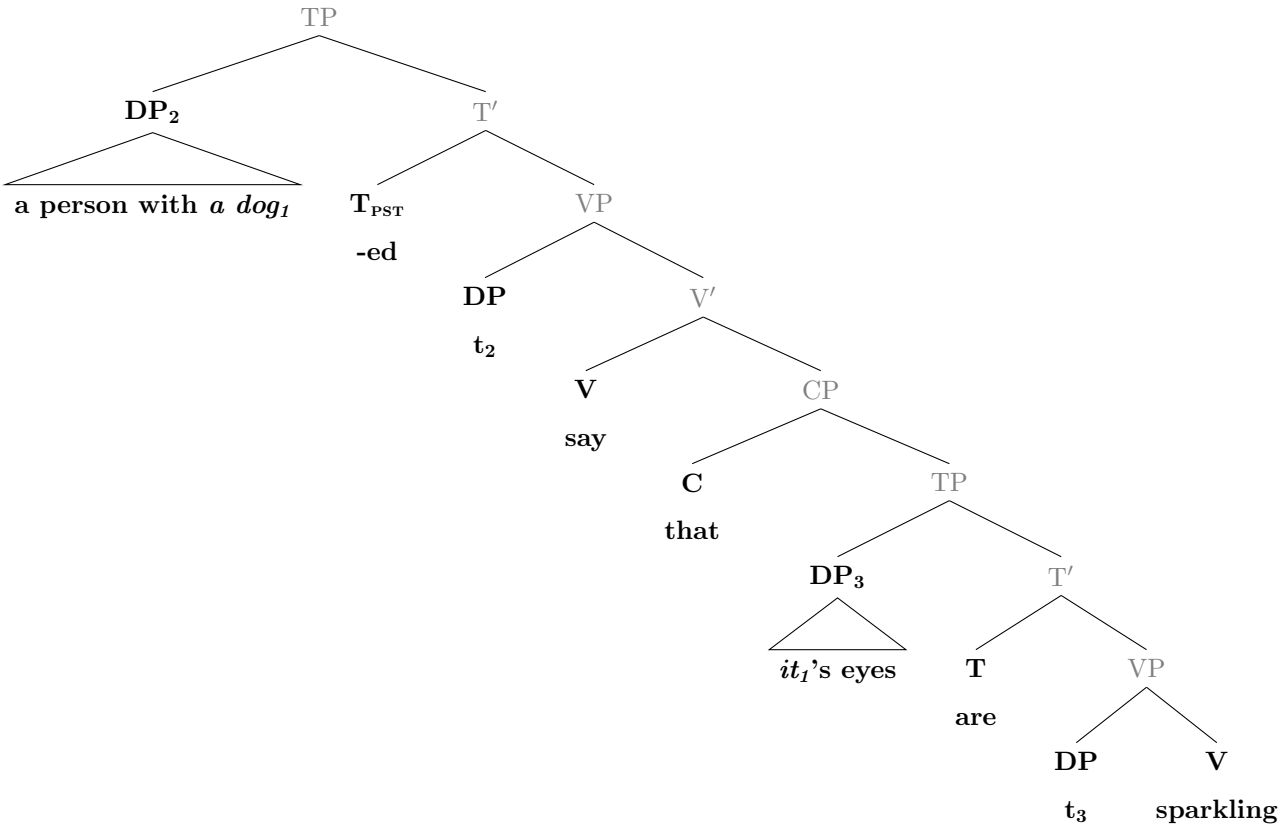
it has access to the full complete structure in (62b). This is an assumption that is common across most semantic theories.[13]

The second assumption is that the semantic component is compositional. In particular, this means that the semantic component assigns a meaning to the main TP in (62b) based on the meanings of DP_2 and of the main T′.

The third assumption is the Spell Out theory. Namely, all specifiers and all adjuncts are spelled out before they are merged into the sentence. This means that at the moment when the semantic component is about to interpret the root TP in (62b) it already "knows" the meanings of the two specifiers embedded in it: *⌈a person with a dog$_1$⌋$_2$* and *⌈it$_1$'s eyes⌋$_3$*. More precisely, at this point the semantic component "knows" the meanings of the two specifiers and all the terminal nodes, since the latter are non-compositional. Thus, it has access to the meanings of the following nine items: 1) *⌈a person with a dog$_1$⌋$_2$*; 2) T_{PST}; 3) t_2; 4) *say*; 5) *that*; 6) *⌈it$_1$'s eyes⌋$_3$*; 7) *are*; 8) t_3; 9) *sparkling*. The meanings of both nodes labeled TP, both nodes labeled T′, both nodes labeled VP, both nodes labeled V′ and the node CP are unknown. Notice that, because of the Spell Out theory, between any two sisters at least one is a terminal or a spelled out constituent. This means that between any two sisters the meaning of at least one is "known".

[13]See, for example, the system in Paducheva (1974), which uses a completely different syntactic theory, but still presupposes that the semantic component reads off of a special level of syntactic representation that is disambiguated for scope.

(63) Nodes whose meanings are known are boldfaced:



The forth and most crucial assumption is that at any moment in the interpretation the semantic component tries to update the context with all the information it has at this stage. These four assumptions, taken together, result in the following Spell Out algorithm.

First, the semantic component needs to assign the meaning to the root node TP, which will be written as ⟦ TP ⟧. This has to be calculated based on the meanings of its daughters ⟦ [a person with a dog_1]$_2$ ⟧ and ⟦ T′ ⟧. The former is "known", but the latter is not.

Second, the semantic component tries to update the input context by the information that it already has at this stage. Namely, it tries to update the input context by the proposition ⟦ [a person with a dog_1]$_2$ T′ ⟧, taking ⟦ T′ ⟧ to be *the strongest innocent guess* that it can make about the meaning of the T′. *A guess* is a set-

theoretical object α of the simplest type that turns $[\![$ [a person with a $\text{dog}_1]_2$ T′ $]\!]^{\alpha/\text{T}'}$ into a proposition.[14] *An innocent guess* is a guess that will be compatible with the ultimate proposition $[\![$ [a person with a $\text{dog}_1]_2$ T′ $]\!]$ regardless of the actual meaning of T′. In other words, an innocent guess is a set theoretical object α of the simplest type that turns $[\![$ [a person with a $\text{dog}_1]_2$ T′ $]\!]^{\alpha/\text{T}'}$ into the weakest possible proposition, given $[\![$ [a person with a $\text{dog}_2]_2$ $]\!]$.[15]

Third, the semantic component will proceed to calculate the meaning of T′, at which stage the algorithm repeats.

As a result, after the semantic component has interpreted the most deeply embedded non-terminal node (in this case, the lower VP), two things will have happened. First, it will have calculated the truth-conditional meaning of the root TP (with all the intermediate nodes interpreted now), which will be a proposition, and updated the input context by it. Second, it will have made a series of preliminary context updates of the following form:

(64) Series of updates by the sentence in (62a), given its LF in (62b):

a. Update by $[\![$ [a person with a $\text{dog}_1]_2$ T′ $]\!]^{\alpha/\text{T}'}$.

b. Update by $[\![$ [a person with a $\text{dog}_1]_2$ T_{PST} VP $]\!]^{\beta/\text{VP}}$.

c. Update by $[\![$ [a person with a $\text{dog}_1]_2$ T_{PST} t_2 V′ $]\!]^{\gamma/\text{V}'}$.

d. Update by $[\![$ [a person with a $\text{dog}_1]_2$ T_{PST} t_2 say CP $]\!]^{\delta/\text{CP}}$.

e. Update by $[\![$ [a person with a $\text{dog}_1]_2$ T_{PST} t_2 say that TP $]\!]^{\epsilon/\text{TP}}$.

f. Update by $[\![$ [a person with a $\text{dog}_1]_2$ T_{PST} t_2 say that [it_1's eyes]$_3$ T′ $]\!]^{\zeta/\text{T}'}$.

g. Update by $[\![$ [a person with a $\text{dog}_1]_2$ T_{PST} t_2 say that [it_1's eyes]$_3$ are VP $]\!]^{\eta/\text{VP}}$.

h. Update by $[\![$ [a person with a $\text{dog}_1]_2$ T_{PST} t_2 say that [it_1's eyes]$_3$ are t_3 sparkling $]\!]$.

[14] Here and throughout I will use notation $[\![$ $[_{\text{YP}}$... X ...] $]\!]^{\alpha/\text{X}}$ to indicate the meaning of YP calculated with $[\![$ X $]\!]$ taken to be α, in other words, the meaning of YP calculated with α instead of $[\![$ X $]\!]$.

[15] This notion of the strongest innocent guess is very close and, in most cases, equivalent to Schlenker's (2009) notion of the local context.

Where α...η in α/X...η/X are the strongest innocent guesses that the semantic component can make at these points about the meaning of X.

Crucially, because the indefinite *a dog$_1$* SO-commands the pronoun *it$_1$*, it will also update the context before the pronoun *it$_1$* has been interpreted. The first update with the indefinite (64a) precedes the first update with the pronoun (64f). The indefinite is interpreted before the pronoun.

4.4.4 Semantics

In this section I will give more formal definitions of the proposed semantic rules, using a fragment of English.

The proposed theory will use four basic semantic types: *individuals* from the domain D_e (type e), *truth-values* from the domain D_t = {T, F} (type t), *worlds* from the domain D_s (type s), and assignment functions from the domain D_g (type g). An assignment function is an infinite or finite sequence of individuals from D_e, in other words, it is a (partially) defined function from the set of natural numbers $\mathbb{N}$ to D_e.

All meanings are intensionalized. That is, every meaning of every node α is relative to a world and an assignment function, and is itself a function of type <s,<g,τ>>, shortened as <sg,τ>, where τ can be any type.

The meanings of verbal predicates are of type <sg,<e^n,t>>:

(65) Verbal predicates

a. $[\![$ feed $]\!] = \lambda$w. λg. λx. λy. y feeds x in w.

b. $[\![$ bark $]\!] = \lambda$w. λg. λx. x barks in w.

The meanings of nominal predicates are of tpye <sg,<et>>:[16]

[16]Relational nouns, like *brother*, probably, have type <sg,<e,<et>>>, but they will not be considered in this dissertation.

(66) Nominal predicates

a. $[\![\text{dog}]\!] = \lambda w.\ \lambda g.\ \lambda x.$ x is a dog in w.

b. $[\![\text{cat}]\!] = \lambda w.\ \lambda g.\ \lambda x.$ x is a cat in w.

Pronouns and traces have a meaning of type <sg,e>, which is a partial function, with a presupposition about the input assignment:

(67) Pronouns and traces

a. $[\![\text{she}_1]\!] = \lambda w.\ \lambda g:$ g is defined for 1 and g(1) is female in w. g(1).

b. $[\![\text{t}_1]\!] = \lambda w.\ \lambda g:$ g is defined for 1. g(1).

Proper names and definite noun phrases also have type <sg,e>:

(68) Definite noun phrases and proper names

a. $[\![\text{the dog}_1]\!] = \lambda w.\ \lambda g:$ g is defined for 1 and g(1) is a dog in w. g(1).

b. $[\![\text{Rosa Luxemburg}]\!] = \lambda w.\ \lambda g.$ Rosa Luxemburg.

Indefinite noun phrases are interpreted as existential quantifiers with Mandelkern's (2020, 13) *Witness Presupposition*. An indefinite presupposes that if there is an individual that satisfies its restrictor and its scope, then g(i) is such an individual, where i is the index of the indefinite. Thus, any update that entails the existence of an individual that satisfies the restrictor and the scope of an indefinite will entail that g(i) satisfies the restrictor and the scope of the indefinite, i.e., will introduce a discourse referent with number i.

(69) $[\![\text{a dog}_1]\!] = \lambda w.\ \lambda g.\ \lambda Q_{<et>}:$

[∃x: x is a dog in w and Q(x)] → [g is defined for 1 and g(1) is a dog in w and Q(g(1))].

∃x. x is a dog in w and Q(x). type <sg,<et,t>>

There are three rules of interpretation: *Ordinary Functional Application*, *Generalized Conjunction* and *Intensional Functional Application*.

Ordinary Functional Application combines a function and its argument, "passing up" all the presuppositions about w and g:

(70) **Ordinary Functional Application**

For any node $\gamma = [\alpha\ \beta]$, if $[\![\ \alpha\ ]\!]$ is of type <sg,<τ,σ>> and $[\![\ \beta\ ]\!]$ is of type <sg,τ>:

$[\![\ \gamma\ ]\!] = \lambda w.\ \lambda g:\ [\![\ \alpha\ ]\!]$ and $[\![\ \beta\ ]\!]$ are defined for w and g.

$$[\![\ \alpha\ ]\!](w)(g)\ \Big(\ [\![\ \beta\ ]\!](w)(g)\Big).$$

Generalized Conjunction conjoins two functions of the same type that "ends in t", "passing up" all the presuppositions about w and g (see Partee and Rooth, 1983):

(71) **Generalized Conjunction**

For any node $\gamma = [\alpha\beta]$, if $[\![\ \alpha\ ]\!]$ and $[\![\ \beta\ ]\!]$ are of the same type <sg,<τ^n,t>>:

$[\![\ \gamma\ ]\!] = \lambda w.\ \lambda g:\ [\![\ \alpha\ ]\!]$ and $[\![\ \beta\ ]\!]$ are defined for w and g. $\lambda P_{1,\tau}$ ... $\lambda P_{n,\tau}$.

$$[\![\ \alpha\ ]\!](w)(g)\Big(P_1\Big)...\Big(P_n\Big) = 1 \text{ and } [\![\ \beta\ ]\!](w)(g)\Big(P_1\Big)...\Big(P_n\Big) = 1.$$

Nominal and verbal predicates take arguments of type e, indefinites take an argument of type <et>. There are, however, functions that take intensional arguments, like modal and adnominal quantifiers and the λ-operator. For these functions we will need the rule of Intensional Functional Application.

Intensional Functional Application allows a function to apply to the intension of its argument. This rule only "passes up" the presuppositions of the function:

(72) **Intensional Functional Application**

For any node $\gamma = [\alpha\ \beta]$, if $[\![\ \alpha\ ]\!]$ is of type <sg,<τ,σ>> and $[\![\ \beta\ ]\!]$ is of type τ:

$[\![\ \gamma\ ]\!] = \lambda w.\ \lambda g:\ [\![\ \alpha\ ]\!]$ is defined for w and g. $[\![\ \alpha\ ]\!](w)(g)\ \Big(\ [\![\ \beta\ ]\!]\Big)$.

An example of a function that takes an intensional argument is the λ-operator. Remember that at LF the scope, that is, the sister of each moved noun phrase

(quantified, indefinite or definite) is prefixed by a λ-operator co-indexed with this noun phrase. This operator is interpreted as follows:

(73) $[\![\lambda_1]\!] = \lambda w.\ \lambda g.\ \lambda P_{<sg,<et>>}.\ \lambda x$: P is defined for w, $g^{1\rightarrow x}$ and x. $P(w)(g^{1\rightarrow x})(x)$.
Where $g^{1\rightarrow x}$ is an assignment function equivalent to g except 1, to which it assigns x.

Given (66), (68a) and (69), we can assume that inside a noun phrase it is the definite/indefinite article that bears the index, not the noun itself. The definite and the indefinite articles are interpreted as follows:

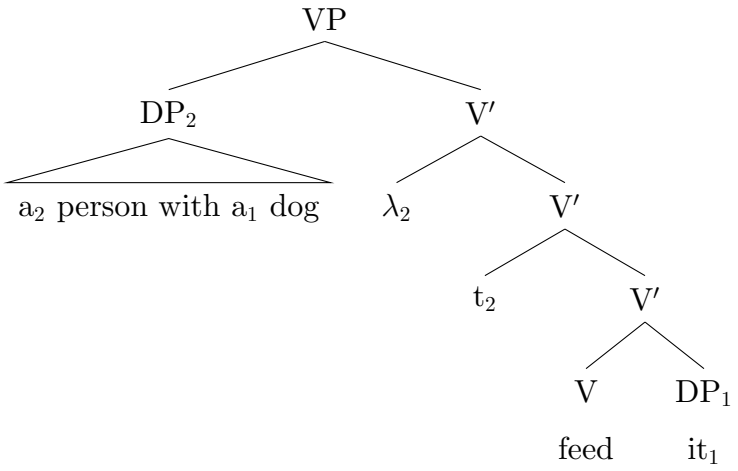
(74) a. $[\![\text{the}_1]\!] = \lambda w.\ \lambda g.\ \lambda P_{<et>}$: g is defined for 1 and $P(g(1))$. $g(1)$.

b. $[\![\text{a}_1]\!] = \lambda w.\ \lambda g.\ \lambda P_{<et>}.\ \lambda Q_{<et>}$:
$[\exists x$: $P(x)$ and $Q(x)] \rightarrow [g$ is defined for 1 and $P(g(1))$ and $Q(g(1))]$.
$\exists x.\ P(x)$ and $Q(x)$.

Because the interpretation rules are not formulated with any additional assumptions about presupposition projection, this system will project the presuppositions of all indefinites and all pronouns in a cumulative way to the top node of any sentence. Let us take (75) as an example.

(75) a. [A person with a dog_1]$_2$ feeds it_1.

b. Logical form (simplifying tense and aspect):



Let us assume that DP_2 is has the following meaning:

(76) $[\![a_2 \text{ person with } a_1 \text{ dog }]\!] = \lambda w.\ \lambda g.\ \lambda Q_{<et>}$: [$\exists x.\ \exists y.$ x is a person in w, y is a dog in w, x owns y in w, and Q(x)] $\rightarrow$ [g is defined for 1 and 2, g(2) is a person in w, g(1) is a dog in w, g(2) owns g(1) in w, and Q(g(2))].
$\exists x.$ [$\exists y.$ x is a person in w, y is a dog in w, and x owns y in w] and Q(x).

The nodes labeled V′ have the following meanings:

(77) a. $[\![\text{feed it}_1]\!] = \lambda w.\ \lambda g.\ \lambda y$: g is defined for 1. y feeds g(1) in w. by (70)

b. $[\![t_2 \text{ feed it}_1]\!] = \lambda w.\ \lambda g$: g is defined for 1 and 2. g(2) feeds g(1) in w. by (70)

c. $[\![\lambda_2.\ t_2 \text{ feed it}_1]\!] = \lambda w.\ \lambda g.\ \lambda x$: g is defined for 1. x feeds g(1) in w. by (72)

The meaning in (76) can combine with the meaning in (77c) by Ordinary Functional Application (70), which delivers the following proposition:

(78) ⟦ VP ⟧ = λw. λg: [g is defined for 1] and [[∃x. ∃y. x is a person in w, y is a dog in w, x owns y in w, and x feeds g(1) in w] → [g is defined for 1 and 2, g(2) is a person in w, g(1) is a dog in w, g(2) owns g(1) in w, and g(2) feeds g(1) in w]].

∃x.[∃y. x is a person in w, y is a dog in w and x owns y in w] and [x feeds g(1) in w].

The proposition in (78) presupposes two things about the input world w and the input assignment function g. First, it presupposes that g is defined for 1 (the pronoun's presupposition). Second, it presupposes that, if there is a person who owns a dog and feeds g(1) in w, then g is defined for 1 and 2, g(2) is a person in w, g(1) is a dog in w, and g(2) owns and feeds g(1) in w (the indefinite's presupposition).

The proposition is true for a world w and an assignment function g, if and only if there is a person who owns a dog and feeds g(1) in w.

Thus, the presuppositions of all the indefinites and all the pronouns are projected cumulatively to the level of the whole sentence. However, as we will see in the next section, the context update happens step by step. As a result, the indefinite will introduce a discourse referent before the pronoun is interpreted. Thus, the presupposition of the pronoun will not be projected, it will be effectively "closed off" by an intermediate update with the indefinite.

4.4.5 Pragmatics

Like in dynamic accounts, the context will be understood as a set of pairs of a world and an assignment function, that is, a subset of $D_s \times D_g$. This is an information state that (a) represents the common ground of a conversation in Stalnaker's (1979) sense, that is, a set of worlds; and (b) keeps track of the set of individuals that the participants of the conversation are talking about, because each world in the common ground is paired with a set of assignment functions. Importantly, different assignment functions in a given context may be of different lengths. That is, a

context can include pairs with empty assignment functions, assignment functions defined for 1, assignment functions defined for 1 and 2, etc. If all the assignment functions in a given context are defined for some number i, we will say that in this context a discourse referent has been introduced with number i. In other words, a discourse referent in a given context is simply a number for which all the assignment functions in this context are defined.[17]

A proposition p (type <sg,t>) is defined in a context c if and only if it is defined for each pair of a world and an assignment function in c. If defined, p can update c by leaving only those world-assignment pairs for which it is true, thus, arriving at a new, updated context. This is the enriched version of Stalnaker's (1979) assertion, as presented by Heim (1982, 189) and assumed by most current dynamic and pseudodynamic theories:

(79) If c is a context (a subset of $D_s \times D_g$) and p is a proposition (has type <sg,t>), then

a. p is defined in c if and only if $\forall <w,g> \in c$: p(w)(g) is defined;

b. if p is defined in c, p updates c as follows:
$p[c] = \{ <w,g> \mid <w,g> \in c \text{ and } p(w)(g) = 1 \}$.

Given a Logical Form $[_R$... ... ...] and a context c, Spell Out must calculate the meaning of the root node R (the truth-conditional meaning) and update c by it (the pragmatic contribution), if defined.

Before formulating the algorithm of Spell Out more precisely, let me introduce three auxiliary notions.

The first notion is the notion of *a possible guess* or *a reasonable guess* for the meaning of a node X inside a Logical Form $[_R$... X ...]. A possible guess is a set theoretical object of the simplest type that, if taken instead of the meaning of X, makes R a proposition:

[17]"I find that identifying them (discourse referents – DP) with file cards (indexes in sets of assignments – DP) does away with questions as to their ontological status that are at best uninteresting and at worst confusing." (Heim, 1982, 183)

(80) $G(X)\Big([_R \ldots\ X\ \ldots]\Big) = \{\ \alpha \mid \alpha$ is of the simplest type such that $[\![\ R\ ]\!]^{\alpha/X}$ is a proposition $\}$

The second notion is the notion of *an innocent guess* for the meaning of a node X inside a Logical Form $[_R \ldots\ X\ \ldots]$, given a context c. An innocent guess is such a guess that makes R the weakest possible proposition in c:

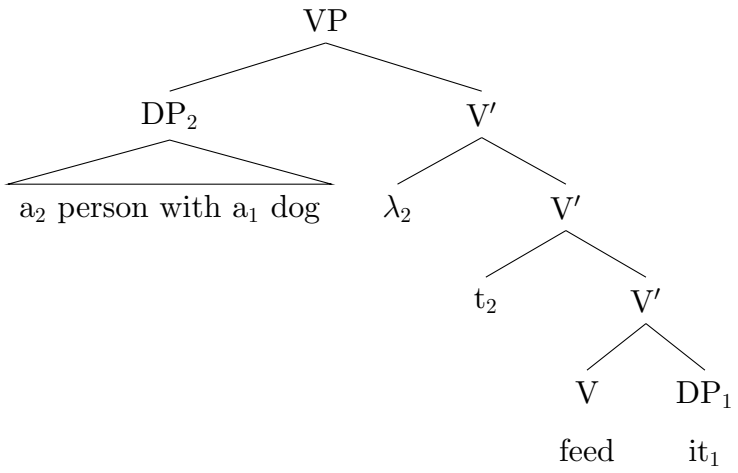
(81) $IG(c)(X)\Big([_R \ldots\ X\ \ldots]\Big) = \{\ \alpha \mid \alpha \in G(X)\Big([_R \ldots\ X\ \ldots]\Big)$ and $\forall \alpha' \in G(X)\Big([_R\ \ldots\ X\ \ldots\ ]\Big)$: $\forall <w,g> \in c$: $[\![\ R\ ]\!]^{\alpha'/X}(w)(g) \rightarrow [\![\ R\ ]\!]^{\alpha/X}(w)(g)\ \}$

The third notion is the notion of *the strongest innocent guess* for the meaning of a node X inside a Logical Form $[_R \ldots\ X\ \ldots]$, given a context c:

(82) $SIG(c)(X)([_R \ldots\ X\ \ldots])$ is the bottom element of $IG(c)(X)([_R \ldots\ X\ \ldots])$

We can now formulate the algorithm of Spell Out, using the LF in (83) as an example. Given a context c, the semantic component must spell (83) out, that is, calculate the meaning of the root node (VP in this case) and update c by it.

(83) Logical form:



The meaning of the VP should be calculated based on the meanings of DP_2 and its sister V′. The former is known, because it has been spelled out before. It is

given in (84).

(84) $[\![a_2 \text{ person with } a_1 \text{ dog }]\!] = \lambda w.\ \lambda g.\ \lambda Q_{<et>}$: [$\exists x.\ \exists y.$ x is a person in w, y is a dog in w, x owns y in w, and Q(x)] $\rightarrow$ [g is defined for 1 and 2, g(2) is a person in w, g(1) is a dog in w, g(2) owns g(1) in w, and Q(g(2))].
$\exists x.$ [$\exists y.$ x is a person in w, y is a dog in w, and x owns y in w] and Q(x).

The meaning of its sister V′ is not yet known. But because the semantic component always tries to update the context as soon as possible with all the available information, it will try to make an innocent guess about the meaning of V′, update the context using this guess, and only then proceed to calculate the real meaning of V′.

The meaning $[\![a_2 \text{ person with } a_1 \text{ dog }]\!]$ is a generalized quantifier of type <sg, <<et>,t>>. The simplest type $[\![V']\!]$ can have for $[\![VP]\!]$ to be a proposition is the type of a one place predicate: <sg,<et>>. Then it can serve as an argument for the generalized quantifier and deliver a proposition via Ordinary Functional Application. Hence G(V′)([$_{VP}$DP$_2$ V′]) is a set of all <sg,<et>>-type predicates, i.e., properties.

An innocent guess for the meaning of V′ is such a property that makes the weakest proposition if combined with $[\![DP_2]\!]$. Given that the meaning of $[\![DP_2]\!]$ is a set of properties that people with dogs have, IG(c)(V′)([$_{VP}$DP$_2$ V′]) will be a set of properties that all people with dogs have throughout the worlds in c. These are the properties that deliver the weakest propositions if combined with $[\![DP_2]\!]$.

The strongest such property is simply the property of being a person with a dog, namely, the following:

(85) SIG(c)(V′)([$_{VP}$[a_2 person with a_1 dog] V′]) =
$\lambda w.\ \lambda g.\ \lambda x.$ x is a person in w and $\exists y.$ y is a dog in w, and x owns y in w.

Combining (84) with (85) via Ordinary Functional Application, we receive a proposition 'a_2 person with a_1 dog is a person with a dog':

(86) ⟦ [a_2 person with a_1 dog] V′ ⟧$^{(85)/V'}$ =

λw. λg: [∃x. ∃y. x is a person in w, y is a dog in w, x owns y in w] → [g is defined for 1 and 2, g(2) is a person in w, g(1) is a dog in w, g(2) owns g(1) in w].

∃x. [∃y. x is a person in w, y is a dog in w, and x owns y in w].

We can now update c by (86). This update can only be defined if for all the world-assignment pairs <w,g> in c the presupposition of (86) is satisfied (see 79). This is Mandelkern's (2020) Witness Presupposition: if there are people with dogs in w, then g is defined for 1 and 2, g(2) is a person in w, g(1) is a dog in w and g(2) owns g(1) in w.

If defined, this update will only leave those world-assignment pairs <w,g> in c where there are people with dogs in w.

As a result, after this update, in all the remaining world-assignment pairs <w,g> the assignment function g will be defined for 1 and 2, and g(2) will be a person in w, g(1) will be a dog in w, and g(2) will own g(1) in w. In other words, after this update two discourse referents will be introduced with numbers 1 and 2, one being a person and the other being a dog that they own.

Then the procedure repeats for V′. By the end of Spell Out we will have the following series of updates:

(87) a. Update by ⟦ [a_2 person with a_1 dog] V′ ⟧$^{(85)/V'}$.

b. Update by ⟦ [a_2 person with a_1 dog] λ_2 V′ ⟧$^{\beta/V'}$.

c. Update by ⟦ [a_2 person with a_1 dog] λ_2 t_2 V′ ⟧$^{\gamma/V'}$.

d. Update by ⟦ [a_2 person with a_1 dog] λ_2 t_2 feed it_1 ⟧.

Where β = SIG(c)(V′)([[a_2 person with a_1 dog] λ_2 V′]);
γ = SIG(c)(V′)([[a_2 person with a_1 dog] λ_2 t_2 V′]).

Importantly, after (87a), namely, after DP_2 is interpreted, the discourse referent for the pronoun is introduced. Hence the first update with the pronoun, i.e., (87d), will be defined in its "local context". That is, although it is not defined in the initial

context, it will be defined in its immediate context, the context immediately before (87d).

We can now state the algorithm for Spell Out at LF in more general terms. Remember that, due to the Spell Out theory, any non-terminal node X^n inside any Logical Form $[_R$ ... $\mathbf{[_{X^n}}$ **...** $\mathbf{]}$ ... $]$ has two daughters: one is a maximal projection YP and the other is a projection of X, i.e., X^m.

Spell Out is a rule that, given a context c, a Logical Form $[_R$ ... ... $]$ and one of its non-terminal nodes X^n with two daughters YP and X^m, proceeds as follows:

(88) **Spell Out** (a recursive algorithm of interpretation at LF)
Given (1) a Logical Form $[_R$ ... $[_{X^n}$ YP X^m] ...]; (2) its non-terminal node $[_{X^n}$ YP X^m]; and (3) a context c:

a. If X^m is a non-terminal node, then

i. Update c by $[\![R]\!]^{\alpha/X^m}$,
where $\alpha = SIG(c)(X^m)([_R$ ... $[_{X^n}$ YP X^m] ...]).

ii. Apply Spell Out to the same logical form, X^m and the updated context.

b. If X^m is a terminal node, update c by $[\![R]\!]$.

The semantic component starts interpreting a Logical Form by applying the recursive algorithm in (88) to this Logical Form, its root node R and the input context c.

4.5 Implementation

In this section I will show how the theory proposed in section 4.4 accounts for the restrictions on discourse anaphora in the three syntactic configurations discussed in section 4.3 and then briefly consider donkey anaphora and quantifiers.

4.5.1 Discourse anaphora

The first configuration that was discussed in section 4.3 involves specifiers. An indefinite inside a specifier can create an accessible antecedent for a pronoun inside its sister, but not the other way around:

(89) a. $^{\text{ok}}$ [$_{\text{TP}}$[$_{\text{DP}}$A$_1$ person who came in with **a$_2$ woman**] [$_{\text{T}'}$ offered **her$_2$** drinks]].

b. * [$_{\text{TP}}$[$_{\text{DP}}$A$_1$ person who came in with **her$_2$**] [$_{\text{T}'}$ offered **a$_2$ woman** drinks]].

When Spell Out applies to the sentence in (89a), it creates at least the two context updates in (90). The update in (90a) is the update first with the indefinite *a woman$_2$*. The update in (90b) is an update with the pronoun *her$_2$*. Crucially, the update in (90a) precedes the update in (90b).

(90) [$_{\text{TP}}$ [$_{\text{DP}}$ A$_1$ person who came in with **a$_2$ woman**] [$_{\text{T}'}$ offered **her$_2$** drinks]].

a. Update by

$[\![$ [$_{\text{TP}}$ [a$_1$ person who came in with **a$_2$ woman**] T$'$] $]\!]^{\text{SIG(c)(T}'\text{)(TP) / T}'}$.

b. Update by

$[\![$ [$_{\text{TP}}$ [a$_1$ person who came in with **a$_2$ woman**] offered **her$_2$** drinks] $]\!]$.

The update in (90a) uses the strongest innocent guess the semantic component can make about the meaning of T$'$, given the meaning of the subject DP. Given that the meaning of the subject DP, the strongest innocent guess is a smallest property that all the people who came in with women have across the input context c. This is simply a property of being a person who came in with a woman. Thus, the update in (90a) amounts to an update by the following proposition: 'a$_1$ person who came in with a$_2$ woman is a person who came in with a woman'.

This proposition entails existence of a person and a woman with whom they came in. Because of the Witness Presupposition of the indefinites, this update will result in introducing two discourse referents with number 1 and 2: a person and a woman with whom they came in.

The proposition in (90b) presupposes that the input assignment function is de-

fined for 2, because it contains an unbound pronoun *her₂*. Hence, the update in (90b) presupposes that all the assignment functions in the input context are defined for 2. Because the update in (90a) happens before the update in (90b), this presupposition is locally satisfied. The pronoun is dynamically bound by the indefinite.

Consider now the sentence in (89b). When it is spelled out, the following two context updates are created:

(91) [$_{\text{TP}}$ [$_{\text{DP}}$ A_1 person who came in with **her₂**] [$_{\text{T}'}$ offered **a₂ woman** drinks]].

a. Update by

$[\![$ [$_{\text{TP}}$ [a person who came in with **her₂**] T′] $]\!]^{\text{SIG(c)(T}'\text{)(TP) / T}'}$.

b. Update by

$[\![$ [$_{\text{TP}}$ [a person who came in with **her₂**] offered **a₂ woman** drinks] $]\!]$.

The update in (90a), which precedes the update in (90b), requires all the assignment functions in the input context to be defined for 2. This can only be the case if a discourse referent with number 2 has been introduced *prior* to (90a). The update in (90b) could have introduced this discourse referent, but it crucially happens after the update in (90a). Thus, the indefintie cannot dynamically bind the pronoun.

The second configuration discussed in section 4.3 involves adjuncts. An indefinite inside a postposed adjunct can create an accessible antecedent for a pronoun in the main clause, but an indefinite inside a postposed complement cannot:

(92) a. $^{\text{ok}}$ Ms. Brodie_2 [$_{v\text{P}}$ [$_{v'}$ informed **his₁** mother] [$_{\text{CP}}$ after she caught **an₁ eight-grader** smoking in the bathroom]].

b. * Ms. Brodie_2 [$_{v\text{P}}$ informed **his₁** mother [$_{\text{CP}}$ that she caught **an₁ eight-grader** smoking in the bathroom]].

While interpreting the sentence in (92a) the first update with the indefinite *an₁ eight-grader* that Spell Out makes precedes the first update with the pronoun *his₁*:

(93) [$_{\text{TP}}$ Ms. Brodie$_2$ [$_{vP}$ [$_{v'}$ informed **his$_1$** mother] [$_{\text{CP}}$ after she caught **an$_1$ eight-grader** smoking in the bathroom]]].

a. Update by

⟦ [$_{\text{TP}}$ Ms. Brodie$_2$ v' [after ... **an$_1$ eight-grader** ...]] ⟧$^{\text{SIG(c)}(v')(\text{TP}) \,/\, v'}$.

b. Update by

⟦ [$_{\text{TP}}$ Ms. Brodie$_2$ informed **his$_1$** mother [after ... **an$_1$ eight-grader** ...] ⟧.

The update in (93a) uses the strongest innocent guess the semantic component can make about the meaning of v', given what is already known. A guess for the meaning of v' should be a predicate of events that describes some event that happened right after the event of Ms. Brodie catching an eight-grader smoking in the bathroom. The strongest innocent guess is the result state of the catching event.[18] This amounts to the update by the following proposition: 'After Ms. Brodie caught an$_1$ eight-grader smoking in the bathroom she was in the result state of this catching event'. This update entails the existence of an eight-grader and thus introduces the corresponding discourse referent.[19]

Consequently, the update in (93b), which follows the update in (93a) and imposes a pronominal presupposition on its input context, is defined. The indefinite dynamically binds the pronoun.

Meanwhile, in (92b) the first update that Spell Out makes that contains the pronoun *her$_1$* precedes the first update with the indefinite *an$_1$ eight-grader*:

[18]The result state is the state of affairs that occurs after any given event (see Kratzer, 2000).

[19]Alternatively, we can say that the *after*-clause attaches at the AspP level. An AspP can be interpreted as a predicate of time intervals, and so can the *after*-clause. The *after*-clause can be interpreted as follows: *λt. t is a time interval that follows an event of Ms. Brodie catching an$_1$ eight-grader smoking in the bathroom.* The main AspP can be interpreted as follows: *λt. t is a time interval that includes an event of Ms. Brodie informing his$_1$ mother.* As a result, the AspP and the *after*-clause can be combined via Generalized Conjunction. The strongest innocent guess about the meaning of AspP, before it is calculated, is identical to the meaning of the *after*-clause. That is, the strongest predicate of time intervals that can conjoin with the *after*-clause to deliver the weakest possible proposition is the meaning of the *after*-clause itself. In this case the update in (93a) amounts to an update by the following proposition: 'There was some time interval in the past after an event of Ms. Brodie catching an$_1$ eight-grader smoking in the bathroom'. This update still introduces the discourse referent for the eight-grader.

(94) [$_{\text{TP}}$ Ms. Brodie$_2$ [$_{v\text{P}}$ informed **his$_1$** mother [$_{\text{CP}}$ that she caught **an$_1$ eight-grader** smoking in the bathroom]]].

a. Update by

⟦ [$_{\text{TP}}$ Ms. Brodie$_2$ informed [**his$_1$** mother] CP] ⟧$^{\text{SIG(c)(CP)(TP) / CP}}$.

b. Update by

⟦ [$_{\text{TP}}$ Ms. Brodie$_2$ informed [**his$_1$** mother] that ... **an$_1$ eight-grader** ...] ⟧.

The update in (93a) presupposes that all assignment functions in the input context are defined for 1 (the presupposition of the pronoun).[20] This can only be the case if a discourse referent with number 1 has been introduced *prior* to (93a). The update in (93b) could have introduced this discourse referent, but it crucially happens after the update in (93a). The indefinite cannot dynamically bind the pronoun.

Finally, the third configuration discussed in section 4.3 is symmetric coordination. An indefinite inside the first adjunct can create an accessible antecedent for a pronoun inside the second conjunct, but not vice-versa:

(95) a. $^{\text{ok}}$ [**Some$_1$ woman** came in] and [the host offered **her$_1$** drinks].

b. * [**She$_1$** came in] and [the host offered **some$_1$ woman** drinks].

The Spell Out of (95a) involves at least the following two updates:

(96) [**Some$_1$ woman** came in] and [the host offered **her$_1$** drinks].

a. Update by

⟦ [$_{\text{ConjP}}$ **some woman$_1$** came in Conj′] ⟧$^{\text{SIG(c)(Conj′)(ConjP) / Conj′}}$.

b. Update by

⟦ [$_{\text{ConjP}}$ **some woman$_1$** came in [and the host offered **her$_1$** drinks]] ⟧.

The update in (96a) uses the strongest innocent guess the semantic component

[20]This update uses the strongest innocent guess the semantic component can make about the meaning of the complement CP. A guess for the meaning of CP should be a proposition that Ms. Brodie told g(1)'s mother. The strongest innocent guess is a tautology. This amounts to the update by the following proposition: 'Ms. Brodie told his$_1$ mother the truth'.

can make about the meaning of Conj′, given what is already known. Since the first conjunct, 'some$_1$ woman came in', is a proposition, a reasonable guess for the meaning of Conj′ is also a proposition. Then it can be combined with the first conjunct via Generalized Conjunction. The strongest innocent guess is the strongest proposition that, conjoined with 'some$_1$ woman came in', delivers the weakest possible proposition. Hence the strongest innocent guess is the proposition identical to the first conjunct. This amounts to the update by the following proposition: 'some$_1$ woman came in and some woman came in'. This update entails the existence of some woman who came in. Due to the Witness Presupposition of the indefinites this update introduces a discourse referent with number 1, who is a woman and who came in.

As a consequence, the update in (96b), which happens after the update in (96a) and presupposes the existence of a discourse referent with number 1, is defined. The indefinite dynamically binds the pronoun.

For (95b) the picture is reversed. The first update is an update by a proposition 'she$_1$ came in and she$_1$ came in'. This update is only defined if the input context is defined for a discourse referent with number 1. This happens before the second conjunct is interpreted. Hence, in (95b) the indefinite cannot dynamically bind the pronoun.

4.5.2 Donkey anaphora and quantifiers

Following Heim (1982, 1983, 1990), Groenendijk and Stokhof (1991), Chierchia (1995), Rothschild and Mandelkern (2017), Mandelkern (2020) and many others, I will assume that quantifiers (both adnominal and modal) manipulate assignment functions. In the present system this means that they are intensional operators and are combined with their restrictor and scope via Intensional Functional Application.

Borrowing from Mandelkern (2020, 21), I will assume that the universal adnominal quantifier *every* quantifies over pairs of individuals and assignment functions and has an implicit domain restriction:

(97) $[\![\text{every}]\!] = \lambda w.\ \lambda g.\ \lambda P_{<sg,<et>>}.\ \lambda Q_{<sg,<et>>}$:

$\forall <x,h> \in Dom(w)(g)$: P(w)(h)(x) and Q(w)(h)(x) are defined and P(w)(h)(x) = 1.

$\forall <x,h> \in Dom(w)(g)$: P(w)(h)(x) $\rightarrow$ Q(w)(h)(x).

Dom(w)(g) is the implicit domain restriction in world w and assignment g, a set of pairs of an individual x and an assignment function h, fulfilling the following conditions:

a. $\forall <x,h> \in Dom(w)(g)$: $g \subseteq h$. Each assignment is an extension of g, it is defined for all the same numbers for which g is defined.

b. $\forall <x,h>, <x',h'> \in Dom(w)(g)$: $x = x' \rightarrow h = h'$. Each individual is paired with a single assignment function (this takes care of the so-called proportion problem).

Quantifiers introduce two presuppositions on their implicit domain restriction. First, both the restrictor and the scope have to be defined for all of the members of the domain (see 'P(w)(h)(x) and Q(w)(h)(x) are defined' in 97). Second, the implicit domain restriction is a subset of the restrictor (see 'P(w)(h)(x) = 1' in 97). Thus, for example, a quantified noun phrase *every girl* does not quantify over the set of all the girls in the universe, but over some salient subset of all the girls in the universe.

In donkey anaphoric contexts the indefinite must SO-command the pronoun. In particular, an indefinite inside a specifier headed by *every* can create an accessible antecedent for a pronoun inside its sister, but not the other way around. Let us consider the good case first:

(98) ^{ok} [$_{TP}$[$_{DP}$Every professor who supervised **a_1 student**] [$_{T'}$ read **her$_1$** thesis]].
$\forall > \exists$

The noun phrase *professor who supervised a_1 student*, aka the restrictor of *every* in (98), bears the Witness Presupposition of the indefinite *a_1 student*:

(99) $[\![\text{professor who supervised } a_1 \text{ student}]\!] = \lambda w.\ \lambda g.\ \lambda x$: [$\exists y$: y is a student in w, and x supervised y in w] $\rightarrow$ [g is defined for 1, g(1) is a student in w,

and x supervised g(1) in w]. x is a professor in w and [∃y: y is a student in w and x supervised y in w].

Combined with the meaning for *every* via Intensional Functional Application this gives the following result:

(100) ⟦ every professor who supervised a_1 student ⟧ = λw. λg. $\lambda Q_{<sg,<et>>}$:

a. ∀<x,h>∈Dom(w)(g):

i. [[∃y: y is a student in w, and x supervised y in w] → [h is defined for 1, h(1) is a student in w, and x supervised h(1) in w]]

ii. [Q(w)(h)(x) is defined]

iii. x is a professor in w and [∃y. y is a student in w and x supervised y in w].

b. ∀<x,h>∈Dom(w)(g): [x is a professor in w and [∃y. y is a student in w and x supervised y in w]] → Q(w)(h)(x).

The meaning in (100) is a quantifier over some salient subset of professors who supervised students. It puts three presuppositions on its implicit domain restriction. First, the restrictor is defined for individual-assignment pairs in the domain. Hence, the Witness Presupposition is projected to all individual-assignment pairs <x,h> in the domain: if x supervised a student in w, then h(1) is a student in w and x supervised h(1) in w (100a-i). Second, the scope is defined for all individual-assignment pairs in the domain (100a-ii). Third, the domain is a subset of the restrictor, that is, for all individual-assignment pairs <x,h> in the domain x is a professor who supervised a student in w (100a-iii). From (100a-i) and (100a-iii) it follows that for all individual-assignment pairs <x,h> in the domain restriction x is a professor and h(1) is a student that x supervised.

In sum, the meaning in (100) is a quantifier over some set of individual assignment pairs <x,h>, where x is a professor, h(1) is a student and x supervised h(1).

The Spell Out of the sentence in (98) will involve at least the following two updates:

(101) [$_{TP}$[$_{DP}$Every professor who supervised **a_1 student**] [$_{T'}$ read **her_1** thesis]]. $\forall > \exists$

a. Update by

⟦ [$_{TP}$ [every professor who supervised **a_1 student**] T′] ⟧$^{SIG(c)(T')(TP)\ /\ T'}$.

b. Update by

⟦ [$_{TP}$ [every professor who supervised **a_1 student**] read **her_1** thesis] ⟧.

The update in (101a) uses the strongest innocent guess the semantic component can make about the meaning of T′. A reasonable guess is a property of type <sg,<et>>, because then the quantified subject can combine with it via Intensional Funcitional Application and deliver a proposition. An innocent guess would be such a property that all professors who supervised students have across all the worlds in c. The strongest such property is the property of being a professor who supervised a student:

(102) SIG(c)(T′)(TP) = λw. λg. λx. x is a professor in w and [$\exists$y: y is a student in w and x supervised y in w].

As a result, the update in (101a) amounts to an update by a proposition 'Every professor who supervised a_1 student is a professor who supervised a student':

(103) ⟦ [$_{TP}$ [every professor who supervised **a_1 student**] T′] ⟧$^{SIG(c)(T')(TP)\ /\ T'}$ = λw. λg.

a. $\forall$<x,h>$\in$Dom(w)(g):

i. [[$\exists$y: y is a student in w, and x supervised y in w] $\rightarrow$ [h is defined for 1, h(1) is a student in w, and x supervised h(1) in w]]

ii. x is a professor in w and [$\exists$y. y is a student in w and x supervised y in w].

b. $\forall$<x,h>$\in$Dom(w)(g): [x is a professor in w and [$\exists$y. y is a student in w and x supervised y in w]] $\rightarrow$ [x is a professor in w and [$\exists$y. y is a student in w and x supervised y in w]].

This update does not introduce any new discourse referents (the indefinite is interpreted in the restrictor of *every*, the existence of a student is not entailed). The content of the proposition in (103) is tautological. In Heim's (1982) terms it is a check, not an update.

However, this update does introduce novel information about the implicit domain of *every*. Because of (103a-i) and (103a-ii), it presupposes that for all the individual assignment pairs <x,h> in the implicit domain restriction x is a professor and h(1) is a student that x supervises.

As a result, when it comes to the update in (101b), the presupposition of the pronoun her_1 will be trivially satisfied for all the individual-assignment pairs in the domain restriction. The indefinite will dynamically bind the pronoun.

In the bad case the pronoun is inside the specifier headed by *every* and the indefinite is inside its sister:

(104) * $[_{TP}[_{DP}$Every professor who supervised **her$_1$**$]$ $[_{T'}$ read **a$_1$ student** thesis$]]$.
$\forall > \exists$

The series of updates that Spell Out creates for (104) include the following two:

(105) $[_{TP}$ $[_{DP}$ Every professor who supervised **her$_1$**$]$ $[_{T'}$ read **a$_1$ student** thesis$]$].
$\forall > \exists$

a. Update by
$[\![$ $[_{TP}$ [every professor who supervised **her$_1$**] T′] $]\!]^{SIG(c)(T')(TP)\ /\ T'}$.

b. Update by
$[\![$ $[_{TP}$ [every professor who supervised **her$_1$**] read **a$_1$ student** thesis] $]\!]$.

The update in (105a) amounts to an update by the following proposition: 'every professor who supervised her_1 is a professor who supervised her_1'. This update is only defined if all the assignment functions in the input context are defined for 1. In other words, it is only defined, if a discourse referent with number 1 has been introduced *prior* to (105a). The indefinite cannot dynamically bind the pronoun.

4.6 Issues

In this section I will briefly discuss two potential problems with the presented theory. One concerns discourse and donkey anaphora with non-temporal and non-conditional adjunct clauses (section 4.6.1). The other concerns the algorithm for Spell Out and disjunction (section 4.6.2).

4.6.1 Other adjuncts

The key advantage of the Island Condition is that it accounts for the possibility of cataphora in a principled way. More precisely, it predicts that cataphora will only be possible to an indefinite in a postposed adjunct.

However, the Island Condition predicts that cataphora is possible to an indefinite inside *any* adjunct, which is not the case. It is possible with postposed temporal *after/when/before*-clauses and *if*-clauses, but not with *because*-clauses or *since*-clauses:

(106) a. * Last summer Rosa had to call **his$_1$** parents, [because **a boy$_1$** got sick].

b. * I had to call **his$_1$** parents, [since **a boy$_1$** got sick].

In both (106a) and (106b) the adjunct clause is attached higher than the pronoun and below the subject of the main clause, which is evident from Condition C effects. The subject of the main clause c-commands *because*- and *since*-clauses:

(107) a. * **He$_1$** went home, because **Bill$_1$** wasn't feeling well.

b. * **He$_1$** went home, since **Bill$_1$** wasn't feeling well. (Iatridou, 1991, 84)

Meanwhile, the object of the main clause does not:

(108) a. ^{ok} I had to visit **him$_1$**, because **Karl$_1$** wasn't feeling well.

b. ^{ok} I had to visit **him$_1$**, since **Karl$_1$** wasn't feeling well.

If *because*- and *since*-clauses are attached below the subject and above the object,

then in both (106a) and (106b) the indefinite SO-commands the pronoun. The Island Condition is satisfied, so discourse anaphora is predicted to be possible, contrary to fact.

Either we must abandon the Island Condition or discourse anaphora in (106a) and (106b) must be ruled out independently. Since the solution may be different for *since* and *because*-clauses, I will discuss them separately.

Iatridou (1991) argues that *since*-clauses are obligatory presupposed and do not participate in any binding relations with the main clause. This could be the reason why (106b) is bad. In particular, variable binding is possible into a *because*-clause, but not into a *since*-clause:

(109) a. [ok] **Every boy$_1$** had to go to bed because **he$_1$** had to be up by 5.

b. * **Every boy$_1$** had to go to bed since **he$_1$** had to be up by 5.

(Iatridou, 1991, 83)

Furthermore, *since*-clauses, unlike *because*-clauses, cannot be associated with focus:

(110) a. [ok] John left home **only/just** because he was short of money.

b. * John left home **only/just** since he was short of money.

(Iatridou, 1991, 84)

The proposition under *since* necessarily escapes main clause negation, while the proposition under *because* may not:

(111) a. He did**n't** leave because he was sick. [ok]In fact, he wasn't sick.

b. He did**n't** leave since he was sick. [#]In fact, he wasn't sick.

(Iatridou, 1991, 88)

Notice that with this respect *since*-clauses are also different from *if*-clauses and temporal clauses, which do allow cataphora (see section 4.3.3). *If*-clauses and temporal clauses allow variable binding (112), association with focus (113) and can take scope below negation of the main clause (114).

(112) Variable binding:

a. ok **Every boy$_1$** came when/after/before I called **him$_1$**.

b. ok **Every boy$_1$** will come if I call **him$_1$**.

(113) Focus association:

a. ok Rosa came **only/just** when/after/before I called her.

b. ok Rosa will come **only/just** if I call her.

(114) Negation:

a. ok Rosa did **not** come when/after/before I called her.

ok In fact, I never did (call her).

b. ok Rosa will **not** come if I call her.

ok In fact, she will come for some other reason.

In sum, *since*-clauses are presupposed and do not participate in binding or scopal relations with the main clause. This could be an explanation for (106b). As Iatridou puts it, "clauses that are presupposed <...>, like *since*-clauses, are independent statements that are made on the side" (Iatridou, 1991, 91). It may be that a presupposed clause cannot introduce a novel discourse referent to begin with. That is why discourse anaphora in (106b) is not possible, even though the *since*-clause is interpreted before the main clause and the Island Condition is satisfied.

Because by this metric *because*-clauses pattern with *if*-clauses and temporal clauses, we cannot use the same explanation for (106a).

The Spell Out of (106a) creates the following two updates:

(115) [$_{\text{CP}}$Last summer Rosa had to call **his$_1$** parents, [because **a boy$_1$** got sick]].

a. Update by

$[\![\ [_{\text{CP}}\text{Last summer Rosa X}'\ \text{[because \textbf{a boy$_1$} got sick]}]\ ]\!]^{\text{SIG(c)(X}'\text{)(CP)}}$.

b. Update by

$[\![\ [_{\text{CP}}\text{Last summer Rosa had to call \textbf{his$_1$} parents, [because \textbf{a boy$_1$} got sick]}]\ ]\!]$.

Where X$'$ is the attachment site of the *because*-clause, whatever it may be.

The update in (115a), which includes the indefinite, precedes the update in (115b), which includes the pronoun. As the result, the indefinite is interpreted before the pronoun and should be able to dynamically bind it, contrary to fact.

A potential explanation for this can be that the update in (115a) does not happen, because there are no innocent guesses for the meaning of X′. The meaning of X′ should probably be an event predicate describing an event that happened last summer and that Rosa participated in, caused by the event of a boy getting sick. However, there is no such event predicate P that would turn the following meaning into the weakest possible proposition $[\![\ [_{\text{CP}}\text{Last summer Rosa X}'\ [\text{because a boy}_1\ \text{got sick}]]\ ]\!]^{\text{P/X}'}$. Any candidate for P would make a non-trivial proposition. As the result, the proposition $[\![\ [_{\text{CP}}\text{Last summer Rosa X}'\ [\text{because a boy}_1\ \text{got sick}]]\ ]\!]^{\text{SIG(c)(X}')(\text{CP})/\text{X}'}$ cannot be constructed, because SIG(c)(X′)(CP) is not defined.

If SIG is not defined, Spell Out cannot make an intermediate context update. It is possible that in this case scenario Spell Out simply proceeds without the update. What is crucial is that the proposition for the final update should be well formed. But it may not be crucial that intermediate propositions are well formed. Spell Out should always try to update the context given the information available to it. However, if this is not possible, it does not crash, but simply proceeds without an intermediate update. This successfully predicts that *because*-clauses may not introduce a novel discourse referent and that discourse anaphora in (106a) should not be possible.

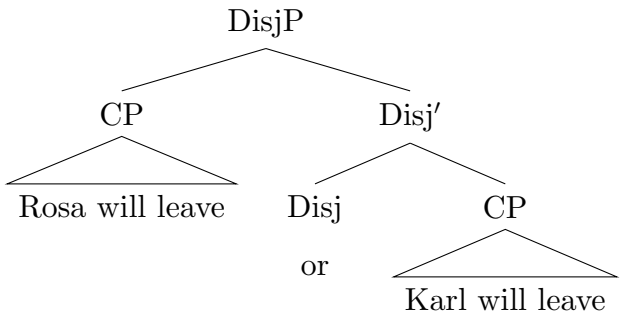
This posits a further question of when the intermediate proposition can and cannot be constructed. The prediction of the current theory is that, if it cannot be constructed, the intermediate update should not happen, without leading to a crash. However, this prediction will have to be left for the future research.

4.6.2 Spell Out and disjunction

Another problem with the current theory is its treatment of disjunction. Consider the sentence in (116). If it has a DisjP structure, as is illustrated by the tree under (116), the theory incorrectly predicts that the input context will be updated by the

first disjunct. This is equivalent to asserting the first disjunct.

(116) $^{\text{ok}}$ Rosa will leave, or Karl will leave.



The series of context updates that the current algorithm of Spell Out generates for (116) includes the following two:

(117) Rosa will leave, or Karl will leave.

a. Update by $[\![\ [_{\text{DisjP}}\ \text{[Rosa will leave] Disj′}]\ ]\!]^{\text{SIG(c)(Disj′)(DisjP) / Disj′}}$.

b. Update by $[\![\ [_{\text{DisjP}}\ \text{[Rosa will leave] or Karl will leave}]\ ]\!]$.

The update in (117a) is generated at the step when the whole DisjP is about to be interpreted. The first disjunct is a specifier, so its meaning is known. Its sister is not a maximal projection, so its meaning is not known. As a result, the semantic component updates the context by the meaning of the first disjunct, which is a proposition, combined with the strongest innocent guess it can make about Disj′. Crucially, the head of the disjunction, namely, the connective *or* has not yet been interpreted. A reasonable guess for Disj′, like in the case of Conj′, is a proposition. Then it can combine with the first disjunct via Generalized Conjunction and deliver another proposition. The strongest innocent guess for Disj′, like in the case of Conj′, is simply the first disjunct. Consequently, the update in (117a) amounts to an update by a proposition 'Rosa will leave and Rosa will leave'.

The result is that, while interpreting the sentence in (116), Spell Out ends up asserting the first disjunct. Hence the sentence in (116) is predicted to entail the proposition 'Rosa will leave', contrary to fact.

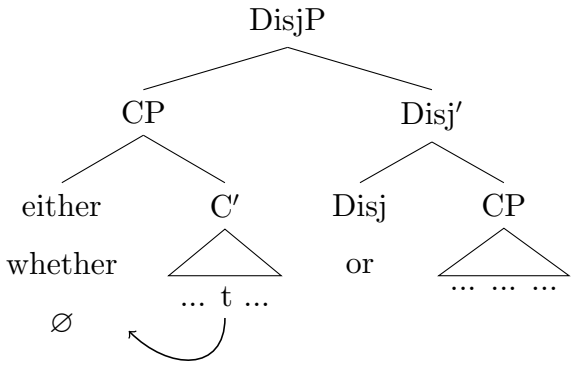
A potential solution comes from the optional element *either* inside the first disjunct:

(118) [ok] Either Rosa will leave, or Karl will leave.

As was first observed by Larson (1985), the scope of disjunction is usually marked by *either*. Furthermore, Larson (1985) suggests that *any disjunction* contains *either*, *whether* or a null operator, which moves from a position inside the first disjunct to the left periphery of DisjP and thus marks the scope of disjunction. This analysis is further developed by Wu (2021), who argues that even in cases when *either* is not overtly realized at the left periphery of DisjP, it moves there covertly. According to Wu (2021), *either* and *whether* are base generated adjacent to the focused constituent inside the first conjunct (in (118) it is the subject *Rosa*) and later move to the left periphery of DisjP. The core arguments for this analysis come from island effects.

Interestingly, Wu's (2021) arguments are also consistent with the analysis where the *either*/*whether*/∅ operator inside the first disjunct moves to the left periphery of the first disjunct (without violating the Coordinate Structure Constraint):

(119) Disjunction scope marker analysis:



Suppose further that the *either*/*whether*/∅ operator is interpreted at the left periphery of the first disjunct at LF. Moreover, suppose that the meaning of disjunction is located in *either*/*whether*/∅, while *or* itself is semantically vacuous:

(120) $[\![\text{ either/}\varnothing \text{ }]\!] = \lambda w.\ \lambda g.\ \lambda p_{<sg,t>}.\ \lambda q_{<sg,t>}.\ p(w)(g) \text{ or } q(w)(g).$

Then the meaning of the first disjunct, aka, the specifier of DisjP will be the following:

(121) $[\![$ (either/$\varnothing$) Rosa will leave $]\!] = \lambda w.\ \lambda g.\ \lambda q_{<sg,t>}.$
Rosa will leave in w or q(w)(g).

A reasonable guess for the meaning of Disj′ is still a proposition. Then it can combine with (121) via Intensional Functional Application and deliver a disjunctive proposition. The weakest disjunctive proposition is a tautology. The strongest meaning Disj′ can have to deliver a tautology is the negated meaning of the first disjunct.

As a result, the update by $[\![\ [_{\text{DisjP}}[$(either/$\varnothing$) Rosa will leave$]$ Disj′ $]\!]^{\text{SIG(c)(Disj′)(DisjP) / Disj′}}$ is an update by a proposition 'either Rosa will leave, or she will not leave'.

This is a tautological update, and crucially, it does not entail the first disjunct.

4.7 Conclusion

In this chapter I have argued that Spell Out has semantic consequences. More precisely, the fact that certain parts of a sentence are spelled out before the whole affects the way in which the semantic component processes syntactic structure. We can see this effect in discourse anaphora.

From the two core claims of the Spell Out theory, repeated again in (122), it follows that all specifiers and all adjuncts are spelled out. In this chapter I have argued that any spelled out constituent is interpreted before its sister. Hence all specifiers and all adjuncts are interpreted before their sisters, in other words, they create a local context for their sisters.

(122) a. Between any two phrasal sisters at least one has to be spelled out.

b. A spelled out phrase does not project its category.

With the notion of SO-command as defined in section 4.2.2, the Spell Out theory predicts that if a node α SO-commands a node β, it is also spelled out before β.

Consequently, if α SO-commands β, α is interpreted before β.

The immediate consequence for discourse anaphora is that for an indefinite to dynamically bind a pronoun it has to SO-command this pronoun, i.e., the Island Condition. In this chapter I have argued that the Island Condition correctly restricts both indefinite anaphora and indefinite cataphora in a principled way, without any additional stipulations. Thus, the predictions of the Spell Out theory are confirmed. All specifiers and all adjuncts are spelled out and, as a result, interpreted before their sisters.

Appendix A

"Backwards" donkey anaphora

The Island Condition allows us to account for the possibility of cataphora in a principled way. In particular, we can now explain Chierchia's (1995) paradigm of "backwards" donkey anaphora with *if*- and *when*-clauses without additional stipulations.

With postposed *if*/*when*-clauses Chierchia (1995) reports the following set of judgments:

(1) a. **A painter$_1$** is inspired by **a village$_2$** [if **she$_1$** finds **it$_2$** picturesque].

b. **A painter$_1$** will rent **it$_2$** [if **she$_1$** finds **a cottage$_2$** picturesque].

c. **A rich, capricious person$_1$** will buy **it$_2$** right away [if **a nice car$_2$** impresses **him$_1$**].

(Chierchia, 1995, 132)

In (1a) two generic indefinites *a painter$_1$* and *a village$_2$* inside the main clause bind two pronouns in the *if*-clause via variable binding (by taking scope over them).

In (1b) the generic indefinite *a painter$_1$* in the subject position binds the pronoun *she$_1$* in the *if*-clause via variable binding (by taking scope over it). The indefinite *a cottage$_2$* in the *if*-clause SO-commands the pronoun *it$_2$* in the main clause, which makes dynamic binding possible.

In (1c) the generic indefinite *a rich, capricious person$_1$* binds the pronoun *him$_1$* in the *if*-clause via variable binding (by taking scope over it). The indefinite *a*

nice car$_2$ SO-commands the pronoun *it*$_2$ in the main clause, which makes dynamic binding possible.

The same three anaphoric configurations are available for the preposed *if*-clause (2), which can be explained if we assume that preposed *if*-clauses can (but does not have to) reconstruct for binding purposes (see section 4.3.4 of chapter 4). Namely, in (2) the *if*-clause reconstructs to the same position it occupies in (1), which makes the binding configurations possible.

(2) a. [If **it$_1$** enters **his$_2$** territory], **a pirate$_2$** usually attacks **a ship$_1$**. (see 1a)

b. [If **he$_1$** lies to **a student$_2$**], **a teacher$_1$** loses **his$_2$** trust. (see 1b)

c. [If **a boy$_1$** lies to her$_2$], **a girl$_2$** won't trust **him$_1$** anymore. (see 1c)

(Chierchia, 1995, 130)

Chierchia's (1995, 131) Pronominal Subject Constraint, which can be illustrated by the two examples in (3), can be attributed to condition C of the classical binding theory.

(3) a. * [When **he$_1$** spots **a ship$_2$**], **it$_2$** is attacked by **a pirate$_1$**.

b. * [When **a cat$_1$** spots **it$_2$**], **it$_1$** is attacked by **a mouse$_2$**.

(Chierchia, 1995, 130-131)

In (3a) the preposed *when*-clause has to reconstruct to a lower position for the indefinite *a pirate*$_1$ to take scope over and bind the pronoun *he*$_1$. The base position is c-commanded by the subject *it*$_2$, which leads to a condition C violation, since the *when*-clause contains the indefinite *a ship*$_2$.

In (3b) the preposed *when*-clause has to reconstruct to a lower position for the indefinite *a mouse*$_2$ to take scope over and bind the pronoun *it*$_2$. The base position is c-commanded by the subject *it*$_1$, which, again, leads to a condition C violation, since the *when*-clause contains the indefinite *a cat*$_1$.

Appendix B

The Island Condition in Russian

The predictions of the Island Condition are not only confirmed in English, but also in Russian. Russian does not have definite or indefinite articles, but it is still possible to distinguish between quantified, indefinite and definite noun phrases, see Paducheva (1974, 1985), among others. Here I will use *odin iz* 'one of' and *kakoj-to* 'wh-PTCL' as unambiguous markers of indefinite noun phrases. Noun phrases prefixed by *kakoj-to* are unambiguously non-specific, which allows us to rule out caveats concerning specific indefinites.

In Russian, like in English, an indefinite inside a specifier can create an accessible antecedent for a pronoun inside its sister, but not vice-versa:

(1) a. [ok] [$_{TP}$[$_{DP}$Učitel' kotoryj pojmal **kakuju-to iz vos'miklassnic$_1$**
the teacher who catch.PFV.PST who-PTCL from eight-graders
kurjaŝej v tualete], [$_{T'}$razgovarival potom s **eë$_1$ roditeljami**]].
smoking in bathroom talk.IMP.PST later with her parents
'The teacher who caught **one of the 8-graders$_1$** smoking in the bathroom was later talking to **her$_1$** parents.'

b. * [$_{TP}$[$_{DP}$Učitel' kotoryj pojmal **eë$_1$** kurjaŝej v tualete],
the teacher who catch.PFV.PST her smoking in bathroom
[$_{T'}$razgovarival potom s roditeljami
talk.IMP.PST later with parents
kakoj-to iz vos'miklassnic$_1$]].
who-PTCL from eight-graders
'The teacher who caught **her$_1$** smoking in the bathroom was later talking to **one of the eight-graders$_1$** parents.'

This is true also for indefinites that are embedded under an attitude predicate (2), which indicates that this is a syntactic restriction, not a semantic one.

(2) a. ok [$_{TP}$[$_{DP}$Naličije svidetel'stv o tom, čto **kakaja-to ženŝina$_1$** byla v
existence of.indications of that that which-PTCL woman was in
zdanii v moment prestuplenija], [$_{T'}$značit, čto my dolžny budem
building in moment of.crime means that we have.to will
doprosit' **eë$_1$** v sude]].
question her in court
'The existence of evidence that **some woman$_1$** was in the building at the moment of the crime means that we'll have to question **her$_1$** in court.'

b. * [$_{TP}$[$_{DP}$Naličije svidetel'stv o tom, čto **ona$_1$** byla v zdanii v
existence of.indications of that that she was in building in
moment prestuplenija], [$_{T'}$značit, čto my dolžny budem doprosit'
moment of.crime means that we have.to will question
kakuju-to ženŝinu$_1$ v sude]].
which-PTCL woman in court
'The existence of evidence that **she$_1$** was in the building at the moment of the crime means that we'll have to question **some woman$_1$** in court.'

Like in English, in Russian an indefinite inside an adjunct can create an accessible antecedent for a pronoun inside the main clause, while an indefinite inside a complement may not:

(3) a. ok Maria Ivanonva [$_{vP}$[$_{v'}$skazala čto *pro* soobŝit **ego$_1$ roditeljam**],
Maria Ivanovna say.PFV.PST that she inform.PFV.PRS his parents.DAT

[$_{CP}$kogda *pro* zastala **kogo-to iz vos'miklassnikov$_1$**
when she catch.PFV.PST who-PTCL from eight-graders
kurja$\hat{s}$im v tualete]].
smoking in bathroom
'M.I. said that she will inform **his$_1$** parents, when she caught **a 8-grader$_1$** smoking in the bathroom.'

b. * Maria Ivanovna [$_{vP}$skazala čto *pro* soob$\hat{s}$it
Maria Ivanovna say.PFV.PST that she inform.PFV.PRS
ego$_1$ roditeljam,
his parents.DAT
[$_{CP}$čto *pro* zastala **kogo-to iz vos'miklassnikov$_1$**
that she catch.PFV.PST who-PTCL from eight-graders
kurja$\hat{s}$im v tualete]].
smoking in bathroom
'M.I. said that she will inform **his$_1$** parents that she caught **a 8-grader$_1$** smoking in the bathroom.'

The same is true in donkey anaphoric configurations:

(4) CONTEXT: Last year every eight-grader smoked in the bathroom and was caught there by Maria Ivanovna.

a. ok i každyj raz Maria Ivanovna [$_{vP}$[$_{v'}$govorila, čto *pro*
and every time Maria Ivanovna say.IMP.PST that she
soob$\hat{s}$it **ego$_1$** roditeljam], [$_{CP}$kogda ona zastavala
inform.PFV.PRS his parents.DAT when she catch.IMP.PST
kogo-to iz vos'miklassnikov$_1$ kurja$\hat{s}$im v tualete]].
who-PTCL from eight-graders smoking in bathroom
'Every time M.I. said that she will inform **his$_1$** parents, when she caught **an 8-grader$_1$** smoking in the bathroom.'

b. * i každyj raz Maria Ivanovna [$_{vP}$govorila, čto *pro*
and every time Maria Ivanovna say.IMP.PST that she
soob$\hat{s}$it **ego$_1$** roditeljam, [$_{CP}$čto ona zastavala
inform.PFV.PRS his parents.DAT when she catch.IMP.PST
kogo-to iz vos'miklassnikov$_1$ kurja$\hat{s}$im v tualete]].
who-PTCL from eight-graders smoking in bathroom
'Every time M.I. said that she will inform **his$_1$** parents that she caught **an 8-grader$_1$** smoking in the bathroom.'

Furthermore, an indefinite inside an adjunct can only create an accessible antecedent for those pronouns that this adjunct c-commands:

(5) a. ok Maria Ivanonva [$_{vP}$[$_{v'}$vyzvala **ego$_1$ roditelej** v školu],
Maria Ivanovna call.PFV.PRS his parents to school
[PRO zastav **kogo-to iz vos'miklassnikov$_1$**
PRO catch.CONV who-PTCL from eight-graders
kurjaŝim v tualete]].
smoking in bathroom
'Maria Ivanovna called **his$_1$** parents to school, after catching **a 8-grader$_1$** smoking in the bathroom.'

b. * [$_{TP}$[$_{DP}$**Ego$_1$ roditeli**] [$_{T'}$pošli k Marii Ivanovne,
his parents go.PFV.PRS to Maria Ivanonvna
PRO zastav **kogo-to iz vos'miklassnikov$_1$**
PRO catch.CONV who-PTCL from eight-graders
kurjaŝim v tualete]].
smoking in bathroom
'**His$_1$** parents went to Maria Ivanovna, after catching **a 8-grader$_1$** smoking in the bathroom.'

Finally, in coordination, discourse anaphora proceeds from the first conjunct to the second one and not vice-versa:

(6) a. ok [$_{ConjP}$[$_{CP}$Vošla **kakaja-to ženŝina$_1$**], [$_{Conj'}$i hozjain predložil **ej$_1$**
come.in.PFV.PST some woman and host offered her
vypit']].
to.drink
'**Some woman$_1$** came in and the host offered **her$_1$** drinks.'

b. * [$_{ConjP}$[$_{CP}$Vošla **ona$_1$**], [$_{Conj'}$i hozjain predložil **kakoj-to ženŝine$_1$**
come.in.PFV.PST she and host offered some woman
vypit']].
to.drink
'**She$_1$** came in and the host offered **some woman$_1$** drinks.'

Abbreviations

1	first person	M	masculine gender
2	second person	N	neuter gender
3	third person	NCI	negative concord particle
ABL	ablative case	NEG	negation
ACC	accusative case	NOM	nominative case
ADD	additive particle	NZR	nominalization
AUX	past imperfective auxiliary	PFV	perfective
CAR	caritive	PL	plural
CAUS	causative	POT	circumstantial possibility marker
COND	conditionalis	PRS	present tense marker
CONV	converb	PST	past tense marker
DAT	dative case	PST1	past tense marker
F	feminine gender	PST2	past tense marker
FUT	future tense marker	PTCL	topic particle
GEN	genitive case	SBJ	subjunctive
HAB	habitualis	SE	reflexive marker
IMP	imperfective	SG	singular
LOC	locative case		

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