

The Phase Model and Adverbials

Dissertation
zur Erlangung des akademischen Grades
doctor philosophiae (Dr. phil.)

eingereicht im Januar 2009
an der Philologischen Fakultät der Universität Leipzig

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geboren am 24.04.1974

Tag der Verleihung:

Abstract

This dissertation addresses two issues, phases and adverbials. The general proposal is that there is a correlation between the phase structure, the tripartite quantificational structure and the information structure of the sentence. At the semantic interface, the vP phase is interpreted as the nuclear scope of the quantificational structure and the information-focus domain of the information structure and the CP phase is interpreted as the restrictive clause of the quantificational structure and the background domain.

This correlation plays an important role not only in referential and information-structural properties of arguments and the verb but also in adverbial properties. It is argued that adverbials generally can be merged in the vP phase and that under the right circumstances they can occur in the sentence-final position. It is shown that certain sentence adverbials can occur in the sentence-final position in the vP phase when they represent the extreme value with respect to the set of focus alternatives.

The proposed correlation also plays an important role in anaphoric relations with respect to adjuncts. Only a backgrounded r -expression in an adjunct clause can corefer with the coindexed pronoun in a clause distinct from the adjunct clause, that is, an r -expression that is sufficiently distant from the coindexed pronoun in the structure and that is spelled out and interpreted in the CP phase of the adjunct clause.

It is also shown that the phase structure is an important factor in adverbial ordering. It is argued that relative orders of adverbials expressing an interval are determined by the natural evolution of spatiotemporal domains - namely, by the Principle of Natural Evolution of Intervals - and that this principle is restricted to phase domains. Thus, the relative order of adverbials expressing an interval can be reversed if they occur in different phases.

Acknowledgements

First and foremost, I would like to thank my supervisor Uwe Junghanns and the other members of my committee Gereon Müller and Klaus Abels for a large number of useful suggestions and stimulating discussions.

I would also like to thank the following people for discussion of various parts of this dissertation, judgements, support and wonderful dinners: Kristin Börjesson, Andreas Bulk, Pavel Caha, Mojmír Dočekal, Jakub Dotlačil, Joe Emonds, Fabian Heck, Matthias Irmer, Peter Kosta, Kristína Krchňavá, Ivona Kučerová, Antje Lahne, Denisa Lenertová, Lucie Medová, Roland Meyer, Olav Müller-Reichau, Marc Richards, Andreas Späth, Anita Steube, Stefan Sudhoff, Luka Szucsich, Hana Škrabalová, Jochen Trommer, Jana Vejvodová, Lída Veselovská, Markéta Ziková, Gerhild Zybatow.

I am also grateful to Andrew McIntyre for reading the whole dissertation, improving my English and for helpful comments and suggestions.

I also wish to thank the Institute of the Czech National Corpus for providing data.

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Chapter 1

Introduction

This dissertation has two main topics, phases and adverbials. These topics are closely connected. I will show, for example, that the phase structure of the adjunct clause plays an important role in anaphoric relations in complex sentences and that the phase boundary is an important factor in the ordering of adverbials expressing an interval.

As far as phases are concerned, the dissertation deals only with the *vP* phase and the CP phase. The term ‘adverbial’ refers to phrases bearing adverbial function. They can be of different forms, for example, PPs like *ve středu* ‘on Wednesday’, AdvPs like *určitě* ‘certainly’ or CPs like *Když Pavel odešel* ‘When Pavel left’. The term ‘adverb’, which refers to an adverbial of the category AdvP, I will use only when I want to highlight the categorial status of the adverbial or when I refer to someone’s analysis.

The language I focus on in the dissertation is Czech but many results can be carried over to other languages.

The proposal underlying this dissertation is made in **chapter 2**. I propose that the minimalist division of clauses into the CP phase and the *vP* phase can be correlated with the division of clauses into the domain of background and the domain of information focus and with their splitting into the restrictive clause and the nuclear scope of the quantificational structure. This means that the *vP* edge (and the phase edge generally) is a boundary that is relevant to syntax, semantics and information structure. Narrow syntax (dis)places lexical items within the two phases in accordance with their featural properties and both phases then are appropriately interpreted at the semantic interface.

Building on Chomsky’s phase model (2000 et seq.) and Diesing (1992), I propose that the *vP* phase is interpreted as the nuclear scope of the quantificational structure and the focus

domain of the information structure, and that the CP phase is interpreted as the restrictive clause of the quantificational structure and the background domain. Thus, elements moved to the CP phase are interpreted as backgrounded and elements occurring in the ν P phase are interpreted as informationally focused. In contrast to the ν P-internal lexical items, ν P-external elements must receive a definite or specific interpretation. Hence the existential interpretation is restricted to elements in the ν P phase. Thus, there are two implications. If an element is interpreted existentially, it must be focused. And if an element is interpreted as backgrounded, it must be specific or definite.

Furthermore, I will discuss Chomsky's approach (2001) to object shift and will show that there are several problems with Chomsky's EPP-features (2001 et seq.) that drive movement to the edge of ν P. The difficulties reflect the general problem with intermediate features in successive-cyclic movement. Therefore, I propose the Phase Featuring principle that works on lexical subarrays and determines the presence of intermediate features in successive-cyclic movement, as stated in (1).

(1) Phase Featuring

If a goal feature F does not have its movement probe feature F in its current phase subarray, add an unvalued uninterpretable F-feature onto the phase head.

The Phase Featuring principle checks whether goal features have their movement probe features in the appropriate lexical subarray. If this is not the case, unvalued uninterpretable intermediate features are added onto the phase head and elements with the goal feature are moved to the phase edge in the derivation. This process is repeated for every lexical subarray in the sentence. Since the principle adds features onto the intermediate phase heads only in situations where it is necessary, it has the advantage that it works in accordance with a crash-proof approach to derivations. Thus, there is no optionality in using the intermediate features, as in Chomsky's model, and there is no problem with overgeneration and subsequent filtering unsuccessful derivations.

Chapter 3 is concerned with verb movement and architecture of the CP phase. In this chapter, I show that there is a dependency between the position of the nominative subject and the position of the finite verb in the sentence; either the subject or the finite verb raises to the CP phase. In order to analyse this dependency, I will modify Pesetsky & Torrego's (2001, 2004, 2007) approach to the interaction between tense-motivated movement and nominative case on the subject. I propose that the head T bears an EPP-feature with the tense property and

that this feature can be satisfied either by the nominative subject or by the finite verb because both elements are specified for the T-feature.

Furthermore, I will argue that the finite verb, similarly as arguments, can raise to the CP phase and be interpreted in the restrictive clause of the tripartite quantificational structure and in the domain of background. Consequently, in such cases, the existence of the event expressed by the verb is presupposed. Thus, since verb movement feeds both interfaces, it must be a narrow-syntactic phenomenon.

I will also show that there is phrasal movement that differs from scrambling in the fact that it has no interpretational effect. If an element moved to the CP phase checks only the EPP-feature on the head Mood – that is, it does not bear a feature that determines that it is to be interpreted in the CP phase at the semantic interface – this movement has no interpretational effects in the sense that the moved element reconstructs for the existential (if possible) and focused interpretation to the vP phase.

In this chapter, I also argue that Czech has topicalization movement to CP and that it can be short as well as long. This movement is a syntactic topicalization, not topicalization of the aboutness type and can affect only one phrase.

In **chapter 4**, I discuss adverbial merger in the vP phase. Since it has been argued in the syntactic literature on adverbials that certain adverbials cannot appear in a low structural position in the sentence, in this chapter, I will investigate wide range of adverbials with respect to the question whether they can be merged in the vP phase.

I will argue that adverbials generally can be merged in the vP phase. Furthermore, I will argue that adverbials can occur in the sentence-final position in the vP phase and that under the right circumstances they can be focused there and accented. The ungrammaticality of certain adverbials in the sentence-final position in the vP phase has semantic, not syntactic reasons.

For instance, in the case of frequentative adverbials, the grammaticality of the sentence depends – among other things – on the strong/weak quantificational properties of the frequentative adverbial and the ungrammaticality does not arise due to the syntactic position of the frequentative adverbial itself but rather due to the lack of an element in the c-command domain of the adverbial.

As for sentence adverbials, I will argue that the ungrammaticality of certain sentence adverbials in the sentence-final position in the vP phase is due to the fact that they cannot serve as the focus in the given sentence. In other words, sentence adverbials can appear in the

sentence-final position only if they represent the extreme value with respect to the set of focus alternatives.

In **chapter 5**, I turn to adverbial hierarchy and adverbial movement. I investigate whether Czech reflects adverbial orderings that have been described in the literature. Using the Czech National Corpus, I show that in Czech, too, there is an adverbial hierarchy and that this hierarchy is in accordance with the adverbial hierarchy proposed in the literature.

The chapter uses examples from the Czech National Corpus to investigate adverbial ordering. However, since it is not easy always to find a corpus example without intervening factors, I use mostly my own examples in the dissertation.

I will examine several phenomena having to do with the adverbial hierarchy and will argue that the adverbial hierarchy is not directly dependent on phrase structure and that an adjunct-based approach to adverbial ordering is more appropriate than the feature-based approach. I will argue that the adverbial hierarchy results from several different factors and that many of the factors are orthogonal to narrow syntax.

Specifically, I will investigate relative orders between adverbials in complex sentences and will show that adverbials from different clauses also interact and that they to a certain extent preserve the same relative orders as adverbials occurring in a single clause. I will argue that the adverbial ordering is determined by lexicosemantic properties of the relevant adverbials, their scope relations, lexicosemantic properties of other elements in the sentence and by the event-structural properties of the sentence.

I will also discuss in more detail stacked and non-stacked adverbials of the same class and will demonstrate that these adverbials show ordering preferences as well. I will propose the Superset Principle, which applies at the semantic interface and which determines the relative orders of adverbials of the same class. This principle has to have access not only to the structural relations between particular adverbials and their lexicosemantic properties but also to the event-structural properties of the sentence, as stated in (2).

(2) Superset Principle

The highest segment of the adverbial of the larger domain must c-command at least one segment of the adverbial of the smaller domain if the adverbials relate to the same event.

I will also investigate adverbial ordering with regard to adverbials expressing an interval and will argue that it is determined by the natural evolution of spatiotemporal domains. Therefore,

I will propose the Principle of Natural Evolution of Intervals (3), which works analogously to the Superset Principle and which drives the relative order of stacked as well as non-stacked adverbials expressing an interval.

(3) Principle of Natural Evolution of Intervals

The highest segment of the adverbial that is closer to the starting point of the interval must c-command at least one segment of the adverbial that is further from the starting point if the adverbials relate to the same event.

I will argue that this principle, in contrast to the Superset Principle, is restricted to phase domains, which means that only adverbials occurring in the same phase must observe it.

In this chapter, I will furthermore argue that adverbials can undergo short movement as well as long movement. Given the fact that adverbials move, they can be interpreted in the form of several copies in the syntactic structure. I will also show that the phase structure plays an important role in adverbial movement and ordering. Concretely, in certain cases the canonical order of adverbials can be reversed if the adverbials occur in different phases.

In **chapter 6**, I deal with adjunction and anaphoric relations. I will show that the proposed correlation between the phase structure, tripartite quantificational structure and the information structure plays an important role in anaphoric relations. I will examine four types of adjuncts – clausal and non-clausal adnominal adjuncts and clausal and non-clausal adverbial adjuncts – and will argue that there is a need to differentiate between clausal and non-clausal adjuncts with respect to coreference and Condition C. Non-clausal adjuncts containing a coindexed r-expression always produce a Condition C effect regardless of the presuppositional and information-structural status of the phrase containing the adjunct.

In contrast, clausal adjuncts can obviate Condition C effects under certain conditions. Coreference between an r-expression in the clausal adjunct and the coindexed pronoun is possible if presuppositional status can be accorded to the clausal adjunct or the element containing it and if the appropriate r-expression is interpreted as backgrounded.

Further, I will discuss how the relevant data are treated by the acyclic merger approach, as proposed, for example, by Lebeaux (1988), and by the cyclic merger analysis proposed by Chomsky (2004) and will argue that the Condition C data can be accounted for neither by acyclic merger of adjuncts nor by the special status of adjunct merger. I will argue that both types of adjuncts are merged cyclically and that Condition C effects are not a uniform phenomenon. They can be induced by three different factors, by the violation of Condition C

itself, by the violation of the antilocality requirement on coreference and by the violation of the proposed Background Adjunct Coreference Principle.

(4) Background Adjunct Coreference Principle

Coreference between an r-expression within an adjunct clause and a pronoun in a clause distinct from the adjunct clause is possible only if the r-expression is backgrounded in the adjunct clause.

I will argue that Condition C effects in the case of clausal adjuncts can be attributed to Condition C or the Background Adjunct Coreference Principle and that Condition C effects in the case of non-clausal adjuncts can be attributed to Condition C or the antilocality requirement on coreference.

As for the Condition C violation, I will show that the backgrounded or presuppositional status of clausal adjuncts or the elements containing them helps them not to reconstruct and hence not to violate Condition C.

For coreference, as in the case of reference issues, the correlation between the phase structure, tripartite quantificational structure and information structure of the sentence is relevant. R-expressions in the CP phase of clausal adjuncts can corefer with the coindexed pronoun because they are sufficiently embedded in the correlated structure. In contrast, r-expressions in non-clausal adjuncts are not sufficiently distant from the coindexed pronoun; hence given the antilocality requirement on coreference, they cannot corefer with the pronoun. And r-expressions in clausal adjuncts can corefer with the coindexed pronoun only if they are spelled out and interpreted in the CP phase of the clausal adjunct, that is, when they are in conformance with the Background Adjunct Coreference Principle.

Finally, **chapter 7** concludes the dissertation.

Chapter 2

Phrasal movement

2.1 Introduction*

This chapter is concerned with various types of phrasal movement. As a starting point of my analysis, I take two well-known approaches discussing free word order phenomena, Diesing (1992) and Chomsky's (2001) phase model. Building on these two approaches and generalizations drawn from data, I argue that the ν P edge is a boundary that is relevant to syntax, semantics and information structure. More concretely, the central claim of this chapter is that the minimalist division of clauses into the CP phase and the ν P phase can be correlated with the division of clauses into the domain of background and the domain of information focus and with their splitting into the restrictive clause and the nuclear scope of the quantificational structure.

What narrow syntax does is to (dis)place lexical items within the two phases in accordance with their featural properties. Then, at the semantic interface, both phases are appropriately interpreted; the ν P phase is interpreted as the nuclear scope of the quantificational structure and the focus domain of the information structure and the CP phase is interpreted as the restrictive clause of the quantificational structure and the background domain. Therefore lexical items moved to the CP phase are interpreted as backgrounded, in contrast to lexical items occurring in the ν P phase, which are interpreted as informationally focused. In contrast to the ν P-internal lexical items, ν P-external elements must receive a

* Some parts of this chapter appeared as Biskup (2005), Biskup (2006a) and Biskup (2007a).

definite or specific interpretation - which can be epistemic, partitive or generic - which means that the existential interpretation is restricted to elements in the ν P phase. There are two implications. If an element is interpreted existentially, it must be focused. And if an element is interpreted as backgrounded, then it must be specific or definite.

Then, I will discuss Chomsky's approach (2001) to free word order phenomena in more detail and point out problems with his proposals that shifted objects receive their interpretation at the edge of the ν P phase and appear further to the left of that position due to phonological movement. Such difficulties do not arise in my approach, in which movement to the CP phase is always a narrow-syntactic phenomenon and in which the interpretational domains – which are based on phasehood – are discrete.

I will show that there are several problems with Chomsky's EPP-features (2001 et seq.) that drive movement to the edge of ν P. The difficulties mirror the general problem with intermediate features in successive-cyclic movement. Therefore, I propose the Phase Featuring principle that works on lexical subarrays and determines the presence of intermediate features in successive-cyclic movement. What the Phase Featuring principle does is that it checks whether goal features have their movement probe features in the appropriate lexical subarray. If this is not the case, unvalued uninterpretable intermediate features are added onto the phase head. Consequently, elements with the goal feature are moved to the phase edge in the derivation. This process is repeated for every lexical subarray in the sentence. Since the principle adds features onto the intermediate phase heads only in situations where it is necessary, it has the advantage that it works in accordance with a crash-proof approach to derivations. Since the Phase Featuring principle does not work blindly and there is no optionality in using the intermediate features, as in Chomsky's model, there is no problem with overgeneration connected with subsequent filtering unsuccessful derivations and the look-ahead problem also does not arise.

The chapter is organised as follows. In section 2.2, I briefly overview Diesing's (1992) approach to the semantic partition of sentences and Chomsky's (2001) approach to object shift. Section 2.3 outlines the general proposal underlying this dissertation. Section 2.4 discusses semantic and information-structural properties of movement to the CP phase. Section 2.5 then discusses syntactic properties of phrasal movement. It deals with the landing positions of phrasal movement, with its featural properties, discusses Chomsky's approach (2001) to object shift and proposes the Phase Featuring principle that drives the successive-cyclic movement. Section 2.6 summarises the chapter.

2.2 Diesing (1992) and Chomsky (2001)

Diesing (1992) investigates the relationship between the semantic and syntactic representations of sentences. Specifically, following Heim (1982) and the theory of generalized quantifiers¹, Diesing proposes that syntactic structure can be split into two parts, VP and IP, which correspond to the nuclear scope and the restrictive clause of the quantificational representation, respectively.² The semantic partition of a sentence is achieved by the Mapping Hypothesis (see Diesing 1992, 10), as stated in (1):³

(1) Material from VP is mapped into the nuclear scope.

Material from IP is mapped into a restrictive clause.

Thus, there is a correlation between the syntactic position of a NP⁴ with respect to the VP boundary and its interpretation. Diesing differentiates two types of weakly⁵ quantified NPs, those that only introduce a free variable (non-presuppositional NPs) and those that induce the tripartite quantificational structure (presuppositional NPs). For example, if a weakly quantified NP introducing a free variable occurs in VP, it receives an existential interpretation because VP is the domain of existential closure that existentially binds all free variables. In contrast, if a weakly quantified NP occurs outside VP at some point in the derivation - that is, in IP in Diesing's model - it induces a tripartite quantificational structure, is mapped into the restrictive clause and receives the presuppositional reading, just as a strongly quantified NP. While strongly quantified NPs are always presuppositional, which means that they are quantificationally raised (QR-ed) and form a tripartite quantificational structure, weakly quantified NPs are ambiguous between the presuppositional reading and the non-presuppositional reading (they can introduce a free variable).

¹ NPs (DPs) - as generalized quantifiers - denote a property of a property, they are of type $\langle\langle e, t \rangle, t \rangle$, and determiners express relations between sets, they are of type $\langle\langle e, t \rangle, \langle\langle e, t \rangle, t \rangle\rangle$, see, for example, Barwise & Cooper (1981).

² There are many other approaches to the tree splitting, see Krifka (1992a), Partee (1992), Vallduví (1992), Junghanns & Zybatow (1997), Hajičová, Partee & Sgall (1998), Kiss (2002) among others.

³ Following Heim (1982), Diesing (1992) also assumes a Quantifier Construal rule that forms a tripartite quantificational structure: Q [restrictive clause] [nuclear scope].

⁴ When I refer to Diesing's approach (1992), I use the abbreviation NP for noun phrases; otherwise I use DP.

⁵ Weak quantifiers are also called 'intersective' or 'symmetric' because their restrictive clause and nuclear scope can be exchanged without affecting truth conditions, in contrast to strong ('asymmetric') quantifiers, where the exchange affects truth conditions. Weak determiners are, for example: *a*, *some*, *a few*. Strong determiners are: *every*, *all*, *the*, *most*.

Concentrating on Scandinavian object shift⁶, Chomsky (2001) proposes an analysis to various phrasal movements that have semantic and information-structural effects. He makes a difference between the interpretation of an object in situ and the interpretation imposed on the object shifted to the edge of ν P. Concretely, if the object remains in situ, it can receive both semantic interpretations, the ‘surface’ interpretation (abbreviated as Int) and the ‘non-surface’ interpretation (Int’). Int is the semantic interpretation of the shifted object that in Holmberg (1999) has to do with specificity-definiteness, new/old information, topic and focus. And the interpretation Int’ has semantic properties complementary to Int. In contrast to the object in situ, the moved object can receive only the interpretation Int, as stated in (2).⁷

(2) The EPP position of ν^* P is assigned Int⁸

(=(61b) in Chomsky 2001, 35)

The semantic properties Int of an object thus arise from the configuration resulting from movement. However, semantic properties themselves cannot trigger movement, Chomsky needs to appeal to an optional EPP-feature to motivate the appropriate movement of the object to the edge of ν^* P. In order to avoid total optionality in assigning the EPP-feature to ν^* , building on Reinhart (1997) and Fox (1995), Chomsky proposes principle (3) (=(61a) in Chomsky 2001, 35) in accordance with a general economy principle that states that an optional rule can apply only when it brings about a new outcome.

(3) ν^* is assigned an EPP-feature only if that has an effect on outcome

Simply speaking, in this way, one can derive different word orders from the same lexical array, providing that it also gives rise different interpretations.

2.3 Proposal

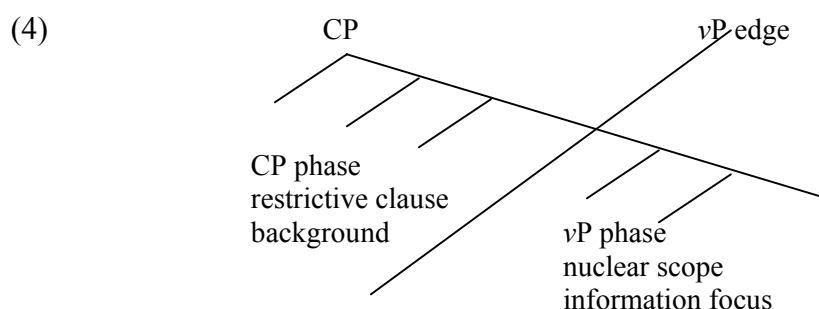
According to the two above-mentioned approaches, there is a syntactic boundary in the derivation that is relevant to semantic interpretation. Building on this observation and

⁶ It is a well-known fact that scrambling and object shift are closely related operations. They are taken to be optional movements, driven by interpretation and by information-structural properties of sentences, see Diesing (1997), Holmberg (1997), Jayaseelan (2001), Svenonius (2001), among many others.

⁷ Chomsky (2001) also proposes a parameter that distinguishes +/- object shift languages but this issue is not relevant here, for more on this topic see section 2.5.1.

⁸ In Chomsky (2001 et seq.), the star indicates strong phases. According to Chomsky, such phases have full argument structure (like transitive predicates, in contrast to passive and unaccusative predicates).

generalizations drawn from data, I propose to split sentences into two parts syntactically, semantically and information-structurally at the ν P edge. More concretely, from the syntactic point of view, the ν P edge marks the boundary between two phases: CP and ν P.⁹ From the semantic point of view, the ν P edge marks the boundary between the domain of restrictive clause and the domain of nuclear scope, and from the information-structural point of view, it marks the boundary between the domain of background and the domain of information focus, as demonstrated in (4).



There is nothing surprising about the claim that the ν P phase is the domain of information focus because information focus is on the right periphery of a sentence and is low in the sentence structure (see, for example, Sgall, Hajičová & Buráňová 1980, Büring 1997, Junghanns 1997a). This proposal gives us for free an explanation for the observation that informationally focused elements preserve their base word order. On the standard assumption that θ -roles are assigned to elements in their external merge position, then due to the fact that in the ν P phase there are no phrasal movements not leading to a further movement out of the ν P,¹⁰ all phrases occurring overtly in the ν P phase are positioned and focused in their external merge positions.

One may object to the suggested correlation between the ν P phase, the nuclear scope and the information focus that it does not hold generally because there are verb projections – like passive or unaccusative – that are not phases, although they can represent the nuclear scope of the quantificational structure and the focus part of the information structure. However, there are arguments showing that such differentiating between phase and non-phase

⁹ I do not use a threefold distinction between strong phases, weak phases and non-phases. I only distinguish between phases and non-phases (therefore I use the starred ν only when I refer to Chomsky's approach).

¹⁰ For more discussion, see section 2.5.

vPs (or between strong and weak¹¹ phases as in Chomsky 2001) does not have to be right. Legate (2003) argues against Chomsky (2000, 2001) and shows that verb projections other than transitive ones are phases as well. She uses the Nuclear Stress Rule as a test for phonetic independence of phases and three syntactic tests for movement to the phase edge - concretely, wh-reconstruction effects, quantifier raising in antecedent-contained deletion and parasitic gap constructions - to demonstrate that unaccusative and passive verb projections are phases as well. Richards (2004) also argues that unaccusative and passive vPs are phases. He demonstrates with constructions containing a subject with a floated quantifier that the edge of unaccusative and passive vPs can also serve as the intermediate landing site. He also demonstrates with *not*-contraction examples that defective *v* is subject to the Phase Impenetrability Condition and argues for elimination of the weak/strong distinction between phases because it is conceptually redundant. Hence, I consider passive and unaccusative vPs to be phases as well.

When there is such a correlation between the three structures, then it is not unexpected that not only syntactic structures, but also quantificational and information structures can be embedded (for recursivity of the quantificational and information structure see, for example, Krifka 1992a, Partee 1992, Meinunger 2000, Neeleman & Szendrői 2004; for the embedding of information structure and its relation to the phonological interface, see, for example, Ishihara's 2003, 2004 multiple-spell-out account of focus intonation embedding). Consider now example (5), where the complement clause, which is embedded in the quantificational and information structure of the matrix clause, is itself quantificationally and informationally structured.

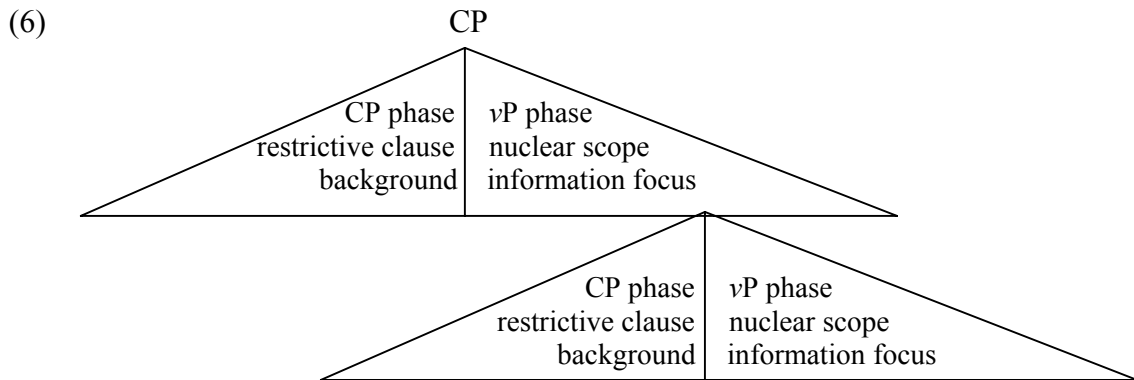
- (5) a. Ten opilec tvrdil, že indiána včera potkal.
 the drunk_{NOM} claimed that American Indian_{ACC} yesterday met
 ‘The drunk claimed that he had met the American Indian yesterday.’

¹¹ In contrast to the weak phases, strong phases are ϕ -complete, they are subject to the Phase Impenetrability Condition, and they can have EPP-features. There are two versions of the Phase Impenetrability Condition: the strong version in Chomsky (2000, 108), see (i), and the weak version in Chomsky (2001, 14), see (ii):

- (i) Strong version of PIC
 In phase α with head H, the domain of H is not accessible to operations outside α ; only H and its edge are accessible to such operations.
- (ii) Weak version of PIC
 [In [_{NP} Z... [_{HP} α [H YP]]], where H and Z are phase heads], the domain of H is not accessible to operations at ZP; only H and its edge are accessible to such operations.

- b. Ten opilec tvrdil, že včera potkal indiána.
 the drunk_{NOM} claimed that yesterday met American Indian_{ACC}
 ‘The drunk claimed that he had met an American Indian yesterday.’

The object *indiána* ‘American Indian’, which is moved to the CP phase in the embedded clause in (5a),¹² that is, QR-ed, denotes a referent with a specific interpretation and the referent is salient in the discourse. It can be, for example, a certain person from the neighbourhood. This contrasts with (5b), where the object stays in situ in the vP phase and can be interpreted existentially (in addition to the specific interpretation). In this case, the object behaves like a non-presuppositional indefinite DP. Since non-presuppositional indefinites do not have quantificational force of their own, their interpretation is based on properties of their environment. Since the vP phase is the domain of existential closure, the object variable is bound by the existential closure and the object is interpreted existentially. And since the vP phase is the domain of information focus, the object does not have to have an accessible referent in the discourse, that is, it can be interpreted as ‘new’.¹³ Then, complex sentences with the embedded structures such as (5) can be schematised as (6).



2.4 Semantic and information-structural properties of phrasal movement

In this section, I investigate possible interpretations and information-structural properties of lexical items with respect to their syntactic positions and show that the proposal that the vP edge is a relevant boundary for syntax, semantics and information structure is corroborated by data.

¹² For more on the landing position see section 2.5.1.

¹³ Unless otherwise specified, examples in this thesis have a normal intonational contour with the non-contrastive stress on the sentence-final constituent.

Before turning to the interpretation of lexical items itself, two points concerning positions of arguments and their movements across the ν P boundary are worth noting. Firstly, as already mentioned above, I make the usual assumption that arguments get their θ -role in their external merge position (that is, in ν P), which means that θ -roles do not motivate movement.

Secondly, given the discussion in the preceding section, which stated that focused elements occur in their external merge position in ν P, one comes to the conclusion that elements can get a case in situ through the agree operation. Hence, no movement is necessary for phrases to get a case in Czech (see Veselovská 1995). This is illustrated by example (7). In sentence (7b), the subject DP *Pavel* stays in situ in ν P, triggers agreement on the verb and gets nominative case as a result of the agree operation. The ν P boundary is marked by the temporal adverbial *zítra* ‘tomorrow’.¹⁴ That *Pavel* stays in the ν P phase and does not move to the right, as one might propose, can be shown by adding a directional adverbial. Since directional adverbials are standardly assumed to be generated in the lowest position in ν P, sentence (7c) with the directional *na ruku* ‘onto hand’ following the subject shows that the subject indeed does not move out of ν P. This also excludes the possibility that the subject is moved to SpecTP to check its case followed by movement of the whole remnant predicate to some higher position in the left periphery of the clause (as discussed by Longobardi 2000 for Italian). The question context in (7a) then demonstrates that the subject is really focused, on the assumption that there exists a correlation between the question context and information structure of the answer (see Buring 1997, Erteschik-Shir 1997, Engdahl 2001, Drubig 2003 among others).

(7) a. Marie se už líbala?

‘Was Marie kissed?’

b. (Ne.) Marii políbí [ν P zítra Pavel].

(No.) Marie_{ACC} kisses tomorrow Pavel_{NOM}

‘(No.) Marie will be kissed by Pavel tomorrow.’

¹⁴ See also De Hoop (1992), Jäger (1995), Meinunger (2000), for Czech, for example, Kosta (2003), Junghanns (2006). Some authors also use sentence adverbials as the marker of VP (ν P) boundary, see Diesing (1992) and note continued on next page

- c. (Ne.) Marii políbí [_{vP} zítra Pavel na ruku].
 (No.) Marie_{ACC} kisses tomorrow Pavel_{NOM} onto hand
 ‘(No.) Marie will be kissed onto her hand by Pavel tomorrow.’

Given the model proposed here, which allows QR, hence covert movement,¹⁵ one may ask whether the subject does not get its case in a covert position outside *vP*. Since the subject DP in (7b) and (7c) is a proper name, that is, of type <e>, it does not QR and gets its case in situ.¹⁶ Note also that according to Chomsky (2004), the movement operation is composed of the agree operation, pied-piping and merge.¹⁷ If case on arguments is a result of the agree operation, then it is assigned already before the operation pied-piping and (re)merge can happen, which again goes against the covert-movement case assignment.

As for direct objects, a similar pattern as with subjects can be observed. Concretely, in sentence (8b) the direct object *dopisy* ‘letters’ gets accusative case in its base position, as demonstrated by the fact that the object follows the indirect object *dětem* ‘children’ in *vP*, preserving the original word order.¹⁸ As in the preceding example, the correlation between the context sentence (8a) and information-structural properties of (8b) shows that the direct object occurs in the domain of information focus, that is, in the *vP* phase. Parallel to the argumentation in example (7), the presence of a directional PP indicates that the direct object must be in *vP* and excludes the possibility that the object – getting its case - is moved to the right or that it is moved to the left specifier position in *vP*, followed by movement of the remnant predicate to some higher position.¹⁹ In the latest version of minimalism (Chomsky 2005 [2008] or 2007), structural accusative is assigned by V, which inherits ϕ -features of the phase head *v*, in a parallel fashion to the head T in the C-T complex in the CP phase. This means that the question whether or not the direct object moves to Spec*vP* for the case reason does not arise. Since the concept of feature inheritance is not needed in my analysis and since

Webelhuth (1989) for German, Jackendoff (1972) for English, and Holmberg (1986) for Scandinavian languages.

¹⁵ See Pesetsky (2000) for arguments that it is necessary to distinguish between covert movement and feature movement or agree.

¹⁶ Proper names can be treated as generalized quantifiers (<<e, t>, t>), too, but I follow the more standard approach here.

¹⁷ Consider the original formulation from Chomsky (2004, 114):

(i) ‘Therefore, Move = Agree + Pied-piping + Merge.’

¹⁸ Without further discussion, I assume that indirect objects are merged higher than direct objects in Czech.

¹⁹ If one allows arbitrary movements out of *vP* (which then order the appropriate elements in the right way), then examples like (7c) and (8c) can also be analyzed in terms of the remnant approach. Since I see little motivation note continued on next page

it is also conceptually problematic,²⁰ I assume that structural accusative is valued by the phase head *v*. To sum up this discussion, neither θ -roles nor case make lexical items to move.

- (8) a. Řekni mi něco o Pavlovi.
 ‘Tell me something about Pavel.’
- b. Pavel [_{vP} posílá dětem dopisy].
 Pavel_{NOM} sends children_{DAT} letters_{ACC}
 ‘Pavel sends children letters.’
 ‘Pavel is sending children letters.’
- c. Pavel [_{vP} posílá dětem dopisy do Prahy].
 Pavel_{NOM} sends children_{DAT} letters_{ACC} to Prag
 ‘Pavel sends children letters to Prag.’
 ‘Pavel is sending children letters to Prag.’

In what follows, I investigate semantic and information-structural properties of lexical items in dependency on their overt syntactic position with respect to the *vP* boundary. Specifically, I will concentrate on a few notions that can be taken to be relevant to this topic. On the semantic side: QR, specificity, presuppositionality, existentiality, genericity and on the information-structural side: background and focus.

Before moving on, it is necessary to note that Czech is a language without overtly realised articles and that case marking, which is always present on DPs, does not say anything about (in)definiteness. This fact necessarily raises the question of how DPs receive their interpretation.

Consider more closely the dialogue between two friends in (9). In sentence (9b), which answers the question in (9a), the subject DP *soused* ‘neighbour’ occurs inside *vP* and can be interpreted existentially.²¹ It could be anybody from the neighbourhood, who kicked Pavel. (The DP *soused* can refer to a neighbour of Pavel or a neighbour of the speaker. This can be analysed, for example, by means of a context variable introduced by *soused*.) Therefore (9b) may be followed, for example, by *Ale neví se, kdo*. ‘But nobody knows who.’ in the dialogue.

for such an analysis and since it would be more difficult to account for the correlation between the syntactic position of particular elements and their interpretation, I will not pursue it here.

²⁰ Feature inheritance poses a problem for the weak version of the Phase Impenetrability Condition in the case of quirky subject constructions with a nominative object because the object in the complement of the phase head *v* is not accessible for T that inherits its ϕ -features from C (see discussion in Richards to appear).

²¹ The temporal adverbial again indicates the *vP* edge.

In contrast, when the subject DP is extracted from ν P, as shown in example (9c), it must receive a specific interpretation,²² which means that it refers to some particular person from the neighbourhood.²³ Following Diesing's approach (1992), I propose that the subject in (9b) is interpreted existentially because the DP introduces a free variable (that is, it has no quantificational force of its own) and is interpreted in the domain of nuclear scope of the quantificational structure (in the ν P phase) at the semantic interface, where the variable is bound by the existential closure. In contrast, in example (9c) the subject DP occurs outside ν P,²⁴ that is, it is overtly QR-ed,²⁵ forms a tripartite quantificational structure and is interpreted in the restrictive clause at the semantic interface, therefore the existence of a neighbour is presupposed.

- (9) a. Co je Pavlovi?
 ‘What is wrong with Pavel?’
- b. Pavla nakopal [ν P odpoledne soused].
 Pavel_{ACC} kicked in the afternoon neighbour_{NOM}
 ‘A neighbour kicked Pavel in the afternoon.’
 ‘The neighbour kicked Pavel in the afternoon.’
- c. # Pavla soused [ν P odpoledne nakopal].
 Pavel_{ACC} neighbour_{NOM} in the afternoon kicked
 ‘The neighbour kicked Pavel in the afternoon.’

On closer inspection, the subject DP in (9b), although it is overtly inside ν P, can also have a specific reading, which is obvious from the fact that (9b) may be continued, for example, by *Viš, koho myslím*. ‘You know who I mean.’ In this case, the subject DP is not bound in the domain of nuclear scope by the existential closure but is covertly moved to the CP phase (QR-ed because it has quantificational force), where it is interpreted at the semantic interface. Since according to my proposal the CP phase is interpreted as the restrictive clause of the

²² There are three different specific interpretations, as we will see, concretely, epistemic specificity, partitive and generic specificity. The specific interpretation in (9b) is epistemic.

²³ In sentences like (9c), some speakers prefer adding a demonstrative pronoun to the moved DP, which supports the claim that elements extracted from ν P get a presuppositional interpretation.

²⁴ More about the landing position will be said in section 2.5.1.

²⁵ For the proposal that scrambling can be treated as (a certain type of) QR see, for example, Johnson (2000) or Miyagawa (2006). In the model proposed here, scrambling is more than just QR because it also has the information-structural effect. This could be the reason why scope is so strongly determined by the surface word order in scrambling languages, in contrast to non-scrambling languages, which exhibit more scope ambiguities.

tripartite quantificational structure at the semantic interface, the subject DP receives a presuppositional interpretation.²⁶

As far as the information-structural status of the subject DP is concerned, in example (9b), it is focused, as indicated by the appropriateness of the answer to the context question in (9a), which is in accordance with my proposal that the *vP* phase is interpreted as the domain of information focus at the semantic interface. In contrast, in sentence (9c), where the subject occurs in the CP phase, it is interpreted as backgrounded because the CP phase is interpreted as the domain of background at the semantic interface, which makes sentence (9c) pragmatically infelicitous in the context of (9a).²⁷

A similar pattern can be observed in the case of direct objects, as illustrated by conversation (10) between two villagers from a village where people like hunting and almost every villager has a gun. The example shows that different positions of the object with respect to the *vP* boundary trigger different interpretations and that the in-situ position is interpretationally ambiguous.

- (10) a. Co je Marii?
 ‘What is wrong with Marie?’
- b. Marie [_{vP} odpoledne zastřelila psa].
 Marie_{NOM} in the afternoon shot dog_{ACC}
 ‘Marie shot a dog in the afternoon.’
 ‘Marie shot the/her dog in the afternoon.’
- c. # Marie psa [_{vP} odpoledne zastřelila].
 Marie_{NOM} dog_{ACC} in the afternoon shot
 ‘Marie shot the/her dog in the afternoon.’

As shown in (10b), when the direct object *psa* ‘dog’ occurs in situ in *vP*, it can be interpreted existentially. Such an interpretation is possible, for example, in the case where Marie went hunting with a few friends in the afternoon and shot a dog by accident. It could be a hunting dog from the village or any other dog from neighbourhood. Therefore speaker (10a) can, for example, continue: *Jakého psa?* ‘What dog?’ The existential interpretation here arises

²⁶ Although there is no overt indication that the subject DP is (in)definite, it is worth noting that there still is an ongoing discussion of whether to treat specific indefinites in terms of choice function or QR or both. I will not discuss this issue here and will assume the QR approach to specifically interpreted DPs.

²⁷ From now on, I use the hash to indicate pragmatic infelicity.

because the object introduces a free variable and is interpreted in the ν P phase at the semantic interface, which means that the variable, occurring in the nuclear scope, is bound by the existential closure. The direct object in (10b) can also receive a specific interpretation, which is evidenced by the fact that (10b) can be followed by a sentence like *Toho svého*. ‘The favourite one.’ It can be, for example, Marie’s dog. She shot it because it was old and very ill. Under this interpretation, the object has its own quantificational force, is covertly QR-ed to some position outside ν P and there it is interpreted in the restrictive clause at the semantic interface.

Now consider sentence (10c), where the object is spelled out outside ν P. In this position, the object DP can have only one interpretation, the specific one. Under this reading, the object is overtly QR-ed, forms a tripartite quantificational structure and since the CP phase is interpreted as the restrictive clause of the quantificational structure at the semantic interface, the existence of a certain dog is presupposed. Then, it is natural that the referent of *psa* can be picked up by the personal pronoun *ho* ‘him’ when the speaker of (10c) continues: *Stejně ho nikdo neměl rád*. ‘Anyway, nobody liked him.’

As far as the information-structural status of the object is concerned, given context question (10a) and the pragmatic felicity of sentence (10b), one comes to the conclusion that the ν P-internal object occurs in the domain of information focus. In contrast, sentence (10c) is pragmatically infelicitous as an answer to (10a); hence the ν P-external object belongs to the domain of background. This supports the proposal that the ν P edge divides sentences into two information-structural parts and that elements in the CP phase are interpreted as backgrounded at the semantic interface and elements in the ν P phase as informationally focused.

So far, I have treated bare singulars. Now, I will turn to more complex DPs. There is a possibility to use the weak quantifier *nějaký* (some, a) as an indefinite article in Czech. Having this in mind, consider example (11). As in the preceding examples, the position of the argument with respect to the ν P edge is the decisive factor for its interpretation. If the subject DP stays in the ν P position, it can receive an existential reading and is interpreted as focused, as shown in example (11a). In contrast, if the weakly quantified subject occurs outside ν P, it is interpreted as backgrounded and it must receive a specific interpretation, more precisely an epistemic specific interpretation, as demonstrated in (11b). There seems to be yet another type

of specificity involved in sentence (11b), concretely, partitive specificity.²⁸ Under the partitive specific interpretation, the quantified DP *nějaké děti* ‘some children’ picks up from the presupposed set of children only a few members and places them on the roof, so it is presupposed that there is another set of child(ren), in contrast to the epistemic specificity. That such an interpretation is possible is corroborated by the fact that sentence (11b) can be followed, for example, by *Ty další se schovaly ve sklepě*. ‘The other hid in the cellar.’

- (11) a. Na střeše byly [_{VP} včera nějaké děti].
 on roof were yesterday some children_{NOM}
 ‘There were children on the roof yesterday.’
 b. Někaké děti byly [_{VP} včera na střeše].
 some children_{NOM} were yesterday on roof
 ‘The children were on the roof yesterday.’
 ‘Some of the children were on the roof yesterday.’

Another important observation concerns bare plural DPs. Because of their behaviour, bare plurals are usually considered to be weakly quantified DPs and are grouped together with indefinites. Consider, for example, sentence (12b), where the bare plural *lvy* ‘lions’ occurs in situ in vP. In that position, *lvy* can get both readings the existential and the specific one. As to the specific interpretation, it is generic specificity because the bare plural object refers to the kind of lions and kinds are standardly considered to denote some particular set of entities. Given the correlation with the context question in (12a), it is obvious that *lvy* is interpreted as backgrounded in (12b).

- (12) a. Co dělá tamhleten lovec?
 ‘What is that hunter doing?’
 ‘What does the hunter do?’
 b. Tamhleten lovec [_{VP} teď loví lvy].
 that hunter_{NOM} now hunts lions_{ACC}
 ‘That hunter is hunting lions now.’
 ‘That hunter hunts lions now.’

²⁸ On the topic of partitivity see, for example, Enç (1991).

- c. # Tamhleten lovec lvy [_{vP} ted' loví].
 that hunter_{NOM} lions_{ACC} now hunts
 'That hunter hunts lions now.'

However, in example (12c), where the bare plural DP is moved to the CP phase, it is interpreted as backgrounded – therefore (12c) is pragmatically infelicitous as an answer to question (12a) - and the only possible interpretation of the object is generic. Similarly as in the previous examples, data in (12) show that bare plurals, too, can be ambiguous between the existential interpretation and the presuppositional interpretation only in the *vP*-internal position. Following Diesing (1992), I assume that bare plurals introduce a variable and that the generic interpretation arises through a covert generic operator that binds the appropriate variable if the bare plural DP occurs in its restrictive clause. In the case of the generic interpretation of the *vP*-internal object in (12b), the object is covertly moved, so that it appears in the restrictive clause of the generic operator at the semantic interface. Thus, in the case of the generic interpretation, the only difference between (12b) and (12c) is that in the first case movement of the object is covert, whereas in the second case it is overt.

As to definite DPs, consider example (13), where Pavel's mother asks her daughter about Pavel, supposing that he is already at home. Although Czech does not have definite articles, the definite interpretation can be indicated by demonstrative pronouns, as shown in (13b) and (13c), see Späth (2006), who argues that demonstratives can instantiate the head D in Czech.

- (13) a. Pavel je doma?
 'Is Pavel at home?'
 b. (Jo.) Pavel [_{vP} ráno přinesl to rádio].
 (Yes.) Pavel_{NOM} in the morning brought the radio_{ACC}
 '(Yes.) Pavel brought the radio in the morning.'
 c. # (Yes.) Pavel to rádio [_{vP} ráno přinesl].
 (Yes.) Pavel_{NOM} the radio_{ACC} in the morning brought
 '(Yes.) Pavel brought the radio in the morning.'

In example (13b), the direct object *rádio* 'radio' stays in its external merge position in the *vP* phase. Although the object refers to some particular entity - for example, to the broken radio that was in need of repair - it can be informationally focused and does not have to be narrowly focused or contrastively stressed, as sometimes argued (as, for example, in Diesing 1997).

This seems to be true only for pronouns. It can be a consequence of the fact that the referent of pronouns, unlike definite DPs, is maximally salient in the discourse (Roberts 2003). Although there is a general tendency for definite DPs to be backgrounded, they in fact can also be interpreted as focused. Note that if the object DP moves out of ν P in (13c) and consequently is interpreted as backgrounded at the semantic interface, the sentence is pragmatically infelicitous in the given context. Thus, the data show that definiteness itself cannot be a trigger of overt movement of lexical items to the CP phase and that there are two types of definite DPs.

Definite DPs of the first type are overtly moved to the CP phase and receive the presuppositional and backgrounded interpretation when the CP phase is transferred to the semantic interface. Definites of the second type receive the presuppositional reading but occur in the ν P phase and are interpreted as focused (compare Jäger 1995, who differentiates between anaphoric and referential definites, which differ in the presence/absence of the [+Topic] feature and consequently in the possibility to scramble). Such definites refer to some entity that is also identifiable without a previous mention in the discourse, based on the uniqueness of the referent, as in example (13b). In contrast, definites of the first type denote an entity that must have been mentioned in the discourse beforehand or that must be present in the common ground, as in example (13c). Following Diesing (1992), the difference between the two types of definites is that definites of the first type are QR-ed overtly, whereas definites of the second type covertly, because presuppositional DPs are always QR-ed.²⁹

To demonstrate what it means to be a presupposition-inducing expression, imagine a situation that you are in a bar and you see a cowboy shoot a man. Then you can say that sentence (14a) with the weakly quantified object *nějakého chlapa* ‘a man’ is true. However, to know whether sentence (14b) with the proper name *Pavel* is true or not, you need to know a bit more information, you need to know the context (see Carlson 2000). Concretely, you need to know to which individual the object *Pavel* refers, that is, whether the shot cowboy really is Pavel.

²⁹ For a different point of view see Diesing (1997), who proposes that definite DPs can also introduce a free variable, but given Heim’s (1982) Novelty Condition – according to which existential closure can bind only variables that are new in the discourse – definite DPs must move out of VP to escape existential binding.

- (14) a. Nějaký kovboj [_{VP} zastřelil nějakého chlapa].
 a cowboy_{NOM} shot a man_{ACC}
 ‘A cowboy shot a man.’
- b. Nějaký kovboj [_{VP} zastřelil Pavla].
 a cowboy_{NOM} shot Pavel_{ACC}
 ‘A cowboy shot Pavel.’

Examples with proper names, too, show that it does make sense to differentiate between specificity or definiteness as a referential property of DPs and backgrounding as a discourse pragmatic property of DPs. Thus, if you want to report about the accident in the bar, you cannot use sentence (15) with the moved proper-name object as an out-of-the-blue utterance when you speak with a friend:

- (15) Nějaký kovboj Pavla [_{VP} zastřelil].
 a cowboy_{NOM} Pavel_{ACC} shot
 ‘A cowboy shot Pavel.’

Although your friend can identify the referent of the proper name *Pavel* because he knows Pavel very well, (15) – where *Pavel* is moved to the CP phase and interpreted in the domain of background at the semantic interface - cannot be used because the referent was not introduced into the discourse beforehand or was not activated in any other way.

To summarise this section, we have seen that the proposal that the edge of *vP*, which is a relevant boundary in narrow syntax, also plays a crucial role in semantic and information structure of sentences has been corroborated by data. We have arrived at the following generalization, consider table (16).

(16)

	information structure		interpretation	
	background	information focus	specific/definite	existential
CP phase	•		•	
<i>vP</i> phase		•	•	•

We have seen that lexical items inside *vP* are interpreted as informationally focused and lexical items outside *vP* are interpreted as backgrounded, which is in line with the proposal that the *vP* phase is mapped into the domain of information focus and the CP phase into the

domain of background at the semantic interface. Furthermore, we have seen that, in contrast to the ν P-internal elements, ν P-external elements must get the definite or specific interpretation (which can be epistemic, partitive or generic). Thus, the existential interpretation is restricted to elements in the ν P-internal positions, concretely, to weakly quantified DPs that introduce a free variable that is bound by the existential closure. Strongly quantified DPs and weakly quantified DPs with the presuppositional interpretation that are overtly inside ν P are QR-ed and interpreted in the restrictive clause of the appropriate operator. This is in line with the proposal that the ν P phase is mapped into the nuclear scope and the CP phase into the restrictive clause of the tripartite quantificational structure when the clause is transferred to the semantic interface.

From the discussion in this section comes out that it is necessary to differentiate between specificity and definiteness as the semantic interpretation on the one hand (there is a presupposition of the existence of a set of entities) and backgrounding as the information-structural interpretation on the other hand (backgrounded elements must have been introduced into the discourse beforehand). For the relation between the information-structural properties of lexical items and their semantic properties, we get the following table:

(17)

	specific/definite	existential
backgrounded	•	
informationally focused	•	•

The table shows that the specific or definite interpretation is not restricted to the backgrounded elements. However, if an element is interpreted existentially, it must be focused. The other implication is that if an element is interpreted as backgrounded, then it must be specific or definite.

According to Diesing (1992), the tree mapping into the quantificational representation can apply at S-structure in German, in contrast to English, where it must apply at LF. Generalizations drawn from Czech data show that the mapping process must reflect not only overt positions but also covert positions of lexical items. In any case, in the minimalist model, where the LF-structure is a part of narrow syntax, that is, there are no separate ordered cycles for overt and covert movement, Diesing's differentiation is not applicable. In the model proposed here, the mapping process reflects just the phase structure of a sentence with its copies, which are either spelled out or do not at the phonological interface.

2.5 Syntactic properties of phrasal movement

So far, I have dealt with semantic and information-structural properties of movement of lexical items to the CP phase but I have not been specific about syntactic properties of this movement. Thus, let us begin with featural properties of elements moved to the CP phase.

I argued in the preceding section that the ν P edge divides sentences into two parts syntactically, semantically and information-structurally and that elements inside ν P are focused and receive an existential or a specific/definite interpretation and elements outside ν P are backgrounded and obligatorily specific or definite. The specific interpretation of a DP in situ arises when it is QR-ed and bound in the CP phase. Under the copy theory of movement, it means that the upper copy is interpreted in the restrictive clause at the semantic interface and the lower copy is spelled out and interpreted as focused. The existential interpretation of a DP arises when the variable introduced by the DP is not inherently bound. To achieve the binding of free variables in ν P, the domain is closed off by the existential closure. Thus, in this case, the appropriate DP is both spelled out and interpreted in the ν P phase. What overt movement does is that it moves (copies) an element to the CP phase. When the CP phase is transferred to the interfaces, the upper copy is spelled out and interpreted in the restrictive clause and in the domain of background (the element receives the backgrounded and specific or definite interpretation).

In the minimalist framework, movement must be triggered, that is, feature-driven, consider Chomsky's Last Resort principle (1995, 253):

(18) Last Resort

‘Move is driven by feature checking...’

Given the Last Resort principle and given the fact that case does not trigger movement and that θ -roles are assigned elements in their external merge positions, we need to find a trigger for the movement to the CP phase somewhere else. We have seen that backgrounding implies specificity and that specificity does not imply backgrounding. Thus, backgrounding seems to be a good candidate for the feature triggering movement to the CP phase. However, in the model proposed here, interpretation results from the syntactic configuration. For example, elements occurring in the CP phase are interpreted as backgrounded and specific only because they are present there when the phase is transferred to the interfaces. Therefore, there do not have to be teleological features such as information-structural features and, in fact, in the

minimalist model there should be no teleological features (see, for example, Chomsky 2001, who argues that a computational system should be ‘dumb’ in this respect).

If one does not adopt this point of view, there is still a problem with the fact that something like background-feature can trigger only overt movement. In the copy (or remerge)³⁰ theory of movement, overt movement is just a certain implementation (that is, the pronounced implementation) of the operation move. Therefore, one would like to have only one feature for movement in general. Such a feature could also trigger covert movement (QR of a DP overtly in situ), which results in the specific interpretation, similarly as in the case of backgrounded lexical items.³¹ Biskup (2006a) uses a specificity-feature but I do not follow the proposal because not all moved elements can be interpreted as specific. In fact, all one needs is any indifferent feature that can induce movement (the other job is done by the interfaces). Therefore, I will call the feature $\mu(\text{ovement})$ -feature. According to Chomsky (2001), probe features are unvalued and uninterpretable. Pesetsky & Torrego (2007), however, argue that the unvalued property does not have to go hand in hand with uninterpretability. According to them, all four combinations of the (un)valued and (un)interpretable property are possible. I will follow their proposal and assume that probe features are unvalued and that they can be either interpretable or uninterpretable. Concretely, the probe $\mu(\text{ovement})$ -feature is unvalued and uninterpretable because it is the $\mu(\text{ovement})$ -feature of the moved element (goal) that is interpretable.

We have seen that for the information-structural interpretation the overt position of elements is decisive and that covert movement is not important. In contrast, for the semantic interpretation, covert movement plays an important role as well. Given the correlation between the overtness of movement and the backgrounded interpretation, there must be a feature on elements in narrow syntax that can affect both interfaces. This is necessary because interfaces do not communicate with each other in the standard minimalist model. For this reason, I assume that the μ -feature can have the generalized EPP-feature as its subfeature, following Pesetsky & Torrego’s (2001) proposal that the EPP-feature can be a property of other features.³² If an element with the μ_{EPP} -feature is moved to the CP phase, the

³⁰ According to Chomsky (2005, 6, note 16 [2008]), remerge is the copy theory as originally formulated.

³¹ I still differentiate between covert movement and the operation agree, which is the first part of the operation move, see note 17. Hence, there are interpretational differences between only agreeing elements and the covertly moved elements. The operation move can have even more parts if one also takes into consideration matching, as a prerequisite for the operation agree, and concatenation and labelling, as parts of the operation merge.

³² For the generalized EPP-feature see Chomsky (2000, 102) or (2004, 116).

phonological interface will know that the element (its copy) must be spelled out in the CP phase and the semantic interface will know that the element must be interpreted in the backgrounded domain and in the restrictive clause. However, if an element with the pure μ -feature is moved to the CP phase, the phonological interface will not spell out it when the CP phase is transferred and the semantic interface will know that the element is to be interpreted only in the restrictive clause of the quantificational structure but not in the backgrounded domain. Now, we can turn to the landing position of movement to the CP phase.

2.5.1 Chomsky's object shift

In the rest of this chapter, I discuss Chomsky's approach (2001) to free word order phenomena in more detail. I show that Chomsky's approach is not fully empirically adequate and runs into certain conceptual problems. The difficulties represent the more general problem with intermediate features in successive-cyclic movement. Therefore, I propose the Phase Featuring principle that determines the presence of intermediate features in successive-cyclic movement and can overcome problems of Chomsky's approach.

Let us now look at Chomsky's model (2001) more closely. Comparing different types of languages and concentrating on Scandinavian object shift, Chomsky proposes an analysis of various movements that have semantic effects. More concretely, he uses the operation OS³³ to derive different types of movement: object shift (scrambling), topicalization or wh-movement. OS is object raising to the XP position in the following configuration:

$$(19) [\beta C [\text{Spec } T \dots [\alpha XP [\text{Subj } v^* [_{VP} V \dots \text{Obj}]]]]]$$

(=(56) in Chomsky 2001, 33)

There are two universal principles (20a) and (20b), which we got to know in section 2.2, and one parameter distinguishing OS and non-OS languages, as stated in (20c). Whereas OS languages observe parameter (20c), non-OS languages do not.

- (20) a. v^* is assigned an EPP-feature only if that has an effect on outcome.
 b. The EPP position of v^* is assigned Int.
 c. At the phonological border of v^*P , XP is assigned Int'.

(=(61) in Chomsky 2001, 35)

³³ I use the abbreviation OS only when I refer to Chomsky's (2001) object shift.

By the phonological border of v^*P , Chomsky means a position not c-commanded by phonological material within v^*P . It is crucial that an object in situ can also be at the phonological border.

We have seen that Czech belongs to OS (scrambling) languages. Hence, according to Chomsky's generalization, it should observe (20c). However, the possibility of OS does not depend on verb raising and is not blocked by other elements in vP such as an adverbial or indirect object, as demonstrated by example (21). In other words, in Czech - just as in German or Dutch, which are however OV languages - OS is always possible and Czech does not obey Holmberg's Generalization. If the verb stays in v , as in example (21a) or (21c), the object is not at the phonological border and the application of parameter (20c) is blocked. In such a case, the object in Icelandic and Mainland Scandinavian can get both interpretations 'surface' Int or 'non-surface' Int' and consequently OS bringing Int is neither needed nor possible because of (20a).³⁴ One would expect the same for Czech but the object can be shifted, as shown in example (21a) or (21c).

- (21) a. Pavel₁ tu knihu₂ [_{vP} odpoledne t₁ koupil t₂].
Pavel_{NOM} the book_{ACC} in the afternoon bought
'Pavel bought the book in the afternoon.'
- b. Pavel₁ koupil₃ tu knihu₂ [_{vP} odpoledne t₁ t₃ t₂].
Pavel_{NOM} bought the book_{ACC} in the afternoon
'Pavel bought the book in the afternoon.'
- c. Pavel₁ tu knihu₂ [_{vP} t₁ koupil t₂].
Pavel_{NOM} the book_{ACC} bought
'Pavel bought the book.'
- d. Pavel₁ koupil₃ tu knihu₂ [_{vP} odpoledne t₁ Jirkovi t₃ t₂].
Pavel_{NOM} bought the book_{ACC} in the afternoon Jirka_{DAT}
'Pavel bought the book for Jirka in the afternoon.'

Since OS is driven by the EPP-feature, which gives the interpretation Int according to (20b), the object in situ may not be assigned Int in Czech. Thus, whether or not at the phonological

³⁴ Similarly, according to Chomsky, in non-OS languages (Romance or English-type Germanic), which do not observe (20c), the object in situ can also get both types of interpretation (Int or Int'), whether or not it occurs at the phonological border. Then, given (20a) and (20b), v^* can move the object only if the movement results in interpretation other than Int (for example, in the case of successive-cyclic wh-movement).

border, the object in situ would have to always receive the interpretation Int',³⁵ which contrasts with all other language types mentioned in Chomsky. Taking into consideration Czech and other Slavic OS languages, Chomsky needs to introduce to his typology VO OS languages for which parameter (20c) is not relevant.

As already mentioned above, Chomsky uses Int for the semantic interpretation of the shifted object that in Holmberg (1999) has to do with specificity-definiteness, new/old information, topic and focus and the interpretation Int' is then the complement of the interpretation Int. However, as shown in section 2.4, facts are not so simple in Czech. We saw that the semantic interpretation and the information-structural interpretation do not correlate in one-to-one fashion. The backgrounded interpretation is possible only in the case of elements (overtly) occurring in the CP phase and the focused interpretation only in the case of elements occurring in the vP phase but the specific/definite interpretation is possible with elements in both phases. Therefore, both types of interpretation cannot be subsumed in Int or Int'. Concretely, at first sight, the surface interpretation Int could be the specific/definite and backgrounded interpretation and Int' - as the complement of Int - would have to be the existential and focused interpretation. However, the problem is that elements in the vP phase can also receive the specific/definite interpretation (that is, Int) but they cannot receive the backgrounded interpretation there, which should also be involved in Int.

According to Chomsky (2001), OS languages can move shifted objects from the OS position to a higher position in the sentence. As he points out, building on Holmberg (1999), shifted pronouns in Mainland Scandinavian and shifted full objects in Icelandic are in a position higher than the edge of vP. Therefore Chomsky argues that OS languages have a phonological rule Disl that moves shifted objects to some higher position. In what follows, I test both possibilities: Either the shifted object stays at the edge of vP and gets the appropriate interpretation (Int in Chomsky's terms) there or the shifted object first gets the interpretation at the edge of vP and then raises by the phonological rule Disl to some higher position.

The first hypothesis faces the following problem. As already mentioned, temporal adverbials can be left-merged into vP. In that position, they can be focused (22b), as is clear from the context question (22a). The crucial fact is that the adverbial cannot receive the focused interpretation when it precedes an object that is interpreted as backgrounded, as demonstrated by sentence (22c), which is infelicitous in context (22a).

³⁵ At least in cases where the object is supposed to move.

- (22) a. Kdy si Pavel koupil to nové auto?
 ‘When did Pavel buy the new car?’
- b. Pavel si koupil to nové auto o sousedových narozeninách.
 Pavel_{NOM} self_{DAT} bought the new car_{ACC} on neighbour’s birthday
 ‘Pavel bought the new car on neighbour’s birthday.’
- c. # Pavel si koupil o sousedových narozeninách to nové auto.
 Pavel_{NOM} self_{DAT} bought on neighbour’s birthday the new car_{ACC}
 ‘Pavel bought the new car on neighbour’s birthday.’

Let us consider the derivation of (22c) in more detail. After merging the subject *Pavel* into SpecvP, there are two possibilities, either merging the adverbial *o sousedových narozeninách* ‘on neighbour’s birthday’ or movement of the direct object *to nové auto* ‘the new car’ to the outer SpecvP.³⁶ What we need is to exclude the possibility that the adverbial is merged into vP after the movement of the direct object and that it is focused in that position.

It is the merge-over-move principle that first comes into mind. The problem is that the adverbial and the direct object do not compete for any feature, as it is in the typical case of merge-over-move application, namely, expletive constructions, where the expletive has a person feature as well as the associate DP agreeing with the head T.³⁷ Furthermore, the temporal adverbial cannot satisfy the EPP-feature of *v* because the EPP-feature requires OS in Chomsky’s model. Chomsky (2004) argues that external merger does not suffice to check the OCC-feature (the EPP-feature) and that the only exception is an expletive. Hence, blocking the adverbial merger after the OS operation cannot be based on a competitive checking some feature on *v*.

In order not to allow adverbials to merge with vP after OS, one might assume that merge-over-move is a general principle. But such an assumption seems to be too strong. It would exclude, for example, instances of subject raising to TP followed by merger of an adverbial into the outer SpecTP. However, such derivations should be possible; compare, for example, Icelandic sentence (23) taken from Bobaljik & Jonas (1996, 217).

³⁶ Theoretically, it would be possible to tuck the direct object in the inner SpecvP, but since I assume the strict Extension Condition, I will not discuss this possibility here.

³⁷ In certain languages, expletives can also have other ϕ -features.

- (23) Í gær kláruðu sennilega margar mýs ostinn.
 yesterday finished probably many mice the cheese
 ‘Many mice probably finished the cheese yesterday.’

According to Bobaljik & Jonas, the subject *margar mýs* is moved to SpecTP and the sentence adverbial is adjoined to TP.

The general merge-over-move principle would also force all adverbials present in the appropriate lexical subarray to be merged into the first phase projection before any movement happens, so that they could not be spread over more projections in the phase and they could not interleave with moved lexical items.

The problem with (22c), of course, also arises if one assumes countercyclic merger of adjuncts into ν P.³⁸ One would have to stipulate that late-merged adverbials must target the ν P-position below the shifted object in order not to derive sentences with informationally focused ν P-adverbials preceding the shifted object.

To keep the position that the direct object is shifted to the ν P-edge position later than the adverbial is merged, one possibility still is left. The EPP-feature might be assigned to ν after merger of the adverbial. This, Chomsky explicitly proposes in (2000, 109). Concretely, he proposes that an EPP-feature can be assigned to the phase head after the lexical subarray of the appropriate phase is exhausted. However, it violates the Inclusiveness Condition that states that no new feature is introduced in the course of derivation, see, for example, Chomsky (2001, 2):

(24) Inclusiveness Condition

‘... Inclusiveness Condition, which bars introduction of new elements (features) in the course of computation...’

In addition, such a proposal can deal only with adverbials that occur in the same lexical subarray as the shifted object. Since the edge of a phase always stays present in the derivation after the complement of the phase head is transferred to the interfaces, it can happen that adverbials from the next higher lexical subarray (in the case of (22c) from the CP lexical subarray) are merged into the edge of the preceding phase, concretely, above the direct object in Spec ν P in example (22c).

³⁸ But see chapter 6 for arguments that adverbials are merged cyclically.

When narrow syntax cannot block this type of non-convergent derivations, one can try to find a solution at the interfaces. One could postulate a filter for languages like Czech that prohibits sentences with informationally focused elements linearised to the left of the backgrounded elements. However, this would give rise to complications again because such a filter would be too strong; there being instances of the so-called Rightward Backgrounding (Junghanns 2001) or pars-pro-toto movement (Fanselow 2004) that place an informationally focused exponent to the left periphery of the sentence.³⁹

To sum up the discussion of the first possibility, the difficulty for the hypothesis that shifted elements stay at the edge of νP lies in the fact that in Chomsky's model, the edge of νP is a mixture of shifted elements - which should have the surface interpretation Int, that is, the backgrounded (and specific/definite) interpretation in Czech - and externally merged elements, which can be focused (and existential or specific/definite). This does not pose a problem for my proposal because it keeps the relevant domains discrete. Recall that the separation is based on phasehood. The CP phase is interpreted as the domain of background and restrictive clause and the νP phase as the domain of information focus and the nuclear scope. This means that the landing position of backgrounded and specific elements must be in the CP phase, that is, the probe feature triggering the appropriate movement (μ_{EPP} -feature) must be at least on the head T.

Let us now consider the second possibility: Shifted objects are moved to a higher position by a phonological rule Disl. If the dislocation rule Disl that moves shifted objects really is a phonological movement, one is led to the conclusion that there are no semantic effects induced by Disl. Let us test it, for example, with the negation operator. NegP is located outside νP ; hence the prediction is that the object movement from the νP -edge position to a higher position that crosses Neg should not affect scope properties established before the movement. More specifically, negation should take scope over the quantified object. This, however, is not the case, as shown in example (25), where the sentence can have the following reading: It holds for all universities where Pavel studied that he did not finish them. Although sentence (25) can also get the interpretation with negation scoping over the quantified object, the crucial fact is that the object moving from the shifted position to a higher position across the negation operator can change scope properties.

³⁹ It would be possible, of course, to add some stipulations to the filter but necessarily at the cost of complicating the model.

- (25) Pavel [všechny školy]₁ nedodělal t₁.
 Pavel_{NOM} all universities_{ACC} neg.finished
 ‘Pavel did not finish any university.’
 ‘It is not true that Pavel finished every university.’

Similar scope effects are observable in sentences where the direct object crosses a quantified adverbial, as demonstrated by example (26). It is obvious from the foregoing discussion that nothing blocks the temporal adverbial from being left adjoined to vP above the OS position of the direct object. If Chomsky (2001) is right and Disl is a phonological movement, then the direct object moved from the OS position – which is c-commanded by the temporal adverbial – to a higher position by the phonological rule Disl should not take scope over the quantified adverbial. However, (26) – which is scopally ambiguous – can receive an interpretation where the object scopes over the adverbial, concretely: At least for one of the proposed books it is true that Pavel reads it every day. Thus, example (26) also goes against the phonological status of the movement from the OS position to a higher clausal position.

- (26) Pavel čte [alespoň jednu z navržených knih]₁ každý den t₁.⁴⁰
 Pavel_{NOM} reads at least one_{ACC} from proposed books every day
 ‘Pavel reads at least one of the proposed books every day.’

Icelandic object shift also displays interpretational effects in the case of movement across the negation operator. Consider example (27) taken from Bobaljik & Thráinsson (1998, 53). According to them, sentence (27a), where the shifted object crosses negation marking the left edge of VP⁴¹ and targets the specifier position of AgrOP, may only get the following interpretation: It holds for three specific books that I did not read them. In contrast, sentence (27b) only means that it is not true that I have read three books. If Disl were phonological movement and the interpretation Int were assigned at the edge of vP (that is, below Neg), as Chomsky (2001) proposes, then it would not be clear why sentence (27b) cannot also receive the interpretation with the specific object, like sentence (27a).

⁴⁰ The control sentence (i) shows that the temporal adverbial can be adjoined above the direct object:

(i) Pavel čte každý den alespoň jednu z navržených knih.
 Pavel_{NOM} reads every day at least one_{ACC} from proposed books

⁴¹ In accordance with Bobaljik & Thráinsson (1998), I use the abbreviation VP instead of vP.

- (27) a. Ég las þræjár bækur_i ekki t_i
 I read three books not
 ‘I didn’t read three books.’
 b. Ég las ekki þrjár bækur
 I read not three books
 ‘I didn’t read three books.’

The data presented in (25), (26) and (27) show that movement of shifted objects from the edge of νP to a higher position feeds both the semantic and the phonological interface. Therefore the (second) hypothesis that objects are further moved by a phonological movement (Disl in Chomsky 2001) cannot be right. Objects are raised to a higher position but the movement step cannot be a purely phonological phenomenon, it must be a process that takes place in narrow syntax. This fits into my proposal that it is the head T that bears the μ_{EPP} -feature responsible for scrambling (object shift) and triggers overt movement in narrow syntax. Checking of the μ_{EPP} -feature on T then provides the right interpretation for the moved elements. They will be interpreted as specific/definite and backgrounded due to the mapping of elements with the μ_{EPP} -feature in the CP phase into the restrictive clause and the background domain. In section 2.5 we saw that covert movement differs from overt movement only in the EPP-subfeature (and consequently in the backgrounded interpretation). Therefore, for covert movement, I also propose that the probe feature - in this case, μ -feature - is placed at least as high as the head T.

2.5.2 The EPP-feature

We have seen that Chomsky’s OS (2001) is an operation that shifts the object to the edge of νP , that it is driven by the EPP-feature, and that it is the first step of object shift (scrambling)⁴² and A’-movement. Hence, the EPP-feature on ν (or other phase heads) in connection with the Phase Impenetrability Condition ensures that movement proceeds in small steps.⁴³ In this respect, it does the same job as the Subjacency Condition; see, for example, Chomsky (1977, 1986). This means that long movement successively targets the edge of every phase. In this section, I will look at Chomsky’s EPP-feature more closely and will show that there are several problems with it.

⁴² The second step is the phonological movement Disl.

⁴³ Chomsky also calls the EPP-features P(eripheral)-features (2000), OCC(urrence) features (2004) or edge-features (2005 [2008]). For details see the cited papers.

Firstly, there are, in fact, two types of the EPP-feature and they behave differently. The first type of the EPP-feature is already present in the lexical subarray and can be checked by external merger, this is the EPP-feature on the head T that is satisfied, for example, by an expletive. The second type of the EPP-feature is added directly onto the phase head after exhausting its lexical subarray and is checked by movement, this is the EPP-feature on *v* or other phase heads inducing object shift or successive-cyclic movement.

The second problem is that the second type of the EPP-feature violates the Inclusiveness Condition, as already discussed in the preceding section, because it can be assigned to the phase head after the lexical subarray of the appropriate phase head is exhausted.

Thirdly, the presence of the EPP-feature on a phase head - which is optional - is driven by its consequence because this type of the EPP-feature can be used only if it brings about certain effects, as we also saw in the preceding section. Thus, the proposal has to work with look ahead in the case of successive-cyclic movement because at the time when the intermediate EPP-feature is assigned, it is not known what will happen in the next phase(s) and whether the next movement steps brings about an effect. In order to avoid the look-ahead problem, one could let the derivation work freely with the EPP-feature(s) and let the semantic interface decide whether the appropriate EPP-feature brought an effect or did not. Then, derivations with an EPP-feature without an effect would be filtered out. However, this way of derivation would be computationally very inefficient because the whole computational effort would be lost if the derivation crashes at the semantic interface (see discussion in Frampton & Gutmann 2002).

The fourth problem is that the movement operation driven by the EPP-feature is not based on agree because the goal element does not bear a matching feature. This contrasts with Chomsky's (2001) proposal that movement is composed of the agree operation, pied-piping and merge.⁴⁴ Chomsky (2004) is aware of this problem and proposes that some feature of the goal element matches the OCC-feature (EPP-feature). However, later, Chomsky (2005 [2008]) argues that there is no feature matching (hence agree) between the probe edge-feature and the moved element.

Fifthly, there is a problem with locality. As demonstrated by object shift in the following example, the indirect object (28a) as well as the direct object (28b) can move in Czech.

⁴⁴ See also note 17.

- (28) a. Pavel₁ dětem₂ [_vP odpoledne t₁ pošle t₂ dopisy₃].
Pavel_{NOM} children_{DAT} in the afternoon sends letters_{ACC}
‘Pavel will send the children letters in the afternoon.’
- b. Pavel₁ dopisy₃ [_vP odpoledne t₁ pošle dětem₂ t₃].
Pavel_{NOM} letters_{ACC} in the afternoon sends children_{DAT}
‘Pavel will send the letters to children in the afternoon.’

Recall that the EPP-feature on the head *v* cannot be checked by external merge. One expects that the EPP-feature moves the closer element. In this way, according to Rackowski & Richards (2005), object shift works in Icelandic or Tagalog. And that is how it works in sentence (28a), where the structurally higher object is moved. However, there is a possibility to shift the lower object, too, in OV scrambling languages like German and VO scrambling languages like Czech. Then, in sentence (28b), the indirect object *dětem* ‘children’ is closer to *v* with the EPP-feature than the moved direct object *dopisy* ‘letters’.⁴⁵ In order not to violate locality, the EPP-feature must somehow know which element it shall move, hence the scrambled element should bear a matching feature that is not present on the intervening elements. Therefore Chomsky (2004) suggests that some feature of the element moving to the edge of *v*P matches the OCC-feature. However, Chomsky (2005 [2008]) tries to avoid this problem stipulating that the edge-feature can seek any goal in its domain (the edge-feature is *indiscriminate*) and that the probe edge-feature does not have to agree with the appropriate goal, as we saw in the discussion of the agree problem above.

Consider now example (29), where both objects are scrambled. It seems that either there is a need for more than one EPP-feature on the phase head or every moved element must bear a feature that matches the EPP-feature on *v* if one assumes one-to-many checking. Otherwise it would not be clear why in certain cases only one object moves (28) and in other cases both objects move (29).⁴⁶

⁴⁵ The same argument can be made in the case of A'-movement as well.

⁴⁶ According to Chomsky (2005, 10 [2008]), the edge-feature permits indefinite merge to the edge of the phase head and according to Chomsky (2005, 6 [2008]), the edge-feature permits a lexical item to be merged and ‘...articulates the fact that merge is unbounded, that a language is recursive infinite system of a particular kind.’ Chomsky (ibid.) differentiates between full expressions like interjections, which do not have to have the edge-feature, and other expressions, which bear the edge-feature. However, it is not clear why the ability to be merged is not taken to be a default property of the language system and why this property must be marked with some feature. The difference between lexical items like interjections, which do not bear the edge-feature, and the note continued on next page

(29) Pavel₁ dětem₂ dopisy₃ [*v*P odpoledne t₁ pošle t₂ t₃].

Pavel_{NOM} children_{DAT} letters_{ACC} in the afternoon sends

‘Pavel will send the children the letters in the afternoon.’

If there is a one-to-many relation between the EPP-feature and the moved elements, then other complications will arise when the EPP-feature, in addition to the object-shift movement, triggers also OS (that is, the first step to the phase edge) of an A'-movement. Consider example (30), where the moved wh-object *co* certainly does not get the surface interpretation Int (it is neither interpreted as specific nor as backgrounded), and where the indirect object certainly is interpreted as specific and backgrounded. The problem is that in this case the EPP-feature on *v* must do both, it must induce the surface interpretation Int of the indirect object and at the same time it may not induce Int of the direct object.

(30) Co₃ Pavel₁ dětem₂ [*v*P odpoledne t₁ pošle t₂ t₃]?

what_{ACC} Pavel_{NOM} children_{DAT} in the afternoon sends

‘What will Pavel send the children in the afternoon?’

Note that there is a dependency between wh-movement of an object and the presence of the EPP-feature on the head *v*. If there is a wh-feature on the object, then for derivation not to crash, the phase head *v* must be assigned an EPP-feature that can trigger movement of the wh-object to the edge. Only in this way, the object can escape the transfer and consequences of the Phase Impenetrability Condition. This is not the case in object shift, which is optional, and where the derivation does not crash when an EPP-feature is not assigned to *v*. It is certainly desirable that when an EPP-feature is assigned to *v*, then it moves the right element and does not let down the wh-object with its wh-feature, so that the computational effort is not lost. Then, however, the EPP-feature (Chomsky 2001) or the edge-feature (Chomsky 2005 [2008]) should not be indiscriminate.

The difference between object shift and wh-movement of an object also plays an important role in double-object constructions if there is a one-to-many relation between the indiscriminate EPP-feature and the moved objects. If the EPP-feature on the head *v* first moves the object without the wh-feature, then the EPP-feature is satisfied and theoretically

others then could be worked out at the interfaces; merging an element with an interjection would result in a ‘deviant’ expression.

does not have to move other elements, but the derivation then crashes because the wh-feature on the object in situ cannot participate in the agree relation with the head C. Thus, in this case the EPP-feature must apply at least twice. In contrast, when the EPP-feature on v first moves the wh-object and then nothing else, the derivation converges because the wh-feature on the moved wh-object can enter an agree relation with the head C and it has no grammatical consequences when object shift of the second object does not happen. In this case, the EPP-feature on v can apply only once.⁴⁷

The last problem is related to the problem with example (30). We know that in languages like Czech or German object shift (scrambling) is independent of the position of the verb or other elements. In this respect, scrambling is always possible, which means that the edge of vP can always be assigned an EPP-feature. We have seen that according to Chomsky's (2001) universal principles, the EPP position is assigned the surface interpretation Int; therefore every OS-ed wh-object theoretically could receive Int. However, this prediction is not met, as we saw in example (30), where the moved wh-object *co* 'what' does not receive the surface interpretation (it cannot be interpreted as specific or backgrounded). There are whPs that have a specific (presuppositional) interpretation, for example, *který* 'which' but it is an inherent property of the wh-word and it is independent of the syntactic position. Thus, the surface interpretation Int should be blocked for OS-ed wh-elements.

To summarise this discussion, it seems that the best way to avoid the problems discussed above is to assume discriminate EPP-features in one-to-one relation with the moved elements. This will solve the locality problems, problems with (multiple) OS of elements of different types and also the agree problem. Recall that in my proposal interpretation of particular elements is the result of their syntactic position, featural specification and the process that maps phases with the appropriate elements into the tripartite quantificational structure and information structure at the semantic interface. In the preceding section, I argued that features triggering movement to the CP phase – that is, μ -feature for covert movement and μ_{EPP} -feature for overt movement – are present on the head T. Thus, if every moving element has its own EPP-feature on the head v and receives the appropriate interpretation at the semantic interface due to the checking of the appropriate feature in the CP phase, then all elements (no matter whether scrambled or wh-moved) can go through the vP -edge position

⁴⁷ The same argument applies in the case where there is one-to-one relation between EPP-features and the moved elements. In the first case, for the derivation to converge, v must be assigned at least two EPP-features and in the second case, one EPP-feature is sufficient.

without changing their interpretation there and there will be no problem with blocking the surface interpretation in the case of wh-moved objects. The EPP-features will still have an effect on outcome in accordance with Chomsky's universal principles because scrambled elements are further moved to SpecTP, where they receive the appropriate interpretation when the CP phase is transferred to the semantic interface, and wh-objects are further moved to SpecCP, where they induce, for example, the question interpretation.

To distinguish between particular types of the EPP-features, I will call them after the probe (final-position) feature. Then, features on the head v (or other phase heads that provide an intermediate landing position), for example, for overt wh-movement will be called wh_{EPP} -feature and for overt movement to the CP phase (scrambling) μ_{EPP} -feature.⁴⁸ The feature for covert movement then will be called μ -feature or wh-feature. In that way an agree relation between the probe intermediate feature (EPP-feature) and the goal feature of the moving element is ensured.

There are still the first three problems left: the problem with the Inclusiveness Condition, the problem with two types of the EPP-feature and the look-ahead problem. In order to avoid the look-ahead problem and make derivations efficient in the crash-proof manner, we need to somehow establish the dependency between the presence of the intermediate feature on the phase head and the feature on the moved element. This is the main task of the next section.

2.5.3 Phase Featuring

In this section, I propose the Phase Featuring principle that determines the presence of intermediate features in successive-cyclic movement and that can overcome problems discussed in the preceding section.

Under the standard assumption, intrinsic features are already present on lexical items in the lexicon and non-intrinsic features are assigned to lexical items as they enter the lexical array (see, for example, Chomsky 1995). We saw in the preceding section that every moving object has its own intermediate probe feature on the phase head. Since the intermediate

⁴⁸ According to McCloskey (2002), who deals with successive-cyclic movement in Irish, the concept of 'a feature of a feature' is problematic; therefore he proposes that overt movement to the edge of a phase (concretely, the CP phase) can be induced by the joint presence of an EPP-feature and the feature that needs to be checked. However, taking into consideration the discussion above, McCloskey's proposal gets into complications in cases where more movements of different types go through the same phase edge. If there is note continued on next page

features are not of the intrinsic type, given the Inclusiveness Condition, they should also be assigned to phase heads in the lexical array. Since the manipulation of features in the lexical array does not violate the Inclusiveness Condition, I assume that the manipulation of features in the lexical subarrays does not violate the Inclusiveness Condition either. Then, if features like *wh*-features or μ -features are assigned in the lexical (sub)array, there can be a general principle that automatically adds a corresponding intermediate feature onto the phase head ν , for example, in the case of object shift, provided that there is an object with some of the mentioned features in the ν P lexical subarray. We have seen that the second step of object shift (scrambling) is also narrow-syntactic movement and that this movement is triggered by the μ_{EPP} -feature on the head T. This can be treated as an automatic adding of a μ_{EPP} -feature onto ν in the ν P lexical subarray. As I will show in the following chapters, elements other than objects or subjects can scramble, too, which means that they will be treated in the same way. As to adding the intermediate features onto ν or other phase heads, I will modify the Phase Featuring principle of Biskup (2007a).

Before going on, let us look at Chomsky's (2001) notion of lexical (sub)array more closely. In Chomsky's proposal, each phase has a separate lexical subarray and the lexical subarray is identifiable by the (single) phase head. First, a lexical array is chosen from the lexicon, then a lexical subarray is chosen from the lexical array and the computation works on this lexical subarray. After its exhausting, a new subarray is chosen from the lexical array and the computation works on the new lexical subarray and so forth until the lexical array is exhausted. The Phase Featuring principle that I propose applies to lexical subarrays as stated in (31).

(31) Phase Featuring

If a goal feature *F* does not have its movement probe feature *F* in its current phase subarray, add an unvalued uninterpretable *F*-feature onto the phase head.

Thus, when a lexical subarray with a goal feature is chosen from the lexical array, the Phase Featuring principle checks whether the goal feature has its movement probe feature in the chosen subarray. If this is not the case, an intermediate feature is added onto the phase head. The intermediate feature is unvalued because it serves as a probe and uninterpretable because

only one EPP-feature (not all movements must be overt), then it is not clear to which feature it belongs. Although McCloskey's proposal treats Irish data well, it is not suitable for our purposes.

it does not affect semantic properties of the phase head (the moved elements can bring about new scopal and binding relations, though). Consequently, the element with the goal feature is moved to the phase edge in the derivation.

Czech also has nominative object constructions, as shown in (32). There is an agree relation between the unvalued uninterpretable ϕ -features on the probe head T and the valued interpretable ϕ -features on the nominative object that crosses the ν P phase boundary because the nominative object stays in situ. Thus, since not every probe feature triggers movement, it must be explicitly stated in the Phase Featuring principle that the intermediate unvalued uninterpretable feature can be added onto the phase head only in the case of the ‘movement’ probe feature. This means that unvalued ϕ -features - though probe features - are not movement features, in contrast to the μ -feature or wh-feature.

- (32) Pavlovi se líbí určitě ten nový film od W. Allena.
 Pavel_{DAT} self likes certainly the new film_{NOM} from W. Allen
 ‘Pavel certainly likes the new film by W. Allen.’

The Phase Featuring principle can derive not only OS (the first step of movements like object shift, scrambling or wh-movement) but also long successive-cyclic movement. When the goal feature and its probe feature are long distant from each other, the principle ensures that the successive-cyclic movement goes through all intermediate phase edges. This means that the Phase Featuring principle applies iteratively. More concretely, if an element moves to the phase edge - for example, to the edge of the ν P phase - then it becomes related to the next lexical subarray, that is, ‘its current phase subarray’ is the CP lexical subarray. If this subarray does not contain its probe feature either, an intermediate feature is added onto the phase head (now the head C) again and so on so forth. To put it in other words, the intermediate feature added by the Phase Featuring principle onto the phase head always compensates for the absence of the probe feature in the phase.

In order to know what ‘its movement probe feature F’ means in the Phase Featuring principle, we need to somehow establish a relation between the appropriate goal feature and its probe feature. Müller (2004b, 4, see also 2008, 10) proposes a constraint on numerations called Feature Balance, which states that ‘For every feature specification [$*F:\alpha*$], there must

be a matching feature specification $[F:\alpha]$.⁴⁹ Müller uses this constraint to exclude cases where a derivation contains two probe case features (on v and T) and only one goal case feature (on DP). The constraint can do the job we need for the Phase Featuring principle. Therefore, I reformulate it for my purposes as follows:

(33) Feature Balance

For every probe feature F , there must be exactly one goal feature F in the lexical array.

I omit the ‘specification’ of features from Müller’s constraint because I do not assume that the probe and goal feature must bear an identical specification (value). As already mentioned, I make the standard assumption that probe features are unvalued, that is, without a value. What is important in (33) is just the matching of the features. Given the discussion in the preceding section and the preference for the one-to-one relation between probe and goal features, I add ‘exactly one’ to the goal feature in (33).

Concerning coverage of the Feature Balance and the Phase Featuring principle, there is a difference, Feature Balance is meant not only for movement (covert or overt) but also for the agree operation. It does not make any difference in the case of Feature Balance whether or not the probe (unvalued) feature is a movement feature. Since EPP-features themselves have no goal – there is nothing like a matching EPP-feature in the derivation – the Feature Balance constraint does not apply to them. This will become relevant in the next chapter.⁵⁰

Let us now look at how the Phase Featuring and Feature Balance work together.⁵¹ After selecting a lexical array from the lexicon, the Feature Balance constraint applies. If it is not satisfied, the derivation crashes. It is an important benefit of the Feature Balance constraint that it can already block certain unsuccessful derivations in the lexical array because it is computationally more efficient than letting derivations crash because of unchecked features after certain computational effort. In this respect, it differs from the Phase Featuring principle, which does not have a blocking ability.

If the constraint is satisfied, a lexical subarray is selected from the lexical array and then the Phase Featuring principle applies. From the definition of the Phase Featuring principle in (31) is obvious that adding intermediate features does not work blindly. The intermediate

⁴⁹ The stars indicate the probe status of the feature.

⁵⁰ So far, I have dealt with EPP-features as with subfeatures of other features: wh -features and μ -features. In such cases, the EPP-subfeature indicates overt movement. To the superfeatures (wh -feature and μ -feature), Feature Balance, of course, applies.

features are used exactly in such situations where it is necessary. Thus, there is no optionality and consequently no overgeneration connected with subsequent filtering, as in Chomsky's model (2001). And there is also no undergeneration. This is in line with a crash-proof approach to derivations (see Frampton & Gutmann 2002, who argue that in the ideal case the computational system generates only well-formed objects). To put it in other words, the element with the goal feature is (successive-cyclically) moved as long as it meets its probe feature. This can happen in this way because it is clear that the probe feature will appear somewhere in the course of the derivation, as ensured by the Feature Balance constraint. In this respect, the Feature Balance constraint brings about the same effect as look ahead. It is important that lexical subarrays - which are subsets of the lexical array - take the result of the Feature Balance constraint for granted and that in the appropriate cases the Phase Featuring principle must apply. In this way, the look-ahead problem is solved.

To be accurate, the question of overgeneration, albeit without subsequent filtering, arises in the case of elements merged at the edge of the phase head. Consider, for example, a derivation with the *wh*-moved subject. Given the Phase Featuring principle, the head *v* should get an intermediate *wh*_{EPP}-feature (because the probe *wh*_{EPP}-feature on *C* is not present in the *vP* subarray, where the goal feature of the subject is present). However, since the subject is merged at the edge of *vP*, the intermediate feature is not necessary. There are two basic possibilities. Either one allows such a redundancy or adds some requirement on the 'goal feature *F*' in the Phase Featuring principle and restricts its range to non-edge elements. Accepting the first possibility means that intermediate features can also be checked by external merge. This seems to be a viable way because it has no bad consequences in the proposed model. As to the second possibility, it is not clear how the 'goal feature *F*' can be restricted to non-edge elements without recourse to their syntactic position. Note that the Phase Featuring principle applies in the lexical subarray and there it is not known where particular elements will be merged in the structure. Concretely, it is not known whether the argument with the goal *wh*_{EPP}-feature will be merged in a non-edge position (as an object) or in the edge position (as the subject). Therefore, I opt for the first possibility.

In what follows, I will demonstrate how the Phase Featuring principle works in particular derivations. Let us begin with an example of successive-cyclic *wh*-movement, as shown in (34).

⁵¹ It is worth mentioning that they only apply to formal features.

(34) Co₁ myslíš, že Pavel čte t₁?

what_{ACC} you.think that Pavel_{NOM} reads

‘What do you think that Pavel reads?’

‘What do you think that Pavel is reading?’

The relevant parts of the derivation of (34) are in (35). First, the lexical array is selected from the lexicon. Then, the Feature Balance constraint applies. It is satisfied because for the probe (unvalued) wh_{EPP}-feature on the head C, there is exactly one goal (valued) wh_{EPP}-feature in the lexical array (LA), as shown in (35a). Therefore, the derivation continues and the vP lexical subarray (SA_{vP1}) is selected from the lexical array. The Phase Featuring principle then applies and since the goal wh_{EPP}-feature on *co* does not have its probe feature (wh_{EPP}-feature on C) in the SA_{vP1}, a wh_{EPP}-feature is added onto the phase head v₁, as demonstrated in (35b). In the syntactic structure, the added intermediate feature on v₁ agrees with the goal wh_{EPP}-feature on *co* and moves *co* with its wh_{EPP}-feature to the edge of vP₁. When the vP₁ phase is finished, the lexical subarray of the embedded CP (SA_{CP1}) is chosen and the Phase Featuring applies. Since the goal wh_{EPP}-feature on *co* does not have its probe feature in the CP₁ lexical subarray, a wh_{EPP}-feature is added onto the phase head C₁, as shown in (35c), which then moves *co* to the edge of CP₁. The same process is repeated for the matrix vP, as demonstrated in (35d). Then the lexical subarray of the matrix CP (SA_{CP2}) is chosen and in this case the goal wh_{EPP}-feature on *co* has its probe feature in its current phase subarray, therefore no feature is added, as shown in (35e). Finally, the probe wh_{EPP}-feature on the head C moves *co* to SpecCP.

- (35) a. LA: Feature Balance satisfied: {wh_{EPP} on C wh_{EPP} on *co*}
- b. SA_{vP1}: Phase Featuring applied: {added wh_{EPP} on v₁ wh_{EPP} on *co*}
- c. SA_{CP1}: Phase Featuring applied: {added wh_{EPP} on C₁ (wh_{EPP} on *co*)}⁵²
- d. SA_{vP2}: Phase Featuring applied: {added wh_{EPP} on v₂ (wh_{EPP} on *co*)}
- e. SA_{CP2}: Phase Featuring applied: {wh_{EPP} on C (wh_{EPP} on *co*)}

Another interesting issue is multiple movement. We have already seen that Czech has multiple scrambling. Consider now example (36) showing that there are no superiority effects

⁵² The round brackets indicate that *co* with the wh_{EPP}-feature belonging to the lexical subarray is still present in the syntactic tree.

in the case of multiple scrambling. The scrambled objects *dětem* ‘children’ and *dopisy* ‘letters’ can appear in both word orders.

- (36) a. Pavel₁ dětem₂ dopisy₃ [_{vP} odpoledne t₁ pošle t₂ t₃ do Prahy].
 Pavel_{NOM} children_{DAT} letters_{ACC} in the afternoon sends to Prag
 ‘Pavel will send the children the letters to Prag in the afternoon.’
 b. Pavel₁ dopisy₃ dětem₂ [_{vP} odpoledne t₁ pošle t₂ t₃ do Prahy].
 Pavel_{NOM} letters_{ACC} children_{DAT} in the afternoon sends to Prag
 ‘Pavel will send the children the letters to Prag in the afternoon.’

We have also seen that scrambled elements move to TP and that the movement is triggered by the μ_{EPP} -feature. Then, the relevant parts of the computation of sentence (36a) and (36b) look like (37). The lexical array with the satisfied Feature Balance constraint is shown in (37a). The probe $\mu_{1\text{EPP}}$ -feature on the head T has exactly one goal feature (on *dětem*) and the same holds for the probe $\mu_{2\text{EPP}}$ -feature on T, which has its goal feature on *dopisy*.⁵³ The lexical subarray of the vP phase after the application of the Phase Featuring principle is shown in (37b). To analyse the fact that there are no superiority effects in the case of multiple scrambling, I assume that features present on the same head – in our example, the probe μ_{EPP} -features on T and the added intermediate μ_{EPP} -features on v - can apply in any order in Czech.⁵⁴ This connected with the one-to-one relation between the probe features and the goal features brings about the non-superiority effects.

- (37) a. LA: { $\mu_{1\text{EPP}}$ on T, $\mu_{2\text{EPP}}$ on T, $\mu_{1\text{EPP}}$ on *dětem*, $\mu_{2\text{EPP}}$ on *dopisy*}
 b. SA _{vP} : {added $\mu_{1\text{EPP}}$ on v , added $\mu_{2\text{EPP}}$ on v $\mu_{1\text{EPP}}$ on *dětem*, $\mu_{2\text{EPP}}$ on *dopisy*}

It is obvious from the discussion that the Phase Featuring principle overcomes problems of Chomsky’s EPP-features discussed in the preceding section. In particular, there are no EPP-features (intermediate features) assigned in the proper syntax. There is only one type of features; all features are assigned in the lexical (sub)arrays. Therefore, the Inclusiveness Condition is not violated. The presence of intermediate features is not determined by their consequence (an effect on outcome), but by the Phase Featuring principle, which means that

⁵³ The one-to-one relation between the probe and goal feature is marked by the index.

adding intermediate features does not work blindly.⁵⁵ Consequently, the look-ahead problem or the computational-complexity problem does not arise here. In my proposal, movement to the phase edge is based on agree. The intermediate unvalued probe features agree with the valued matching goal features. Then, given the one-to-one relation between the intermediate probe features and the goal features, movements to the phase edge do not violate locality. And since the moved elements receive the appropriate interpretation at the semantic interface due to the checking of the appropriate feature in the CP phase (and not in the EPP position at the phase edge), there is no problem with blocking the surface interpretation of certain elements at the phase edge.

2.6 Conclusion

In this chapter, I have discussed phrasal movement, mainly movement of arguments to the CP phase (scrambling). From the semantic and informational-structural point of view, the following generalizations have been drawn from the data. The ν P-internal elements can receive the existential interpretation or the definite and specific interpretation, which can be of the epistemic, partitive or generic type. In contrast, the ν P-external elements can receive only the definite and specific interpretation. Further, elements inside ν P are interpreted as informationally focused and elements outside ν P as backgrounded. This means that existentially interpreted elements must be focused and that elements interpreted as backgrounded must be specific or definite. Therefore, I have proposed a model where the phase structure is correlated with the tripartite quantificational structure and information structure of sentences. At the semantic interface, the ν P phase is interpreted as the nuclear scope of the quantificational structure and as the domain of information focus. The CP phase is interpreted as the restrictive clause and the domain of background.

The proposal uses the copy theory of movement. The focused and existential interpretation of an argument arises when the variable it introduces is bound in ν P by the existential closure. In this case, the argument is spelled out and interpreted in the ν P phase.

⁵⁴ This can be parameterised for particular languages. If the probe and intermediate features (on all intermediate phase heads) must always apply in the same order in certain languages, one obtains shape conservation effects, similarly as in Fox & Pesetsky's (2005) model.

⁵⁵ An interesting proposal that also specifies circumstances under which intermediate movement happens can be found in Heck & Müller (2000). In their Optimality-Theoretic proposal, successive-cyclic wh-movement to intermediate positions is non-feature-driven movement that is driven by the interplay between the Phase Balance constraint, Last Resort constraint and other constraints (compare also Heck & Müller 2003 and Müller 2007). The Phase Featuring principle proposed here has similar effects as their Phase Balance constraint.

The backgrounded and specific/definite interpretation of an argument arises in the case of overt movement. When the CP phase is transferred to the interfaces, the upper copy is both spelled out and interpreted there. The focused and specific/definite interpretation of an argument in situ arises when it is QR-ed and bound in the restrictive clause (in the CP phase). In that case, the upper copy is interpreted in the restrictive clause at the semantic interface and the lower copy is spelled out and interpreted as focused.

As to the syntactic properties of phrasal movement, I have argued that object-shifted (scrambled) elements do not stay at the edge of vP and that they move to some position in the CP phase. In contrast to Chomsky (2001), I have argued that this movement is not semantically vacuous and that it is this movement step that gives rise the appropriate interpretation (specific/definite and backgrounded). I have proposed that the probe feature (μ_{EPP} -feature) triggering this movement step must be at least as high as the head T.

Then I have proposed the Phase Featuring principle that determines the presence of intermediate features on phase heads in successive-cyclic movement. Thus, the first step of object shift is driven by the intermediate feature added onto the phase head v by the Phase Featuring principle. This proposal is able to derive not only object shift, but also scrambling of elements other than objects and also long successive-cyclic movement.

Chapter 3

Verb movement and architecture of the CP phase

3.1 Introduction

In this chapter, I show that there is a dependency between the position of the nominative subject and the position of the finite verb in the sentence. The generalisation is that either the subject or the finite verb must raise to the CP phase. To analyse this fact, I modify Pesetsky & Torrego's (2001, 2004, 2007) approach to the interaction between tense-motivated movement and nominative case on the subject. I propose that the head T bears an EPP-feature with the tense property (abbreviated as EPP_T -feature). This feature can be satisfied either by the nominative subject or by the finite verb because both elements are specified for the T-feature. Movement triggered by the EPP_T -feature is formal, which is obvious from the fact that the moved finite verb reconstructs for the focused interpretation to the vP phase.

I show that the finite verb – similarly as XPs - can also raise to the CP phase to satisfy a μ_{EPP} -feature on T and then it is interpreted in the restrictive clause of the tripartite quantificational structure and in the domain of background. This means that the existence of the event expressed by the verb is presupposed. Since verb movement can feed both interfaces, I argue that verb movement is a narrow-syntactic phenomenon. As will be shown, this is supported by the fact that verb movement obeys syntactic locality conditions.

I also show that clausal architecture is more articulated than I assumed so far and that there is a need for at least one projection more – namely, MoodP - in the CP phase. If the finite verb raises to the CP phase, then it moves to the head Mood.

In the preceding chapter, I dealt with phrasal movement, mainly scrambling, and showed that it brings about semantic and information-structural effects. In this chapter, I show that there is another type of phrasal movement, which differs from scrambling in its properties. This type of phrasal movement has no interpretational effect. I argue that it is the EPP-feature on the head Mood that is responsible for this formal movement. If an element moved to the CP phase checks only the EPP-feature on Mood – that is, it does not bear a feature that determines that it is to be interpreted in the CP phase at the semantic interface – this movement has no interpretational effects in the sense that the moved element reconstructs for the existential (if possible) and focused interpretation to the vP phase. Therefore, I argue that it is a general property of the EPP-feature as a superfeature that it triggers formal movement.

Further, I argue that Czech has topicalization movement to the projection CP. This movement is a syntactic topicalization, not topicalization of the aboutness type. Since topicalization can bring about the same semantic and information-structural effects as phrasal movement discussed in the preceding chapter, I propose that the head C can also bear an unvalued uninterpretable μ_{EPP} -feature. Thus, what is characteristic for (both short and long) topicalization is that, in contrast to the μ_{EPP} -features driving scrambling, the μ_{EPP} -feature triggering topicalization is present on the head C and this feature is unique. An element valuing this feature then is spelled out and interpreted in the CP phase.

The chapter is organised as follows. Section 3.2.1 is concerned with intransitive sentences. I show that there is a dependency between the position of the nominative subject and the position of the finite verb and analyse it by means of tense-motivated movement. In section 3.2.2, I analyse positioning of the subject and the finite verb in transitive sentences. In section 3.2.3, I argue that verb movement is a narrow-syntactic phenomenon and not a phonological operation. In section 3.3, I argue for the projection MoodP placed between CP and TP and discuss verb movement to the head Mood. In section 3.4, I show that SpecMoodP is not the aboutness-topic position. In section 3.5, I argue that the head Mood bears the EPP-feature, which can trigger formal XP movement. Then, I discuss possible combinations of the EPP-feature with other features and their role in the syntactic derivation. Section 3.6 deals mainly with long topicalization and argues that Czech has topicalization movement to CP. Finally, section 3.7 summarises the chapter.

3.2 Verb movement and the head T

3.2.1 Intransitive predicates

Let us begin our investigation with the simplest case: maximally focused intransitive sentences with two lexical items (thetic sentences); there is no movement driven by the μ_{EPP} -feature. The word order for unaccusative verbs is given in the (b) sentences in example (1) and (2) and for unergative verbs in the (b) sentences in example (3) and (4). With the normal intonational pattern having the main accent on the rightmost accentable item, the (c) sentences are pragmatically infelicitous in the contexts given in the (a) sentences; the sentences are appropriate in the given context only if the subject bears the main accent (like thetic sentences in other Slavic languages, Germanic or Romance languages, see Křížková 1953; Cardinaletti 2002; Junghanns 2002a, b; Williams 2003; Costa & Silva 2006). In sentences with the unaccusative verbs, the elements preserve the original word order, that is, the subject follows the verb, as demonstrated in (1b) and (2b).

- (1) a. Jsi naštvaný? Co se stalo?
'Are you annoyed? What's up?'
b. Vzniknou problémy. (A nevím, co dělat.)
occur troubles_{NOM}
'Troubles will occur. (And I don't know what to do.)'
c. # Problémy vzniknou. (A nevím, co dělat.)
troubles_{NOM} occur
'Troubles will occur. (And I don't know what to do.)'
- (2) a. Co se stalo? Kam všichni běží?
'What happened? Where is everyone running to?'
b. Hoří Národní divadlo.
burns National Theatre_{NOM}
'The National Theatre is burning.'
c. # Národní divadlo hoří.
National Theatre_{NOM} burns
'The National Theatre is burning.'

The surface word order of sentences with the unergative predicate is identical to the sentences with the unaccusative verb, as illustrated in sentences (3b) and (4b). Given the base word

order of elements in unergative sentences, it shows that the finite verb is moved. In contrast to the unaccusative examples, verb movement is visible here.

- (3) a. Jsi naštvaný? Co se stalo?
 ‘Are you annoyed? What’s up?’
- b. Zpívá Hašler. (Bud’ ticho!)
 sings Hašler_{NOM}
 ‘Hašler is singing. (Shut up!)’
- c. # Hašler zpívá. (Bud’ ticho!)
 Hašler_{NOM} sings
 ‘Hašler is singing. (Shut up!)’
- (4) a. Jsi naštvaný? Co se stalo?
 ‘Are you annoyed? What’s up?’
- b. Hraje Sparta. (A já nedostal vstupenku!)
 plays Sparta_{NOM}
 ‘Sparta is playing. (And I have not got a ticket!)’
- c. # Sparta hraje. (A já nedostal vstupenku!)
 Sparta_{NOM} plays
 ‘Sparta is playing. (And I have not got a ticket!)’

What happens when the subject is interpreted as backgrounded, as, for example, in (5)? For the unergative sentence to be appropriate in context (5a), the subject *Hašler* must precede the verb, as demonstrated by (5b). If the verb precedes the subject, as demonstrated in (5c), the sentence, having the normal intonational pattern, is pragmatically infelicitous in context (5a).

- (5) a. Slyšel jsem, že dneska bude Hašler v Redutě.
 ‘There is a rumour that Hašler will perform in Reduta today.’
- b. (Jo.) Hašler zatancuje.
 Hašler_{NOM} dances
 ‘(Yes.) Hašler will dance.’
- c. # (Jo.) Zatancuje Hašler.
 dances Hašler_{NOM}
 ‘(Yes.) Hašler will dance.’

The same also holds for sentences with unaccusative verbs. Consider example (6). A sentence with the unaccusative verb is pragmatically felicitous in context (6a) only when the subject moves and crosses the finite verb, as demonstrated in (6b). Otherwise, the sentence with the normal intonational pattern is not appropriate, as shown in (6c).

- (6) a. Proč všichni běží k Národnímu divadlu?
 ‘Why are all running to the National Theatre?’
- b. (To je jasné.) Národní divadlo hoří.
 National Theatre_{NOM} burns
 ‘(That is clear.) The National Theatre is burning.’
- c. # (To je jasné.) Hoří Národní divadlo.
 burns National Theatre_{NOM}
 ‘(That is clear.) The National Theatre is burning.’

To summarise, the data suggest that when the subject is interpreted as informationally focused at the semantic interface, that is, (given the discussion in the preceding chapter) it stays in situ in the ν P phase, then the finite verb moves.¹ However, when the subject is interpreted as backgrounded – that is, it is probed by the μ_{EPP} -feature on the head T and moves to the CP phase - the verb stays in the ν P phase and is interpreted as informationally focused there. The generalisation is that some element must raise. Consequently, the question arises what the subject and the verb have in common.

To analyse this pattern of behaviour, I follow Pesetsky & Torrego’s (2001, 2004, 2007) approach to the interaction between tense-motivated movement and nominative case on the subject.² In Pesetsky & Torrego’s approach, nominative case is an uninterpretable T-feature on the head D, which enters an agree relation with the interpretable T-feature on the head T. The nominative subject then can enter an agree relation with the uninterpretable T-feature on the head C. What is important is that the nominative subject competes for the T-feature on the head C with (the head of) TP.

Here, I modify their proposal and use it for moving ν to T in Czech. I assume that the head T bears an EPP-feature with the T property (EPP_T -feature). This feature can be satisfied

¹ For discussion ofthetic sentences with the sentence-initial subject bearing the main accent see section 3.5.

² As noted in Pesetsky & Torrego (2004), that nominative case is related to tense was first suggested by Williams (1994, 11).

either by the nominative DP or by the finite verb because both elements are specified for the T-feature. This allows us to analyse the data above.

Note that the appropriate feature on the head T must be indiscriminating to certain extent because it can trigger movement of different elements. Therefore, it cannot be, for example, T_{EPP} because the T-feature on T is an unvalued (and interpretable) feature, which can be valued by the valued T-feature on the verb but cannot be valued by the subject because the T-feature on the subject is unvalued. The feature on the head T also cannot be a pure (unrestricted) EPP-feature because, if there were no matching, it could also be satisfied by elements other than the subject and the verb. However, we only want to move either the nominative subject or the finite verb. Thus, in addition to the unvalued interpretable T-feature, the head T also bears the EPP_T -feature. To put it differently, the unvalued interpretable T-feature on T itself – though a probe feature – is not a movement feature. It is valued by the valued T-feature on the verb through the agree operation.³

First, let us look at cases with the moved verb, as shown in the b sentences of examples (1)-(4). There is no element interpreted as backgrounded in the sentences, hence the μ_{EPP} -feature plays no role in the derivation. Thus, the subject and the verb only compete for the EPP_T -feature and it must be the verb that satisfies it for some reason.⁴ Pesetsky & Torrego (2001) generalise head movement and propose that when a head bears an uninterpretable feature with the EPP property and when this feature probes a goal phrase that is the complement of the probing head, then it must be head movement of the head of the goal phrase to the probing head that satisfies the EPP-feature. I employ this proposal here and suggest that it is the reason why movement of the verb, and not of the subject, satisfies the EPP_T -feature on the head T in the relevant cases.

At this point, we need to know a bit more about the locality relation between the subject and the verb phrase. We have seen that in certain cases it is the finite verb that moves and in other cases it is the subject that moves and checks the EPP_T -feature on the head T. And we do not want these movements to violate locality. For this reason, I adopt Pesetsky & Torrego's (2001, 362) Closeness, as stated in (7).

³ Pesetsky & Torrego's proposal (2001) was also adopted by Bailyn (2001a, 2004) for Russian. Bailyn deals with IP-inversion constructions and proposes that the head I bears an uninterpretable [+T] feature that must be checked overtly.

⁴ The valuation of the T-feature on T by the verb does not play a role in the movement processes because it happens through the agree operation.

(7) Closeness

Y is closer to K than X if K c-commands Y and Y c-commands X.

Since Closeness is defined in terms of c-command, neither of the two candidates for satisfying the EPP_T -feature on T - the nominative subject and the projection νP - is closer to the head T. Therefore, theoretically, either of the two candidates can move to TP (instead of νP , only the verb moves, as discussed above).

Let us now look at how it works in the case of sentences with the moved subject, as shown in (5b) and (6b). Why does the verb stay in ν ? Analogically to Pesetsky & Torrego's proposal (2001, 2004), I argue that in this case verb movement is blocked by the more economical derivational step moving the nominative subject. As discussed in the preceding chapter, subjects interpreted as backgrounded are moved to the CP phase by the μ_{EPP} -feature on T. Thus, in the examples under discussion the nominative subject bears two features - the μ_{EPP} -feature and the T-feature - and can check the two movement features on the head T (the μ_{EPP} -feature and the EPP_T -feature) in one step. In contrast, movement of the finite verb can satisfy only the EPP_T -feature. Although, given Closeness in (7), the nominative subject and νP are equidistant from T, the more economical option is chosen, which means that the subject is moved and movement of the finite verb is not necessary.

3.2.2 Transitive predicates

As to transitive predicates, the same pattern emerges; word-order data also show that the finite verb must raise out of νP when the nominative subject stays in situ. Consider sentence (8b), where the direct object is moved to the CP phase and consequently interpreted as backgrounded and where the finite verb and the nominative subject are interpreted as focused, as indicated by context (8a). Since subjects interpreted as focused stay in situ, as argued in the preceding chapter, the word order shows that the finite verb is moved.

(8) a. Context: V Česku budete moci potkat studenty soukromých vysokých škol.

‘In Czech Republic, you will meet students of private universities.’ (literally)

b. Jejich vznik [T_r umožní [νP zákon schválený tento měsíc]].

their establishment_{ACC} allows law_{NOM} passed this month

‘The law passed this month will allow their existence.’

Thus, as in the case of intransitive constructions above, if there is no μ_{EPP} -feature related to the subject in the derivation, the EPP_T -feature on T is satisfied by the verb. This type of verb

movement is formal because it does not affect interpretation, as is obvious from the examples in the preceding section and from example (8). The moved verb is still interpreted as informationally focused, as evidenced by context (8a). This means that the EPP_T -feature on the head T does not keep the verb there and that the verb reconstructs for the focused interpretation to the vP phase (compare Buring 1997 and Steube 2000 for German).⁵

It has been argued that in Czech the finite verb often occurs in the second position in a sentence (see discussion in Křížková 1953; Sgall, Hajičová & Buráňová 1980; Junghanns 2002c; Kučerová 2007). In my analysis, it is a reflex of the fact that if an element occurs in the CP phase and it is not the nominative subject, the finite verb must raise to satisfy the EPP_T -feature on T. This also holds true in the case of transitive sentences, as we saw in example (8).⁶ However, when the nominative DP moves to the CP phase and satisfies both the EPP_T -feature and the μ_{EPP} -feature on the head T, the finite verb can stay in v , as demonstrated by the following example.

- (9) a. Cos říkal o Pavlovi?
 ‘What did you say about Pavel?’
 b. Pavel [_{vP} ve středu zabije děkana].
 Pavel_{NOM} on Wednesday kills dean_{ACC}
 ‘Pavel will kill the dean on Wednesday.’
 ‘Pavel will kill a dean on Wednesday.’

Nothing changes on this when the direct object also moves to the CP phase; the verb stays in v , as shown in (10b).⁷ The relative word order between the extracted subject and the object plays no role with respect to the position of the verb, compare (10b) with (10c).

- (10) a. Co má Pavel s děkanem?
 ‘What does Pavel have to do with the dean?’

⁵ I will argue below that EPP-features as superfeatures generally do not change interpretation and that XPs also move for formal requirements (to check the EPP-feature) and then reconstruct, for more discussion, see section 3.5.

⁶ Similar facts can be found in other languages as well, see Miyagawa (2003) for the relation between verb raising and the ability of an object to scramble in Japanese, Bailyn (2001a) and (2004) for Inversion constructions in Russian and other languages or Witkoś (2007) for Polish, among others.

⁷ The interpretation of the object, of course, changes, in comparison with (9b). Given the proposal that the CP phase is interpreted as the restrictive clause and the domain of background at the semantic interface and that the scrambled object bears the valued interpretable μ_{EPP} -feature, it must be interpreted as specific and backgrounded.

- b. Pavel děkana [_{vP} ve středu zabije].
 Pavel_{NOM} dean_{ACC} on Wednesday kills
 ‘Pavel will kill the dean on Wednesday.’
- c. Děkana Pavel [_{vP} ve středu zabije].
 dean_{ACC} Pavel_{NOM} on Wednesday kills
 ‘Pavel will kill the dean on Wednesday.’

However, this is not to say that the finite verb must always stay in *v* when the nominative subject moves. The verb, in fact, can raise as well, as illustrated by (11b). In the sentence, the verb is interpreted as backgrounded, as indicated by the context question in (11a). Thus, when both the nominative subject and the finite verb are moved, then both elements are interpreted in the CP phase as backgrounded. I assume that the finite verb also bears a μ_{EPP} -feature and therefore it raises. Note that the verb cannot stay in *v* and be backgrounded there, as illustrated by the inappropriateness of sentence (11c) in context (11a), which wants a sentence with an adverbial interpreted as focused, that is, positioned in the *vP* phase.

- (11) a. Kdy Pavel děkana zabije?
 ‘When will Pavel kill the dean?’
- b. Pavel děkana zabije [_{vP} ve středu].
 Pavel_{NOM} dean_{ACC} kills on Wednesday
 ‘Pavel will kill the dean on Wednesday.’
- c. # Pavel děkana [_{vP} ve středu zabije].
 Pavel_{NOM} dean_{ACC} on Wednesday kills
 ‘Pavel will kill the dean on Wednesday.’

There is no direct relation between the ability of the verb to raise and the extraction of the direct object out of *vP*, as might appear to be the case given (11b) (compare discussion in Miyagawa 2003 and Bailyn 2001a, 2004). Evidence for this is given in example (12b), where the finite verb raises and the direct object stays in situ in the *vP* phase and consequently can receive the existential and focused interpretation. Therefore, sentence (12b) is appropriate in the context given in (12a).

- (12) a. Pavel se chystá vraždit?
 ‘Pavel is about to commit a murder?’

- b. Pavel zabije [_{VP} ve středu děkana].
 Pavel_{NOM} kills on Wednesday dean_{ACC}
 ‘Pavel will kill the dean on Wednesday.’
 ‘Pavel will kill a dean on Wednesday.’

The data discussed so far suggest that verb movement is a narrow-syntactic phenomenon. If verb movement, for example, in (11b) were only a phonological process, it could not have an effect on interpretation. In the next section, we will look at other narrow-syntactic properties of verb movement.

3.2.3 Verb movement as a narrow-syntactic phenomenon

Veselovská (1995) argues that finite verbs leave the verb projection and raise to AgrO. Škrabalová (2003) uses floating quantifiers and manner adverbs as diagnostics for the verb position and proposes that the finite verb always raises to the head T in Czech because manner adverbs and floating quantifiers can follow it. However, the diagnostics with manner adverbs and floating quantifiers can also be used to show that the finite verb can stay in the head *v*. Consider sentence (13a) and (13b), which are modified examples from Škrabalová (2003, 4). In sentence (13a) the floating quantifier *všichni* ‘all’ precedes the finite verb and in (13b) the manner adverb *dobře* ‘well’ precedes the finite verb as well. Data like these support the above proposal that in certain cases the finite verb raises and in other cases it does not. Thus, as far as the position of the finite verb is concerned, Czech belongs neither to the English-type languages - where main verbs follow elements at the *vP* edge - nor to the French-type languages - where finite main verbs precede the elements at the *vP* edge - and, of course, nor to the V2 languages (compare Emonds 1976, 1978; Pollock 1989 or Roberts 2001).

- (13) a. Tito studenti vždycky všichni pracují.
 these students_{NOM} always all work
 ‘These students always all work.’
 b. Tito studenti vždycky dobře pracují.
 these students_{NOM} always well work
 ‘These students always work well.’

We have seen that either the finite verb raises to satisfy the (formal) EPP_T -feature or it raises to satisfy the μ_{EPP} -feature, which brings about the backgrounded interpretation. At first

glance, it may sound a bit odd to speak about backgrounding a verb. However, what I mean by satisfying the μ_{EPP} -feature in this case is that the existence of an event spelled out by the verb is presupposed (compare, for example, Herburger 2000 or Larson 2004).

Consider, for example, again sentence (12b), where the event of killing is presupposed, together with the existence of the agent *Pavel*. *Pavel* and the verb bearing the valued interpretable μ_{EPP} -feature move to the CP phase to value the appropriate unvalued uninterpretable μ_{EPP} -features on the head T.⁸ Consequently, they are spelled out in the CP phase and interpreted in the restrictive clause of the quantificational structure and in the background domain of the information structure at the semantic interface. The direct object and the temporal adverbial bear no movement feature, hence they stay in the vP phase and they are spelled out and interpreted there. If we assume the neo-Davidson event-semantic approach with the existential event quantifier forming the tripartite quantificational structure,⁹ then (12b) with the meaning ‘Pavel will kill a dean on Wednesday.’ receives the semantic representation (14), where the restrictive clause of the event quantifier - syntactically, the elements with the μ_{EPP} -feature in the CP phase – is enclosed in the square brackets and the nuclear scope with existential closure - syntactically, the vP phase with the temporal adverbial and the direct object - is enclosed in the round brackets.¹⁰ The event quantifier binds the event variable *e* introduced in the restrictive clause, which results in the presupposed interpretation of the event of killing, and the existential closure binds the remaining variable within the nuclear scope, that is, *x* in our case, which results in the existential interpretation of the DP dean.

(14) $\exists e$ [killing(*e*) & Agent(*e*, Pavel)] ($\exists x$, *x* is a dean & Patient(*e*, *x*) & on-Wednesday(*e*))

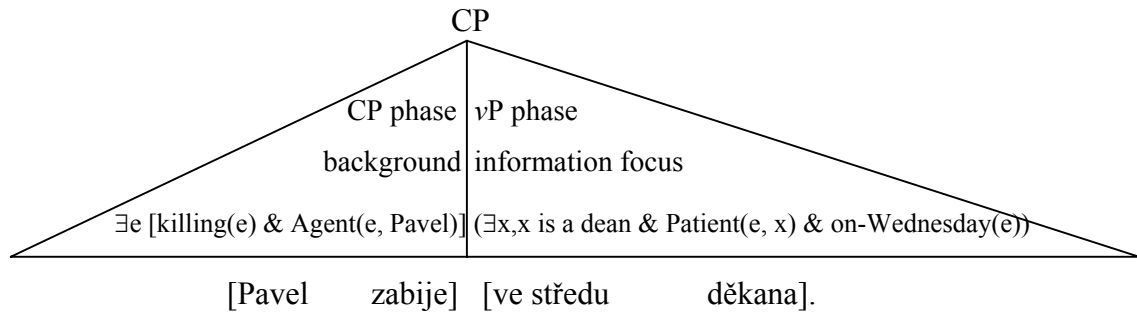
In accordance with the model proposed in the preceding chapter, the correlation between the phase structure, the quantificational structure and the information structure in sentence (12b) with the appropriate meaning can be schematised as (15).

⁸ In this way, the EPP_T -feature on T is satisfied as well.

⁹ We have already seen that the quantifier forming the tripartite quantificational structure can be a determiner or the covert generic quantifier. In the next chapter, we will see that other types are, for example, quantificational adverbials or illocutionary operators.

¹⁰ For simplicity, I ignore tense in (14).

(15)



Thus, there is a clear difference between verb movement checking only the EPP_T -feature (without the μ_{EPP} -feature) and verb movement checking the μ_{EPP} -feature. While in the former case the finite verb reconstructs for the focus interpretation to the vP phase, in the latter case the verb is interpreted in the CP phase at the semantic interface.

Note that one can refer to an event with a (prefixed) demonstrative pronoun *to* ‘this, that’ instead of the verb, as shown in example (16), where the direct object *knížku* ‘book’ is contrastively focused¹¹ and the verb is interpreted as backgrounded (compare also Iatridou 2007, who argues that there can be hidden determiners in the verbal morphology).

(16) a. Pavel vyhodil lampu?

‘What? Pavel threw away a lamp?’

b. KNÍŽKU Pavel vyto. (vyhodil)

book_{ACC} Pavel_{NOM} out.this (threw away)

‘It was a book that Pavel threw away.’

The proposal that verb movement is a narrow-syntactic phenomenon is supported by the fact that verb movement obeys syntactic locality principles. In yes/no questions, the verb typically moves across the subject, as demonstrated in (17b).¹² It must be the highest verb that moves, as shown by the contrast between (17b) and (17c). The main verb *libat* ‘kiss’ cannot skip the intervening auxiliary *bude* ‘will’ in (17c).

(17) a. Pavel bude líbat Marii.

Pavel_{NOM} will kiss Marie_{ACC}

‘Pavel will kiss Marie.’

¹¹ Henceforth, contrastively focused elements will be capitalised.

¹² The word order in (i) is possible as well but it is an echo question.

(i) Pavel bude líbat Marii?
Pavel_{NOM} will kiss Marie_{ACC}
‘Will Pavel kiss Marie?’

- b. Bude Pavel líbat Marii?
 will Pavel_{NOM} kiss Marie_{ACC}
 ‘Will Pavel kiss Marie?’
- c. * Líbat Pavel bude Marii?
 kiss Pavel_{NOM} will Marie_{ACC}

This example demonstrates that verb movement obeys the Head Movement Constraint, originally formulated in Travis (1984, 131), as stated in (18). For another formulation see, for example, Roberts (2001), compare also discussion in Chomsky (1986, section 11).

(18) An X° may only move into the Y° which properly governs it.

Many researchers have argued that head movement is syntactic. For instance, Matushansky (2006) shows that head movement of modals affects their interpretation and interacts with the negation operator. Similarly, Lechner (2007) discusses scope-splitting phenomena and argues that head movement affects interpretation because modal verbs interact with scope-bearing elements like negation or quantified DPs. Zwart (2001) discusses the placement of finite and non-finite verbs in various Germanic languages and argues that the lexical head and functional heads form an F(eature)-chain, which is created by head (feature) movement in narrow syntax. Visibility of such verb movement then is determined by requirements of phonological interpretability.¹³

Another analysis of verb placement is presented in Junghanns (2002a) for Czech and in Junghanns & Zybatow (1997) for Russian. They propose - in contrast to the present analysis - that finite transitive verbs can stay in the head V^{14} if the subject is narrowly focused. Consider sentence (19) from Junghanns (2002a, 16; originally from Sgall 1993, 361). In order to place the subject to the right-peripheral focused position, Junghanns proposes that in cases like (19) the subject moves to the right and adjoins to VP and that the verb and the object stay in VP because such a derivation (with one derivational step) is more economical than the derivation with the moved verb and object (two derivational steps), which leaves the subject in situ.

- (19) V Praze [_{VP} t_1 pečou housky pekaři₁].
 in Prag bake rolls_{ACC} bakers_{NOM}
 ‘In Prag, rolls are baked by bakers.’

¹³ For further discussion of syntactic head movement see also van Riemsdijk (1998) and Cinque (2004).

If the right-movement analysis of the right-peripheral subject were right, one would expect that the subject always takes scope over the object occurring in situ because it c-commands the object in both the base and the moved position. However, this is not the case, as illustrated by the slightly modified example (20), where the universally quantified object *každou housku* ‘every roll’ can scope over the existential subject *pekař* ‘baker’.¹⁵

- (20) V Praze peče každou housku pekař.
 in Prag bakes every roll_{ACC} baker_{NOM}
 ‘In Prag, every roll is baked by a baker.’
 ‘In Prag, rolls are baked by bakers.’

In order to maintain his proposal, Junghanns (2002a) would have to assume covert movement of the object (for a relation between scope and covert movement see, for example, Lasnik 1999, Pesetsky 2000) but this would mean two movements as well. If movement is treated as the operation *remerge* or copying, it probably does not play a role for the economy which copy of the appropriate element is spelled out.¹⁶ In my approach, sentences like (19) are analysed by means of verb movement, which satisfies the EPP_T -feature,¹⁷ and movement of the direct object, which values the appropriate μ_{EPP} -feature on the head T. This brings about the discussed scope relation between the moved object and the subject staying in the vP phase.

Junghanns’s analysis also faces the following problem. If we combine Junghanns’s proposal that non-selected adverbials are generated as adjuncts to VP (left or right) with his analysis of the narrowly focused subject presented above, then sentence (19) with an added adverbial will look, for example, like (21a). However, one can also derive sentence (21b), which is as well formed as example (21a), and there is probably no markedness difference between them. In (21b), the subject can also be narrowly focused, as in (21a), but the adverbial occurs between the verb and the object, which suggests that either adjunction of the adverbial to VP or the right-movement analysis of the right-peripheral subject presented above is not right.

¹⁴ That is, in v in the present model.

¹⁵ The example can also receive the generic interpretation, as shown by the translation.

¹⁶ See note 30 in chapter 2.

¹⁷ For more discussion on the final position of the verb see the next section.

- (21) a. V Praze vždycky pečou housky pekaři.
 in Prag always bake rolls_{ACC} bakers_{NOM}
 ‘In Prag, rolls are always baked by bakers.’
- b. V Praze pečou vždycky housky pekaři.
 in Prag bake always rolls_{ACC} bakers_{NOM}
 ‘In Prag, rolls are always baked by bakers.’

There are also other reasons why I do not follow Junghanns’s and Junghanns & Zybatow’s approach. In the model proposed by Junghanns & Zybatow (1997), Zybatow & Junghanns (1998) or Junghanns (2002a,c), there are two binary information-structural distinctions: topic versus comment and focus versus background. With respect to these distinctions, there are two types of features, the Topic-feature and the Focus-feature. The background and comment elements are specified and interpreted through complementarity to the elements with the Topic-feature and Focus-feature. These features are assigned to appropriate syntactic nodes in narrow syntax and they do not have to be checked but they can trigger (Greedy-type) movement. Thus, the first problem with the features is that their assignment violates the Inclusiveness Condition.

Another problem is that the model allows movement that is not feature-driven (violation of the Last Resort principle). For instance, elements that do not bear the Topic-feature (and any other feature responsible for movement) – recall that there are only two information-structural features: the Topic-feature and the Focus-feature - can move out of the focus domain, for example, out of VP with the Focus-feature to some higher position. Thus, this movement has no trigger and it is not clear how the appropriate elements know that they are supposed not to be part of the focus domain.

The two information-structural features do not behave uniformly and it is not obvious what the nature of these features is. For instance, the Topic-feature can trigger movement of its bearer to SpecAgrSP (which is the topic position) in certain cases but it can also be assigned to a constituent in the left periphery without inducing movement. The same holds true for the Focus-feature. It can also trigger movement of its bearer in certain cases (recall movement of the subject to the right in example (19)) but in other cases it does not trigger movement and its bearer can stay in situ.

Junghanns & Zybatow’s approach also needs a transderivational comparison to block the more costly derivations. Given the properties of their model, Junghanns (2002a), for example, needs compare the right-movement-of-the-subject derivation with the derivation

containing movement of the verb and the object in the case of sentence (19). However, such a transderivational comparison brings about high computational complexity. This problem and the problems just discussed do not arise in my proposal, where movement of the object and the verb out of ν P in cases like (19) is feature-driven and the subject remaining in the ν P phase is interpreted as focused and where features must be checked, given the fact that interfaces do not tolerate unchecked features. And in my proposal, there is no interpretationally comparable derivation in which the subject moves and the verb and the object stay in the ν P phase.¹⁸

Some researchers analyse head movement as remnant movement, see Koopman & Szabolcsi (2000), Nilsen (2003) or Müller (2004a). Nilsen, for example, discusses V2 and Holmberg's Generalization in various Germanic languages and argues against the traditional analysis of V2 in terms of head movement to C with subsequent topicalization. He argues that pronoun shift and V2 can be analysed as surface reflexes of one and the same operation: an operation that moves an XP that contains the verbal projection. Müller (2004a) also argues against the head-movement analysis of V2 and proposes an analysis of German V2, in which the preverbal topic position and the V2 position collapse into a single fronted remnant ν P.

The first reason why I do not adopt the remnant analysis of verb movement is that it does not bring any advantage in comparison with the head-movement analysis in the case of Czech data.¹⁹ We have seen that if the nominative subject stays in the ν P phase, the verb (intransitive as well as transitive) must raise. However, there are not regularities such as V2 or order-preservation effects, as in the case of Scandinavian object shift. There is only the dependency between the position of the nominative subject and the finite verb and this can be analysed as movement of the tense-specified subject or the tense-specified verb in one derivational step.

The second reason is that the remnant analysis of verb movement does not fit into the proposed model with the correlation between the phase structure, the tripartite quantificational structure and the information structure. If verb movement was analysed, for example, as remnant movement of ν P (no matter whether or not containing other elements), as in Müller

¹⁸ A potential problem of Junghanns's analysis (2002a) is that the right-movement step of the subject from SpecVP to the position adjoined to VP is too local (for discussion of antilocality phenomena see, for example, Abels 2003 or Grohmann 2003). This step is driven by the need to put the subject to the right-peripheral position. In fact, one could alternatively propose that the subject is externally merged to the right and no short movement would be necessary.

¹⁹ For conceptual problems with head movement and how they can be resolved see, for example, Matushansky (2006).

(2004a), then, given that the νP phase is interpreted as the domain of nuclear scope and information focus, focused elements could precede the backgrounded elements, which is impossible under standard circumstances. Such a remnant analysis could also never derive the above-discussed cases with the focused nominative subject and the moved non-unaccusative verb in terms of the model proposed here. More concretely, if the subject stays together with the verb in the remnant νP , it will not follow the verb, as it should do. And if the subject leaves the νP , it will not be interpreted as focused at the semantic interface.

3.3 Verb movement to Mood

It is obvious from works dealing with the left periphery in Czech (Veselovská 1995, Lenertová 2001, Junghanns 2002c, Meyer 2003, Škrabalová 2003) that the clausal architecture is more articulated than I assumed so far. Consider example (22). In the previous chapter, I argued that XPs scrambled to the CP phase are interpreted as specific/definite and backgrounded at the semantic interface and that the backgrounded interpretation is restricted to the CP phase. Specifically, I argued that the moved elements value the unvalued uninterpretable μ_{EPP} -features on the head T. In sentence (22a) the direct object *děkana* ‘dean’ is interpreted as specific and backgrounded, hence it occurs in SpecTP. Then, the subject and the finite verb occur in some projection higher than TP. That it is not the projection CP is obvious from sentence (22b), where the complementizer *že* ‘that’ occupies the head C. For now I will call the projection XP.

- (22) a. Pavel zabije [TP děkana [νP ve středu]].
 Pavel_{NOM} kills dean_{ACC} on Wednesday
 ‘Pavel will kill the dean on Wednesday.’
- b. [C' že [XP Pavel zabije [TP děkana [νP ve středu]]]].
 that Pavel_{NOM} kills dean_{ACC} on Wednesday
 ‘that Pavel will kill the dean on Wednesday.’

Thus, it is necessary to assume at least one head more in the clausal architecture.²⁰ This seems to be on the right track because, for example, according to Bobaljik & Thráinsson’s diagnostics (1998), Czech belongs to languages with a split IP, that is, with two subject

²⁰ The clausal architecture could be even more articulated when elements such as auxiliaries or modal verbs are added.

positions (SpecTP and SpecAgrSP in Bobaljik & Thráinsson's approach).²¹ In expletive constructions, the colloquial pronominal expletive *von* 'he' can occupy the higher specifier position in the split IP and the associate of the expletive can occur in the lower *v*P-external specifier position (SpecTP), as shown in (23).²²

- (23) [_{CP} [_{XP} (V)on je [_{TP} ten pes [_{vP} zrovna ted' v kuchyni]]]].
 he is the dog_{NOM} just now in kitchen
 'The dog is in the kitchen just now.'

As demonstrated by the following example, transitive expletive constructions also bring evidence that there is an extra position in the IP domain for the associate subject.²³

- (24) [_{CP} [_{XP} (V)on žere [_{TP} ten pes [_{vP} zrovna ted' v kuchyni kost]]]].
 he eats the dog_{NOM} just now in kitchen bone_{ACC}
 'The dog is eating a bone in the kitchen just now.'

In what follows, I investigate the nature of the projection XP. First, let us look more closely at verb movement.

As already shown in sentences (22)-(24), the finite verb raises to the head X. Given the Head Movement Constraint, according to which the moving head cannot skip an intervening head, the verb must move through the head T. In the examples under discussion, the finite verb does not raise to T because of the EPP_T-feature; it must also have a feature different from the T-feature to be able to raise. Otherwise the subject - which is backgrounded, hence it values the μ_{EPP} -feature on T - would check the EPP_T-feature together with the μ_{EPP} -feature and the verb would have to stay in *v* for reasons of economy.

What first comes to mind is the μ_{EPP} -feature. We have already seen that verbs can move because of the μ_{EPP} -feature and then be appropriately interpreted in the CP phase. But why does the finite verb raise further to the head X? One can propose that the μ_{EPP} -feature on the verb is still active (which is feasible because the feature is valued and interpretable from the

²¹ However, Bobaljik & Thráinsson's approach to verb raising based on the Split IP Parameter cannot be used for Czech because, in contrast to Bobaljik & Thráinsson's prediction, verb movement is not obligatory, as we saw above.

²² There is no definiteness (specificity) effect in expletive constructions in Czech and no special intonation pattern is necessary in expletive constructions.

²³ In contrast to Bobaljik & Thráinsson's approach (1998) or Bobaljik & Jonas (1996), I argue that there is an overt subject position available in *v*P (in addition to the *v*P-external positions) and that this position is responsible for the focused and non-presuppositional interpretation of the subject, as discussed in chapter 2.

beginning), hence further movement of the verb is possible, compare discussion in Chomsky (1995), Ura (2000), Pesetsky & Torrego (2001) or Kitahara (2002) that features can remain active or be checked several times. However, this will not solve our problem. I argued above that inthetic sentences the finite verb raises out of vP and satisfies the EPP_T -feature on the head T . However, it is not clear from the data how high the finite verb raises; whether or not it stops in T . It seems that the finite verb also raises to the head X in sentences where the nominative subject stays in situ and the verb is not interpreted as backgrounded, as demonstrated by the report on TV schedule in (25). This step from T to the head X cannot be accounted for by the μ_{EPP} -feature on the verb.

(25) a. A co v neděli? ‘Jste hloupý. Ale nevadí.’

‘And what about Sunday? “You are stupid. But it does not matter.”’

- b. [_{XP} Tímto způsobem zahájí [_{TP} naši pravidelnou nedělní show
 this way opens our regular Sunday show_{ACC}
 [_{VP} zítra ve 20 hodin moderátor Jan Hruška]]].
 tomorrow at 8 pm moderator_{NOM} Jan Hruška.

‘This way, moderator Jan Hruška will open the regular Sunday show tomorrow at 8 pm.’

Thus, we need to find a trigger for the step from the head T to X without recourse to the presuppositional and information-structural properties of the verb, which means that we need to find a suitable phrase with an appropriate feature in the extended verbal projection. A good candidate for this job is the projection $MoodP$ because mood is morphologically reflected on the verb (or the auxiliary if it is present) and it can be placed between the TP and CP (see Toman 1999). Therefore, from now on, I will take the projection XP to be $MoodP$.

At this point, there is verb movement to the head $Mood$ in cases where the verb moves to T , either because of the μ_{EPP} -feature (which brings about semantic effects) or because of the (formal) EPP_T -feature when the subject stays in the vP phase. Recall, however, that the finite verb can also stay in the head v . Then, the question arises what happens with the $Mood$ -feature on the head $Mood$ and the verb (or the auxiliary) in this case. If the verb does not move to the head T , then it also cannot move to $Mood$ because the Head Movement Constraint prohibits verb movement from skipping an intervening head. Since the head $Mood$ is a probe, the feature on it must be unvalued. And since mood probably is interpretable on the head $Mood$ in the clausal structure and not on the verb, the $Mood$ -feature on $Mood$ must be interpretable. It follows that the feature on the verb is valued and uninterpretable. Since

unvalued features must be valued in the course of derivation and since in certain cases the verb stays in the head v , it must be possible for the verb to value the Mood-feature on Mood through the agree operation. As discussed above, we want the verb to move to Mood in cases where it raises to the head T; hence the Mood-feature on Mood must have the EPP property (abbreviated as Mood_{EPP}). In order to analyse both cases - with the moved verb and with the verb staying in v – in a unified way, I assume that in cases where the v -to-Mood movement is not possible because of the Head Movement Constraint (that is, when the verb stays in v) the unsatisfied EPP subfeature of the Mood_{EPP}-feature does not lead to ungrammaticality. What is decisive here is that the Mood_{EPP}-feature is an agree feature and that it gets a value in the derivation.

Junghanns (2002c) also observes that the finite verb can move in cases similar to (25). Specifically, he proposes that movement of the focused verb is possible in categorical sentences with the so-called default focus, that is, in sentences with the VP focus, Agr_{OP} focus, TP focus, Agr_{SP} focus and NegP focus (in sentences with the sentence negation), which are the most often and the most natural types of focus. According to Junghanns, the finite verb can move to the head Agr in sentences with the default focus because heads of the extended verbal projection are ‘activated’ (because in these heads different types of clitics are generated in Czech). He suggests that the finite verb also moves in the case ofthetic sentences. There, however, the verb moves just to the head T, where it licenses the abstract topic, which means that the topic of the sentence is the reference time.

I do not follow Junghann’s analysis because it treats verb movement inthetic sentences and in sentences with the so-called default focus as two independent phenomena. In contrast, in the analysis presented here both types of movement are driven by the EPP_T-feature on the head T with subsequent movement of the verb to the head Mood.

Junghanns’s approach (2002c) also does not observe the dependency between the position of the nominative subject and the finite verb – in his analysis, verb movement is optional in the categorical sentences with the default focus²⁴ – which is here analysed as a competition of the T-specified elements for the EPP_T-feature on T. In the present analysis, the finite verb has to raise to check the EPP_T-feature on T if the subject stays in the v P phase, as already discussed in section 3.2.1 and 3.2.2.

²⁴ A problem associated with this is that the optional verb movement does not have a trigger, hence violates the Last Resort principle.

3.4 MoodP and topicalization

Having established that the finite verb moves to the head Mood in the appropriate cases, let us consider what elements can occur in the specifier position of MoodP. We saw in example (22) that it can be the subject of the sentence. The modified example (26) shows that the object can appear in the position as well. What first comes to mind is that SpecMoodP is a position reserved for a topic. Veselovská (1995) proposes that there is a projection TopP sandwiched between CP and AgrSP and Ceplová (2003) similarly argues for a projection *topP* located between TP and CP.

- (26) [_C že [_{MoodP} děkana zabije [_{TP} Pavel [_{VP} ve středu]]]].
that dean_{ACC} kills Pavel_{NOM} on Wednesday
'that Pavel will kill the dean on Wednesday.'

However, adverbials can also occur in SpecMoodP. And it does not have to be just a deictic adverbial as in example (25); non-referential adverbials can appear in the position as well. This is demonstrated by example (27), where the epistemic adverbial *nepochybně* 'undoubtedly' follows the complementizer *že* 'that' and precedes the finite verb in Mood.

- (27) [_C že [_{MoodP} nepochybně zahájí [_{TP} naši pravidelnou nedělní show
that undoubtedly opens our regular Sunday show_{ACC}
[_{VP} zítra ve 20 hodin moderátor Jan Hruška]]]].
tomorrow at 8 pm moderator_{NOM} Jan Hruška.
'that moderator Jan Hruška will undoubtedly open the regular Sunday show
tomorrow at 8 pm.'

This contrasts with the claim that topics (in the aboutness approach) are referential expressions, as discussed, for example, in Reinhart (1981), Jacobs (1992), Erteschik-Shir (1997) or Johnson (2000). In addition, Rizzi (2004) argues that adverbs are not topics because only referential nominal expressions are natural topics. For discussion of non-topicality of epistemic adverbs see also Jacobs (2001) and references therein.

As already demonstrated above, SpecMoodP can be filled with the pronominal expletive (*v*)*on*. Thus, expletives also pose a problem for the hypothesis that SpecMoodP is a topic position because it is widely assumed that expletives are non-referential elements (see, for example, Postal & Pullum 1988 or Frey 2004).

Another problem is that the pronominal expletive, which agrees with the ϕ -features of its associate, should be the topic of the sentence but at the same time its associate can be focused, as demonstrated by sentence (28b), which leads to contradiction. This is similar to the problem discussed in Reinhart (1981), where the topic of the sentence refers to the same referent as the focused reflexive element.²⁵

- (28) a. Co? Ty se bojíš jít do kuchyně?
 ‘What? Do you fear to go to the kitchen?’
 b. [_{MoodP} (V)on je [_{TP} ted’ v kuchyni [_{VP} ten pes]]].
 he is now in kitchen the dog_{NOM}
 ‘The dog is in the kitchen now.’

Kosta (2002) and Řezáč (2003) argue that the demonstrative pronoun *to* ‘this, that’ can be used as an expletive as well (for discussion of expletives in Czech see also Lindseth 1998). As illustrated by example (29), *to* can also appear in the SpecMoodP position. However, there is a difference between the expletive (*v*)on and *to*. Sentence (29) is inappropriate in context (28a), it can only be used in a context like *Co se tam děje?* ‘What is going on there?’

- (29) [_{MoodP} To je [_{TP} ted’ v kuchyni [_{VP} ten pes]]].
 that is now in kitchen the dog_{NOM}
 ‘The dog is in the kitchen now.’

It seems that the demonstrative expletive *to* behaves like a deictic event pronoun - similarly as proposed in Progovac (1998) for Serbo-Croatian *to* - and that in example (29) refers to some event taking place in the kitchen (compare also the deictic use of *èto* in Russian (Junghanns 1997b)).²⁶ With this expletive, then, the problem with referentiality does not arise.

To sum up, from the data discussed in this section I conclude that the SpecMoodP position is not a topic position.

²⁵ Consider (i) = Reinhart’s (1981) example (37), where *Felix* is the topic and *himself* the focus.

(i) a. Who did Felix praise?
 b. Felix praised himself.

²⁶ If this analysis is right, then it poses a problem for the claim that expletives are non-referential elements. Specifically, Progovac (1998) argues that the event *to* deictically introduces existential quantification over the note continued on next page

3.5 MoodP and the EPP-feature

In the preceding section, we saw that SpecMoodP can be filled with elements of a different nature: arguments, adverbials, referential elements, non-referential elements or expletives. It seems that the SpecMoodP position has no preferences; in this respect, the situation resembles the Icelandic stylistic fronting, which is according to Holmberg (2000) triggered by some version of the EPP-feature.²⁷ Hiraiwa (2001) proposes the Split EPP/Agree Parameter and argues that Icelandic EPP is not contingent on the agree operation, therefore Icelandic has the stylistic-fronting movement of various elements, in contrast to Mainland Scandinavian languages. Compare also Frey (2004), who argues that there is a formal movement in German that moves constituents of different nature to the prefield position in V2 clauses.

Similarly, Lavine & Freidin (2002) argue that in Russian and Ukrainian the EPP-feature is independent of case or subject-verb agreement. In the same line, Bailyn (2004) proposes The Inversion Parameter that states that the EPP-feature can be satisfied by any XP (compare also Bailyn 2001a).

It has been proposed that Czech also has the EPP-feature, see Ceplová (2003), Škrabalová (2003), Sturgeon (2006) or Lenertová & Junghanns (2007). More concretely, Ceplová (2003) argues that at least one head (called *top* in her analysis) with an appropriate specifier must be realized in the left periphery of Czech sentences. According to Škrabalová (2003), the existence of the EPP-feature in Czech is supported by the fact that VSO or VOS sentences are ungrammatical, as demonstrated by example (30), taken from Škrabalová (2003, 3), for the same point see also Ceplová (2003).²⁸ Example (30) demonstrates that the finite verb cannot check the EPP-feature in Czech (in contrast to Alexiadou & Anagnostopoulou's 1998, 1999 generalization according to which verb raising satisfies the EPP in *pro*-drop languages).

- (30) a. * Četl Jan knihu.
 read Jan_{NOM} book_{ACC}
 b. * Četl knihu Jan.
 read book_{ACC} Jan_{NOM}

event described in the sentence. Compare also Rosengren (2002), who proposes that expletives make the existentially bound event variable visible.

²⁷ There are different types of the EPP-feature, which was originally formulated in Chomsky (1981). We have already met EPP-features in Chomsky (2000, 2001, 2004, 2005 [2008]) and Pesetsky & Torrego (2001, 2004); compare also Boeckx (2001), Lasnik (2001), Bošković (2002, 2005a), Rosengren (2002), among many others.

Lenertová & Junghanns (2007, compare also Fanselow & Lenertová 2006) argue that in maximally focused sentences the focus exponent can be fronted to the left periphery and in this way it satisfies some kind of the EPP-feature. This is demonstrated by example (31), taken from Lenertová & Junghanns (2007, 356). The sentence is felicitous in a context like *Co je nového?* ‘What’s new?’, which shows that the object is not contrastively focused.²⁹ Movement of the focus exponent to the left periphery is also known from German (see Buring 1997, Krifka 1998, Fanselow 2004, among others).

- (31) GULáš jsem uvařila.³⁰
 goulash_{ACC} am cooked
 ‘I cooked goulash.’

The EPP-feature, in fact, can be satisfied by contrastively focused elements as well, as shown by example (32a). And it can also be satisfied by *pro*, as demonstrated by example (32b), since *Marii* stays in situ in the *vP* phase (it is interpreted as focused) and the finite verb cannot check the EPP-feature in Czech, as we saw above. Thus, example (32b) shows that the EPP-feature is not a pure phonological requirement.

- (32) a. PAVEL políbil Marii.
 Pavel_{NOM} kissed Marie_{ACC}
 ‘It was Pavel that kissed Marie.’
 b. Políbil Marii.
 kissed Marie_{ACC}
 ‘He kissed Marie.’

Therefore, I assume that the head Mood bears an EPP-feature that must be satisfied in narrow syntax. The first question that arises with respect to this EPP-feature is whether this feature cannot be unified with the EPP_T-feature proposed in section 3.2. The answer is negative because we have seen that the EPP_T-feature can be checked by the finite verb, in contrast to the EPP-feature on Mood that cannot.

²⁸ Such verb-initial constructions with overtly expressed arguments can be sometimes found in fairy tales or poetic texts but they have an old-fashioned character (compare Bailyn 2001a for Russian).

²⁹ Analysis of this example can be more complicated if one takes into consideration that clitic *jsem* needs a host but this goes beyond the scope of the discussion.

³⁰ The syllable bearing the pitch accent is marked by capitals.

The second question is whether the two features can be present on the same head and trigger internal or external mergers giving rise (among others) constructions looking like various types of inversion constructions, see, for example, Miyagawa (2001, 2003), Bailyn (2001a, 2004) and for Czech Křížková (1953) or Škrabalová (2003). In the present model, this would mean that the head Mood bears both features. In order to refute this proposal, one has to find a sentence in which the EPP_T-feature is satisfied and the T-specified elements (that is, the finite verb and the nominative subject) do not move higher than to TP. Given the fact that the verb moves to Mood in cases where it checks the EPP_T-feature, the EPP_T-feature must be checked by the subject in the relevant sentence. Here is a case with the EPP_T-feature checked by the subject staying in SpecTP:

- (33) [_C že [_{MoodP} Petra se [_{TP} Pavel pravděpodobně [_{VP} bojí]]]].
 that Petr_{GEN} self Pavel_{NOM} probably fear
 ‘that Pavel probably fears Petr.’

Czech clitics are of the Wackernagel type (second position clitics), see *Mluvnice češtiny 3* (1987), Toman (1996), Vos & Veselovská (1999), Franks & King (2000), and it has been argued that they are placed in a head position high in the left periphery (Veselovská 1995, 2001; Lenertová 2001; Junghanns 2002d; Meyer 2003). In example (33), it is the head Mood that hosts the reflexive clitic *se* and consequently the subject *Pavel* appears in SpecTP, which shows that the head Mood does not bear both features.

Now, let us look more closely at how the EPP-feature on the head Mood works. In the preceding section and in this section, we saw that SpecMoodP can be filled with different XPs, for example, with arguments, contrastively focused arguments, *pro*, expletives or adverbials. For such cases, one could propose that the EPP-feature is satisfied either by an externally merged element or by an element that the feature moves to SpecMoodP. However, this proposal is problematic because the EPP-feature on Mood is not always satisfied by the closest XP and there can appear more constituents in SpecMoodP, as illustrated by example (34), where both objects move to MoodP.

- (34) [_C že [_{MoodP} tu knihu Petrovi dá [_{TP} Pavel pravděpodobně [_{VP} ve středu]]]].
 that the book_{ACC} Petr_{DAT} gives Pavel_{NOM} probably on Wednesday
 ‘that Pavel probably will give Petr the book on Wednesday.’

The following example shows that the directional adverbial can also move to the SpecMoodP position and that the elements can appear in different word orders. In my approach, multiple specifiers are allowed and there is no reason to split the MoodP projection, therefore all elements under discussion can indeed appear in the MoodP projection and their ordering is determined by the order of application of particular features.

- (35) a. [C' že [MoodP tu knihu do police Petrovi dá [TP Pavel pravděpodobně
that the book_{ACC} onto shelf Petr_{DAT} gives Pavel_{NOM} probably
[_{VP} ve středu]]]].
on Wednesday
'that Pavel probably will put the book onto the shelf for Petr on Wednesday.'
- b. [C' že [MoodP tu knihu Petrovi do police dá [TP Pavel pravděpodobně
that the book_{ACC} Petr_{DAT} onto shelf gives Pavel_{NOM} probably
[_{VP} ve středu]]]].
on Wednesday
'that Pavel probably will put the book onto the shelf for Petr on Wednesday.'
- c. [C' že [MoodP do police Petrovi tu knihu dá [TP Pavel pravděpodobně
that onto shelf Petr_{DAT} the book_{ACC} gives Pavel_{NOM} probably
[_{VP} ve středu]]]].
on Wednesday
'that Pavel probably will put the book onto the shelf for Petr on Wednesday.'

Thus, it seems that satisfying the EPP-feature on Mood can be parasitic on the valuation of other features. More concretely, I assume that the head Mood can bear μ_{EPP} -features (or μ -features for covert movement), similarly as the head T. This proposal is supported by the fact that the elements moved to SpecMoodP can receive the same interpretation as the elements moved to SpecTP by the μ_{EPP} -feature. This is most obvious in the case of the directional adverbial *do police* 'onto shelf' in example (35). In all three positions in SpecMoodP in (35), it must be interpreted as specific – the existence of a certain shelf is presupposed – and as backgrounded. This is in accordance with my proposal in the preceding chapter that elements in the CP phase are interpreted in the domain of the restrictive clause and background at the semantic interface. In other words, scrambling can also target MoodP, not only TP.

In the preceding chapter we saw that there are no superiority effects in the case of multiple scrambling and the same holds for movements to MoodP in example (35). In order to

analyse this fact, I proposed in section 2.5.3 that features present on the same head can apply in any order in Czech. This proposal connected with the one-to-one relation between the probe features and the goal features ensured by the Feature Balance constraint derived non-superiority effects with the help of the Phase Featuring principle. Therefore, cases with scrambling to MoodP such as (35) receive the same analysis. All three sentences in (35) can be derived from the same lexical array. The scrambled elements *tu knihu*, *do police* and *Petrovi* bear the valued interpretable μ_{EPP} -feature in all three cases and what is different between (35a), (35b) and (35c) is the order of application of the μ_{EPP} -features on the head Mood.

Looking at the cases treated in this section, one might think that the EPP-feature on Mood itself is not necessary and that the cases can be analysed in terms of other features with the EPP subfeature. However, there is a reason for this type of the EPP-feature. Such a proposal can analyse cases where there is no feature on the head Mood that moves an XP. Recall example (27) with the sentence adverbial, repeated here for convenience as (36). If it is true that sentence adverbials such as *nepochybně* can be merged high in the left sentence periphery, then for cases like (36), an EPP-feature that can be satisfied by external merger is necessary.

- (36) [_C že [_{MoodP} nepochybně zahájí [_{TP} naši pravidelnou nedělní show
that undoubtedly opens our regular Sunday show_{ACC}
[_{VP} zítra ve 20 hodin moderátor Jan Hruška]]]].
tomorrow at 8 pm moderator_{NOM} Jan Hruška.
‘that moderator Jan Hruška will undoubtedly open the regular Sunday show
tomorrow at 8 pm.’

Another advantage of the proposal is that maximally focused sentences, in which there is no feature on Mood moving an XP as well, can also be derived in this way. If there is no element externally merged into SpecMoodP that satisfies the EPP-feature, one expects that the EPP-feature moves the closest XP there. This expectation is confirmed by examples (37)-(39). They demonstrate that in the out-of-the-blue context like *Co se děje?* ‘What’s up?’ it must be the highest XP that moves. Since in its base position the subject c-commands the object in (37), the dative experiencer c-commands the theme argument in (38) and the subject c-commands the directional adverbial in (39), it is always the (a) sentence that is appropriate in the out-of-the-blue context, and not the (b) sentence (compare also Frey (2004 and references

therein), who argues that there is a formal movement operation in German, which moves the highest constituent of the middle field to the prefield in V2 clauses).

- (37) a. Pavel políbí Lucii.
Pavel_{NOM} kisses Lucie_{ACC}
‘Pavel will kiss Lucie.’
b. # Lucii políbí Pavel.
Lucie_{ACC} kissed Pavel_{NOM}
‘Pavel will kiss Lucie.’
- (38) a. Pavlovi se stane nehoda.
Pavel_{DAT} self happens accident_{NOM}
‘An accident will happen to Pavel.’
b. # Nehoda se stane Pavlovi.
accident_{NOM} self happens Pavel_{DAT}
‘An accident will happen to Pavel.’
- (39) a. Pavel jde domů.
Pavel_{NOM} goes home
‘Pavel is going home.’
b. # Domů jde Pavel.
home goes Pavel_{NOM}
‘Pavel is going home.’

Thetic sentences with the moved accented subject – that is, the SV pattern, as discussed in section 3.2.1 – are also derived by means of the pure EPP movement. For thetic sentences with the subject occurring in situ – that is, the VS pattern - I assume that the EPP-feature on Mood is satisfied by a covert expletive *pro*, as proposed, for example, by Chomsky (1995) and for Czech by Ceplová (2003). We have already seen that the EPP-feature on the head Mood can be satisfied by the *pro* element in the case of dropped subjects. Thus, if there is no expletive *pro* in the lexical array, which later satisfies the EPP-feature, the subject is moved.

If the element moved to the CP phase checks only the EPP-feature – that is, it does not bear a feature that determines that the element is to be interpreted in the moved position at the semantic interface, as in the case of the μ_{EPP} -feature - this movement should not affect the interpretation. More concretely, one expects that an element moved to SpecMoodP in a

maximally focused sentence can still be interpreted existentially (and of course as focused) because it reconstructs for the interpretation to the position in the vP phase. This is indeed the case, as demonstrated by example (40). Imagine that you are reading a tabloid newspaper and you spot headline (40). Then, the subject receives an existential interpretation (compare also discussion in Hlavsa 1975).

- (40) Poslanec zaměstnává vlastní ženu.
parliamentarian_{NOM} employs own wife_{ACC}
‘A parliamentarian employs his wife.’

This means that phrasal movement can also be formal in the sense that it does not change the interpretation of the moved element. Thus, it is a general property of the EPP-feature as a superfeature (that is, the EPP-feature on Mood and the EPP_T-feature on T) that it triggers formal movement and it holds for both XPs and heads. Recall that we have already seen in this chapter that it holds for verb movement to the head T driven by the EPP_T-feature.

How does the EPP-feature on the head Mood fit into the proposal presented in the preceding chapter, in which the EPP-feature is a subfeature of other features? What are the possible relations between the EPP-feature and other features? I propose that the relation between the EPP-feature and other features does not have to be a one-way relation. More concretely, the EPP-feature can be a subfeature (property) of other features but it can also be a superfeature, that is, it can take other feature as a subfeature, as we saw in the case of the EPP_T-feature. This can account for the two-faced behaviour of the EPP-feature: the traditional (subject) EPP originated in Chomsky (1981) and the generalized EPP (for example, Chomsky 2000). Having said this, we arrive at the following featural typology with four possibilities:

(41)

	single	combination
EPP	EPP-feature	EPP _T -feature
other feature	μ-feature	μ _{EPP} -feature

The EPP-feature can either stay single or be combined with other feature. The single EPP-feature is the EPP-feature on the head Mood. It triggers the formal overt XP movement. And it is not restricted with respect to its application; it can be satisfied by elements of different nature. This is consequence of the fact that the Feature Balance (and consequently, the Phase

Featuring principle) does not apply to the EPP-features; there are no matching EPP-features in the minimalist model, as discussed in the preceding chapter in section 2.5.3.³¹

If the EPP-feature is combined with other feature, it can play either the superfeature role or the subfeature role. The former case is represented by the EPP_T-feature on the head T. Although the Feature Balance constraint does not apply to it, that is, it does not have to have exactly one goal feature, this feature is restricted with respect to its application. Given its subfeature, it can overtly move only elements specified for the T-feature (the nominative subject or the finite verb). And the movement is also formal, which is visible in the case of the verb movement. The latter case is represented, for example, by the μ_{EPP} -feature or by the wh_{EPP} -feature. In this case, the appropriate feature triggers overt movement of an XP with the goal feature (it can also be head movement, as we saw in the case of the Mood_{EPP} -feature).

Features other than EPP can also stay single, for example, the movement features: μ -feature and wh -feature. These features then trigger covert movement of the appropriate XP with the goal feature. We have also met agree features that are single, the T-feature and ϕ -features on the head T. These features are valued by the goal element through the agree operation.

3.6 Long topicalization

Despite the facts discussed above, it makes sense to speak about topicalization in Czech. Czech has long movement, as demonstrated by example (42a). (42b) shows that in a sentence with the normal intonational pattern the moving element cannot target a non-clause-initial position, as it is, for example, in the case of Russian long-distance scrambling (see Müller & Sternefeld 1993; Müller 1995; Bailyn 2001b; Bošković 2004, in press). This suggests that this type of movement is topicalization.³²

- (42) a. Tohle₁ vím určitě, že Pavel řekl t₁.
 this_{ACC} I.know certainly that Pavel_{NOM} said
 ‘This, I certainly know that Pavel said.’
 b. *Vím tohle₁ určitě, že Pavel řekl t₁.
 I.know this_{ACC} certainly that Pavel_{NOM} said

³¹ To be fair, movement triggered by this pure EPP-feature is not based on the agree operation (matching).

³² Long-moved elements can also be contrastively focused. For discussion of long movement in Czech and other Slavic languages see Meyer (2004).

This hypothesis is supported by the fact that only one constituent can be long-moved. Müller (1995), Saito & Fukui (1998) and Bošković (2004, in press) claim that multiple long-distance topicalization, in contrast to multiple scrambling, is not possible. The ordering of the elements in the matrix clause plays no role, as shown in example (43). Recall that we saw above that short-distance scrambling can move more constituents and that it can move constituents to non-clause-initial positions.

- (43) a. * Tohle₁ Pavel₂ vím určitě, že t₂ řekl t₁.
 this_{ACC} Pavel_{NOM} I.know certainly that said
 b. * Pavel₂ tohle₁ vím určitě, že t₂ řekl t₁.
 Pavel_{NOM} this_{ACC} I.know certainly that said

Bošković (2004, in press) argues that long-distance scrambling differs from long-distance topicalization in its inability to move adjuncts. Thus, the fact that in Czech adjuncts can also be long-distance moved, as illustrated by sentence (44) from the Czech National Corpus,³³ seems to support the topicalization analysis of long-distance movement.

- (44) Zítra₁ předpokládáme, že tlaková výše t₁ postoupí k jihu. (#22265481)
 tomorrow we.suppose that pressure-high_{NOM} moves southwards
 ‘Tomorrow, we suppose that the high pressure front will move southwards.’

This issue, however, is not entirely clear. Bailyn (2001b) argues that it holds true only for Japanese-style long-distance scrambling and that Russian has long-distance scrambling of adjuncts. In contrast, Bošković (2004, in press) argues that the example of long-moved adjunct given by Bailyn does not have to involve scrambling at all and that it is necessary to keep apart (at least some cases of) Russian long-distance movement that Bailyn calls scrambling from the Japanese-style long-distance scrambling.

Bošković (2004, in press) further argues that long-distance topicalization, in contrast to long-distance scrambling, is sensitive to *wh*-islands. Example (45), which is a modified example (44), shows that adverbial *zítra* cannot be extracted out of the *wh*-island, which provides another support for the claim that long-distance movement in Czech is topicalization.

- (45) a. Víme, proč tlaková výše zítra postoupí k jihu.

³³ Czech National Corpus = Český národní korpus.

- we.know why pressure-high_{NOM} tomorrow moves southwards
 ‘We know why the high pressure front will move southwards tomorrow.’
- b. * Zítřa víme, proč tlaková výše postoupí k jihu.
 tomorrow we.know why pressure-high_{NOM} moves southwards

It has been argued that long-distance topicalization brings about semantic effects, in contrast to long-distance scrambling; see Bošković & Takahashi (1998), Saito & Fukui (1998) or Bošković (in press). Example (46) shows that if the embedded object *doktora* ‘doctor’ is long-moved (46b), it must receive a specific interpretation, that is, it refers to a certain person working as a doctor.³⁴ In contrast, if the object occurs in situ in the embedded clause (46a), it can also be interpreted existentially, in addition to the specific interpretation.

- (46) a. Říkal, že potkal na silnici doktora.
 said that met on road doctor_{ACC}
 ‘He said that he had met a doctor on the road.’
 ‘He said that he had met the doctor on the road.’
- b. Doktora říkal, že potkal na silnici.
 doctor_{ACC} said that met on road
 ‘The doctor, he said that he had met on the road.’

This also supports the topicalization analysis of long-distance movement and shows that long-distance movement brings about the same semantic effects as phrasal movement to the CP phase discussed in the preceding chapter. Therefore, I propose that the matrix C bears an unvalued uninterpretable μ_{EPP} -feature, as the head T or Mood in the case of scrambling. The difference between long topicalization and scrambling is that the μ_{EPP} -feature on the head C is unique. As other types of long movement, long topicalization is driven by the Phase Featuring principle proposed in the preceding chapter. The moved element with the goal μ_{EPP} -feature, which is valued and interpretable, is then interpreted in the matrix CP phase - that is, in the restrictive clause and background of the matrix clause - which means that it can serve as the topic of the whole sentence. The long-topicalization movement discussed here is a syntactic topicalization though, not topicalization of the aboutness type. The valued interpretable μ_{EPP} -feature can be put on any element in the lexical array, hence in the matrix SpecCP position

³⁴ The interpretation, of course, can change if the long-topicalized element is accented.

there can also appear elements that are not natural topics and the semantic interface decides whether or not the sentence is deviant.

Since there is no reason why topicalization should be restricted to complex sentences and to the matrix CP, I assume that simple sentences and embedded sentences have topicalization as well.³⁵ This means that, in analogy to long topicalization, the head C in simple or embedded clauses can bear an unvalued uninterpretable μ_{EPP} -feature that triggers overt movement of an XP. Then, given that the goal μ_{EPP} -feature is valued and interpretable, the moved element is interpreted in the CP phase. This proposal is supported by Meyer (2007), who investigates complementizers in the Czech National Corpus and claims that complementizers do not have to appear clause-initially and that they can be preceded maximally by one topicalized constituent. Consider example (47), taken from Meyer (2007, 172), which shows that the subject of the embedded clause *ti schopní* ‘the competent’ can move to the pre-complementizer position.³⁶

- (47) Skromní lidé mi možná takovou slabost budou vyčítat;
 modest people_{NOM} me_{DAT} possibly such weakness_{ACC} will scold
 věřím nicméně, ti schopní že mé vlohy uznají.
 I.believe nevertheless the competent that my abilities recognise
 ‘Modest people will possibly scold me for such weakness but I believe that the
 competent ones recognise my abilities.’

Meyer’s (2007) findings also support the claim that the topicalization movement is of the syntactic type. He shows that the pre-complementizer position can also be filled with elements that cannot serve as an aboutness topic, for example, negative quantifiers like *nic* ‘nothing’.

Given this and the fact that the head C does not have to bear a μ_{EPP} -feature, not every sentence necessarily has an aboutness topic. This does not pose a problem for my analysis because sentences without a topic can be regarded as assertions about other elements in the CP phase (for example, about a scrambled element) or about the event variable.

To sum up this section, what is characteristic for both short and long topicalization is that the μ_{EPP} -feature triggering topicalization movement is present on the head C and that the

³⁵ Note that English, which is a non-scrambling language, has topicalization in the embedded clause, as shown in (i). However, in contrast to Czech, the topicalized constituent follows the complementizer.

(i) She said that this man, she would never kiss.

feature is unique on the head. Elements valuing this feature are spelled out and interpreted in the CP phase (like scrambled elements), specifically, they are pronounced in the left clausal periphery and receive (if possible) the specific/definite and backgrounded interpretation.

3.7 Conclusion

In this chapter, I have discussed the dependency between the position of the nominative subject and the position of the finite verb. I have argued that this dependency can be analysed in terms of Pesetsky & Torrego's (2001, 2004, 2007) unification of nominative case on DP and agreement on the head T. I have proposed that the head T bears the EPP_T -feature that must be checked either by movement of the nominative subject or by movement of the finite verb.

Further, I have argued that (at least a certain type of) verb movement has effects on interpretation; therefore it cannot be a phonological operation. Concretely, the appropriate movement step valuing the μ_{EPP} -feature on T brings about the presuppositional interpretation of the event described by the verb because the verb is interpreted in the CP phase at the semantic interface.

I have discussed architecture of the CP phase and have proposed that there is a projection MoodP sandwiched between the projection CP and TP. The head Mood bears the EPP-feature that must be satisfied by an XP. I have argued that if the EPP-feature is not satisfied by an externally merged element and is not satisfied by a moved XP (valuing, for example, a μ_{EPP} -feature on Mood), it must move the closest XP to the SpecMoodP position. This movement is formal because it does not affect interpretation. I have discussed possible combinations of the EPP-feature with other features and have argued that it is a general property of the EPP-feature as a superfeature (that is, the EPP-feature on Mood and the EPP_T -feature on T) that it triggers formal movement.

I have also shown that Czech has long- and short-distance topicalization and does not have long-distance scrambling. Topicalization moves overtly an XP to SpecCP and behaves like scrambling with respect to the interpretational effects. The topicalized element is interpreted in the domain of restrictive clause and background at the semantic interface. Topicalization differs from scrambling in the fact that the μ_{EPP} -feature on the head C is unique.

³⁶ Since complementizers do not appear in simple sentences, they cannot be tested.

Chapter 4

Adverbials in the sentence-final position in the ν P phase

4.1 Introduction*

It has been argued by many researchers that certain adverbials cannot appear in a low structural position in the sentence. In the syntactic literature on adverbials, there is, for example, a long-standing practice of considering sentence adverbials as merged in a high structural position in the clausal architecture (see Jackendoff 1972, Cinque 1999, among others). In this chapter, I try to find out whether such an approach is correct. I investigate wide range of adverbials - from ‘low’ adverbials like manners to ‘high’ adverbials like modal sentence adverbials – with respect to the question whether the adverbials can be merged in the ν P phase.

As already discussed in chapter 2, every phase has its own lexical subarray, which chooses elements from the lexical array (numeration), which contains elements for the derivation of the whole sentence. The lexical array in turn chooses its elements from the lexicon. Therefore, I begin this chapter with the null hypothesis that adverbials can appear in both lexical subarrays. While, in one derivation, a certain adverbial can be chosen by the ν P phase lexical subarray from the lexical array, in the other derivation it can be chosen by the CP phase lexical subarray. Hence, it can theoretically happen that a relatively high adverbial

* Some parts of this chapter appeared as Biskup (2007b).

is chosen from the lexical array by the ν P lexical subarray and that it is merged in the ν P phase. I will scrutinise this hypothesis and argue that adverbials generally can be merged in the ν P phase. Furthermore, I will argue that adverbials can occur in the sentence-final position and that under the right circumstances they can be focused there and accented. The ungrammaticality of certain adverbials in the sentence-final position in the ν P phase has semantic, not syntactic reasons. I will argue that, for example, in the case of frequentative adverbials, the grammaticality of the sentence depends - among other things - on the strong/weak quantificational properties of the frequentative adverbial and that the ungrammaticality does not arise due to the syntactic position of the frequentative adverbial itself but rather due to the lack of an element in the c-command domain of the adverbial.

Similarly, in the case of aspectual adverbials, I will argue that the ungrammaticality arises when there is no element in the nuclear scope of the aspectual quantifier, that is, in its c-command domain in the ν P phase.

As far as sentence adverbials are concerned, I argue that the ungrammaticality of certain sentence adverbials in the sentence-final position in the ν P phase is due to the fact that they cannot serve as the focus in the given sentence. I will argue that sentence adverbials can appear in the sentence-final position only if they represent the extreme value with respect to the set of focus alternatives. Thus, the long-standing practice of taking sentence adverbials as high in the clausal structure is challenged.

The chapter is organised as follows. Section 4.2 is concerned with circumstantial adverbials, concretely, with locative, temporal and manner adverbials. This section shows that these types of adverbials can be merged in the sentence-final position in the ν P phase. Section 4.3 then discusses various types of preverbal adverbials. Section 4.3.1 deals with iterative and frequentative adverbials, discusses mainly quantificational properties of frequentative adverbials and argues that both adverbial types can be merged in the ν P phase and appear in the sentence-final position if the relevant interpretational conditions are fulfilled. Section 4.3.2 shows the same for aspectual adverbials. In section 4.3.3, I am concerned with sentence adverbials. I discuss the veridicality and downward-monotonicity approach to sentence adverbials and show that such approaches cannot handle the data under discussion. Then, I suggest an analysis in terms of the model proposed in this dissertation and specify conditions under which sentence adverbials can occur in the sentence-final position in the ν P phase. Conclusions will be drawn in section 4.4.

4.2 Circumstantial adverbials

In chapter 2, I argued that scrambling is movement to the CP phase. And in chapter 3, I proposed the clausal structure (1). Hence, building on the discussion in preceding chapters, we can derive a sentence like (2).

(1) [CP C [MoodP Mood [TP T [vP v [VP V]]]]]

(2) [CP [MoodP Tu knihu pošle [TP Jirkovi [vP Pavel]]]].
 the book_{ACC} sends Jirka_{DAT} Pavel_{NOM}
 ‘Pavel will send Jirka the book.’

I have already shown that subjects can also scramble. I also proposed that the vP phase is interpreted as the nuclear scope of the quantificational structure and the focus domain of the information structure and that the CP phase is interpreted as the restrictive clause and the background domain. Thus, since I assume that every sentence has a nuclear scope and focus (see Rooth 1992, Lambrecht 1994 or Kiss 1998), which means in the case of information focus that some element must appear in the vP phase, one can use sentence (2) with subject scrambling for testing whether adverbials can be merged in the vP phase. The generalised test sentence then looks like (3).

(3) [CP [MoodP Tu knihu pošle [TP Pavel Jirkovi [vP Adv]]]].
 the book_{ACC} sends Pavel_{NOM} Jirka_{DAT} Adv
 ‘Pavel will send Jirka the book Adv.’

Consider now example (4a) with the temporal adverbial *ve středu* ‘on Wednesday’.¹ The sentence demonstrates that temporal adverbials can be merged in the vP phase. In the next chapter, I will show that non-clausal adverbials are adjoined to the left in Czech. Therefore, the sentence-final position of the temporal adverbial in (4a) is not a result of merger of the adverbial to the right in a higher structural position. This is also shown by sentence (4b) containing the directional adverbial *do Prahy* ‘to Prag’. Since it is widely assumed that directional adverbials are merged in the lowest position in vP, *ve středu* cannot be right-

¹ Not all authors regard temporal adverbials as circumstantial adverbials. Those who do so are, for example, Cinque (1999) or Nilsen (2000).

adjoined in a higher position outside vP because it would have to follow the directional adverbial.

- (4) a. [CP [MoodP Tu knihu pošle [TP Pavel Jirkovi [vP ve středu]]]].
the book_{ACC} sends Pavel_{NOM} Jirka_{DAT} on Wednesday
‘Pavel will send Jirka the book on Wednesday.’
- b. [CP [MoodP Tu knihu pošle [TP Pavel Jirkovi [vP ve středu do Prahy]]]].
the book_{ACC} sends Pavel_{NOM} Jirka_{DAT} on Wednesday to Prag
‘Pavel will send Jirka the book to Prag on Wednesday.’

Since in chapter 2 I argued that the vP phase is the domain of information focus, the adverbial in (4a) should be interpreted as focused if it is true that it occurs in the vP phase. This is indeed the case, as evidenced by the fact that (4a) can answer question *Kdy pošle Pavel Jirkovi tu knihu?* ‘When will Pavel send Jirka the book?’

Temporal adverbials other than definite ones can appear in the sentence-final position in vP as well. Consider sentence (5) containing the temporal adverbial *nějaké pondělí* ‘a/some Monday’. We have already seen that adjective *nějaké* can serve as the indefinite article. In chapter 2 I argued that vP is closed off by the existential closure and that the existential interpretation is restricted to the vP phase. Since *nějaké pondělí* is interpreted existentially, as shown by the translation in (5), the temporal adverbial is indeed merged in the vP phase.

- (5) [CP [MoodP Tu knihu pošle [TP Pavel Jirkovi [vP nějaké pondělí]]]].
the book_{ACC} sends Pavel_{NOM} Jirka_{DAT} a/some Monday
‘Pavel will send Jirka the book on some Monday.’

Other circumstantials like manner or locative adverbials can merge in the vP phase, too, as shown in the examples below. Concretely, sentence (6a) containing *spěšně* ‘hurriedly’ demonstrates that manner adverbials can also appear in the sentence-final position in vP. And the presence of the directional PP *do Prahy* in the sentence-final position in (6b) again shows that *spěšně* is not right-adjoined in a higher position outside vP. In accordance with my proposal that the vP phase is interpreted as the domain of information focus, the following context question *Jak pošle Pavel Jirkovi tu knihu?* ‘How will Pavel send Jirka the book?’ shows that *spěšně* is really merged in the vP phase.

- (6) a. [CP [MoodP Tu knihu pošle[TP Pavel Jirkovi [vP *spěšně*]]]].
the book_{ACC} sends Pavel_{NOM} Jirka_{DAT} hurriedly
‘Pavel will send Jirka the book by express.’
- b. [CP [MoodP Tu knihu pošle[TP Pavel Jirkovi [vP *spěšně do Prahy*]]]].
the book_{ACC} sends Pavel_{NOM} Jirka_{DAT} hurriedly to Prag
‘Pavel will send Jirka the book to Prag by express.’

The vP analysis is supported by findings of Caha & Medová (to appear), who show that manner adverbials like *spěšně* are merged in the verbal projection in Czech. More specifically, they decompose VP into the process and result subevent – which are represented in the syntactic derivation by the projections ProcP and ResP, respectively - and show that there are differences between particular types of manner adverbials with respect to the event structure. Some manner adverbials modify the ResP and others the ProcP (compare also Medová 2008).

Using again the test sentence and given the same line of reasoning, example (7) demonstrates that locative adverbials can also be merged in the vP phase.

- (7) a. [CP [MoodP Tu knihu pošle[TP Pavel Jirkovi [vP pod stolem]]]].
the book_{ACC} sends Pavel_{NOM} Jirka_{DAT} under table
‘Pavel will send Jirka the book under the table.’
- b. [CP [MoodP Tu knihu pošle[TP Pavel Jirkovi [vP pod stolem do tašky]]]].
the book_{ACC} sends Pavel_{NOM} Jirka_{DAT} under table to bag
‘Pavel will cause the book to go into Jirka’s bag under the table.’

That circumstantial adverbials can occupy a position in vP is not surprising because vP is an event-denoting category and it has been argued that circumstantials can be analysed as predicates over the underlying event variable; see Davidson (1967), Parsons (1990, 1995), Herburger (2000), Nilsen (2000), Maienborn (2001, 2003), among others. Thus, for interpretation of adverbial modifiers, we can use the rule of predicate modification and consequently we get the intersective semantics for adverbials, as shown in the predicate-modification scheme for adverbials in (8).

- (8) $\lambda Adv \lambda P \lambda e [P(e) \ \& \ Adv(e)]$

Take, for example, sentence (6a). If we assume that it is the existential quantifier quantifying over events that forms the tripartite quantificational structure there, then the sentence receives the semantic representation (9), where the restrictive clause (elements in the CP phase) is enclosed in the square brackets and the nuclear scope (the adverbial in the ν P phase, which predicates over the event variable) in the round brackets.²

- (9) $\exists e$ [sending(e) & FUT(e) & Agent(e , Pavel) & Recipient(e , Jirka) & Patient(e , the book)]
(hurriedly(e))

However, not all adverbials occurring in the ν P phase can be treated in this way. Clock-calendar adverbials such as *ve středu* ‘on Wednesday’ in example (4a) can be analysed as predicates over the event variable (compare Davidson 1967 or Parsons 1990). But in the case of morphologically more complex tenses, for example, in the future perfect, the adverbial relates to the reference time, not to the event (time), as demonstrated by the following example.³ The event of Pavel’s sending the book can actually happen on some day before Wednesday.

- (10) [_{CP} [_{MoodP} Tu knihu bude [_{TP} Pavel mít poslanou [_{ν P} ve středu]]]].
the book_{ACC} will Pavel_{NOM} have sent on Wednesday
‘Pavel will have sent the book by Wednesday.’

Another example comes from locative adverbials. Maienborn (2001, 2005) distinguishes between three types of locative modifiers – frame-setting, external and internal – and argues that the frame-setting locatives, in contrast to the internal and external locatives, are not eventuality-related. Instead, they are sentential modifiers and provide a domain restriction for the overall proposition.

For instance, in sentence (11a), taken from Maienborn (2005, 289), *in Italien* is a frame-setting locative, which restricts the time for which it is claimed that Maradona used to buy his suits in France. A Czech counterpart of sentence (11a) can have the structure as illustrated in (11b). This seems to be possible because according to Maienborn, external locatives like *in*

² Perfective verbs in the present-tense form have the future-time interpretation. Simplifying a bit, this is indicated by the future-tense operator FUT in (9).

³ The event time can be acquired, for example, by means of Krifka’s (1992b) temporal trace function (τ), which maps the event to its run time.

Frankreich are merged in the verbal projection and recall that according to my proposal the vP phase cannot be empty.

- (11) a. In Italien kaufte Maradona seine Anzüge in Frankreich.
 In Italy bought Maradona his suits in France
 b. [_{CP} [_{MoodP} V Itálii kupoval [_{TP} Maradona obleky [_{vP} ve Francii]]]].

What is interesting in example (11b) is that under a certain intonational contour (the so-called bridge contour) the interpretation of the external locative and the frame-setting locative can be switched. In that case, it holds that during his stay in France, Maradona used to buy his suits in Italy. Thus, if *ve Francii* serves as a frame-setting locative under the appropriate conditions and is merged in vP (it is also focused), the question arises how it is interpreted. It seems that the bridge-contour intonational pattern indicates certain covert processes in the sentence.

The intersective analysis with the event variable also does not give the right interpretation in the case of adverbial operators like, for example, sentence adverbials, which take a proposition as their argument and scope over negation. As I will argue below, sentence adverbials can be merged in the vP phase, though. Thus, in order to get the right interpretation, certain adverbials must move to the appropriate position.

We have already seen that arguments can covertly move (QR) to the CP phase and there they can get the appropriate piece of interpretation. In other words, arguments can be interpreted in several positions or copies. They get a θ -role (or their argumental interpretation) in the external merge position in the vP phase and then they can move. In the preceding chapters, I argued that if an argument is moved by the μ -feature to the CP phase, then it is interpreted in the restrictive clause of the tripartite quantificational structure at the semantic interface and consequently receives the specific/definite interpretation. If the movement is driven by the μ -feature without the EPP-subfeature – that is, if it is covert – the given argument is also information-structurally interpreted in the vP phase and receives the focused interpretation at the semantic interface. Fox (2000), Bruening (2001) or Legate (2003) show that arguments can also be interpreted in the intermediate position at the edge of vP , for example, for binding, scopal or semantic-type reasons. Taken together, for example, an object overtly moved to the CP phase can be interpreted in all three positions, in the external merge position, the vP -edge position and in the final position.

This means that interpretation of particular elements – which are mostly visible only in one syntactic position – quite often happens in several positions or more accurately, is

composed of several interpretational pieces, copies (note that from the semantic point of view, given the principle of compositionality, every copy of a particular element is interpreted). This seems to be natural since different portions of the syntactic tree correspond to different interpretational domains and syntactic elements are considered to be sets of features, hence features of the moved argument enter different checking relations with different interpretational domains on its way up through the tree.

Adverbials can be treated in the same way. That they are spelled out in a certain position does not necessarily mean that they are interpreted there in their wholeness. They can also be merged in the ν P phase, receive the focused interpretation there and then covertly move to the right semantic position in the CP phase. Specifically, the μ -feature, which drives covert movement of arguments, can also be used in the case of adverbial movement because this feature is not restricted to a particular type of elements.⁴

4.3 Preverbal adverbials⁵

4.3.1 Iterative and frequentative adverbials

In this section, I am concerned with iterative and frequentative adverbials occurring in ν P. Iterative adverbials such as *dvakrát* ‘twice’ can also occupy the sentence-final position in the ν P phase, as illustrated in example (12). Being merged in ν P, *dvakrát* pluralises the event of Pavel’s sending the book to Jirka because iterative adverbials denote the cardinality of times an event happens.

- (12) [_{CP} [_{MoodP} Tu knihu pošle [_{TP} Pavel Jirkovi [_{ν P} dvakrát]]]].
the book_{ACC} sends Pavel_{NOM} Jirka_{DAT} twice
‘Pavel will send Jirka the book twice.’

At first glance, it appears that preverbal adverbials such as the frequentative adverbial *často* ‘often’ cannot be generated in the ν P-internal position; consider example (13a). However, as noted already in Bellert (1977), frequentative adverbials like *often* do not occur with the perfective (morphological) aspect in Slavic languages. As expected, when the imperfective

⁴ Adverbial movement will be discussed in more detail in chapter 5.

⁵ By preverbal adverbials I mean those adverbials that typically occur in a preverbal position in English. They correspond to Cinque’s (1999) ‘higher’ (sentence) adverbials and ‘lower’ (pre-VP) adverbials. The lower adverbials can in fact also follow the main verb.

form of the verb is used, the sentence becomes grammatical, as demonstrated in example (13b).

- (13) a. * [CP [MoodP Tu knihu pošle [TP Pavel Jirkovi [vP často]]]].
 the book_{ACC} sends Pavel_{NOM} Jirka_{DAT} often
- b. [CP [MoodP Tu knihu posílá [TP Pavel Jirkovi [vP často]]]].
 the book_{ACC} sends Pavel_{NOM} Jirka_{DAT} often
 ‘Pavel often sends Jirka the book.’

Since perfective verbs in the present-tense form have the future interpretation (imperfective verbs form a periphrastic future tense), one might think that the grammaticality contrast in (13) is due to the tense properties of the predicate. However, the same contrast is observable in the case of predicates in the past-tense form, as demonstrated by example (14), which shows that the problem does not lie in the future interpretation of the perfective predicate in example (13a).

- (14) a. * [CP [MoodP Tu knihu poslal [TP Pavel Jirkovi [vP často]]]].
 the book_{ACC} sent Pavel_{NOM} Jirka_{DAT} often
- b. [CP [MoodP Tu knihu posílal [TP Pavel Jirkovi [vP často]]]].
 the book_{ACC} sent Pavel_{NOM} Jirka_{DAT} often
 ‘Pavel often sent Jirka the book.’

Frequentative adverbials such as *často* are standardly analysed as quantifiers that quantify over sets of events, situations or times (see, for example, de Swart 1991).⁶ Thus, the contrast in (13) is due to the fact that the imperfective verb in (13b), in contrast to the perfective one in (13a), provides the quantificational adverbial with the domain on which the adverbial can operate. Concretely, the imperfective aspect provides *často* with a time interval, in which *často* determines the frequency of the event of Pavel’s sending the book to Jirka (compare Van Geenhoven 2005, who argues that quantificational adverbials operate on the reference time, which is widely assumed to relate to aspectual properties of predicates). Therefore, the ungrammaticality of example (13a) says nothing about the syntactic properties of the vP-

⁶ According to de Swart (1991), iterative adverbials can also have the generalised-quantifier interpretation but in most cases the non-quantificational reading is preferred.

internal position of frequentatives; it just shows that the frequentative adverbial cannot modify the perfective predicate.

It seems now that sentence (13b) does not fit into my proposal because on one hand I argue that the *vP* phase correlates with the focus of information structure and with the nuclear scope of the quantifier forming the tripartite quantificational structure but on the other hand in the *vP* phase of sentence (13b) there is only the quantifier. A closer look at the sentence however reveals that in accordance with the quantificational nature of *často* there are two sets of situations and the quantifier expresses the relation between them and that the sentence has the following interpretation: For the situations in which Pavel sends something to Jirka, it is often the case that Pavel sends Jirka the book. This means that the direct object *tu knihu* reconstructs into the *vP* phase and goes into the nuclear scope of *často*. According to some speakers, sentence (13b) must have the bridge-contour intonation, which supports the reconstruction analysis because if the preposed element is quantified in bridge-contour constructions, it interacts with other quantifiers in the sentence and shows scope reconstruction behaviour (see, for example, Büring 1997, Krifka 1998, Jacobs 2001 or Steube, Alter & Späth 2004).

According to Delfitto & Bertinetto (1995), there is a parallelism between determiners and quantificational adverbials; both elements can be weak or strong. The weak elements, in contrast to the strong ones, can have the non-quantificational (non-relational) meaning, which means that they can serve just as cardinal predicates of the plurality of objects, for example events, similarly as the iterative adverbial in example (12). Delfitto & Bertinetto argue that the quantificational adverbial *often* is a weak frequentative, hence it can appear in the sentence-final position and can have the pure frequency reading there. If it were true for Czech *často*, one would expect that sentence (13a) containing the perfective verb and *často* is well formed, analogically to example (12). However, this is not the case. There is another form of the adverbial *často* though, namely *častokrát* ‘oftentimes’, and this adverbial can appear in the sentence-final position, as demonstrated by example (15). This shows that morphology mirrors the difference between the quantificational and non-quantificational meaning of frequentative adverbials and suggests that *často* belongs to the strongly behaving adverbials and *častokrát* to the weakly behaving adverbials. Note that the element *-krát* contained in adverbial *častokrát* is also present in the iterative adverbials; consider example (12) again.

- (15) ? [CP [MoodP Tu knihu pošle [TP Pavel Jirkovi [vP častokrát]]]].⁷
 the book_{ACC} sends Pavel_{NOM} Jirka_{DAT} oftentimes
 ‘Pavel will often send Jirka the book.’

The same contrast can be found with other adverbials as well. Example (16a) demonstrates that the frequentative adverbial with the quantificational meaning *mnohdy* cannot occur in the sentence-final position in the vP phase. In contrast, adverbial *mnohokrát*, which is formed from the quantificational element by means of the iterative marker *-krát*, can appear in the sentence-final position, as shown in example (16b).

- (16) a. * [CP [MoodP Tu knihu pošle [TP Pavel Jirkovi [vP mnohdy]]]].
 the book_{ACC} sends Pavel_{NOM} Jirka_{DAT} a lot.dy
 b. [CP [MoodP Tu knihu pošle [TP Pavel Jirkovi [vP mnohokrát]]]].
 the book_{ACC} sends Pavel_{NOM} Jirka_{DAT} a lot.times
 ‘Pavel will send Jirka the book many times.’

Similar morphological facts can be observed in other languages as well. For instance, English iterative adverbials are formed from quantificational elements by means of *times*: *many times*, *several times*. Hungarian iteratives are formed from the number root by means of the suffix *-szor/-szer/-ször* (given the vowel harmony): *sokszor* ‘many times’, *kétszer* ‘twice’, *néhányszor* ‘sometimes’, see Csirmaz (to appear). In German, iterative adverbials are formed by means of the nominal element *-mal/Mal*; compare, for example, *oft* ‘often’ with *oftmal(s)* ‘oftentimes’, *viel* ‘a lot’ with *vielmal(s)* ‘many times’. And French iterative adverbials are formed through *fois*: *quelquefois* ‘several times’ (for other French examples and Dutch examples, see Doetjes 1997).⁸

Delfitto & Bertinetto (1995) demonstrate that in Italian adverbial counterparts of strong determiners cannot appear in the sentence-final position. The same behaviour can be observed in the case of Czech adverbials like *většinou* ‘mostly’, as shown by the following example.

⁷ Some speakers judge (15) as marked and see the contrast more clearly in the case of the past-tense verb:

- (i) a. * Tu knihu poslal Pavel Jirkovi často.
 the book_{ACC} sent Pavel_{NOM} Jirka_{DAT} often
 b. Tu knihu poslal Pavel Jirkovi častokrát.
 the book_{ACC} sent Pavel_{NOM} Jirka_{DAT} oftentimes
 ‘Pavel often sent Jirka the book.’

⁸ According to Doetjes (1997), in *x-times* adverbs like *quelquefois*, the nominal element *times* forms the restriction of the quantificational element.

- (17) * [CP [MoodP Tu knihu posílá [TP Pavel Jirkovi [vP většinou]]]].
 the book_{ACC} sends Pavel_{NOM} Jirka_{DAT} mostly

This sentence is ungrammatical and for some reason the ungrammatical status cannot be repaired by the bridge-contour intonational pattern. Note that the predicate is in the imperfective form, hence the ungrammaticality has nothing to do with the morphological aspect.

This means that there are two types of frequentative adverbials with the strong (quantificational) reading. Adverbials of the first type (*často*) are not obliged to overtly c-command elements in their nuclear scope and are satisfied with their reconstruction. In contrast, adverbials of the second type (*většinou*) do not allow this.

Then, one expects that if an element appears in the vP phase in the c-command domain of the adverbial of the second type, the sentence will become grammatical. This expectation is met, as demonstrated by example (18) with adverbial *potrubní poštou* ‘pneumatic post’ occurring in the vP-internal position.

- (18) [CP [MoodP Tu knihu posílá [TP Pavel Jirkovi [vP většinou potrubní poštou]]]].
 the book_{ACC} sends Pavel_{NOM} Jirka_{DAT} mostly pneumatic post
 ‘Pavel mostly sends Jirka the book by the pneumatic post.’

The quantificational adverbial *většinou* forms the tripartite structure and in line with my proposal in chapter 2 the vP-internal DP *potrubní poštou* is interpreted as focused and goes into the nuclear scope of *většinou*. Hence, interpretation of sentence (18) can be paraphrased as follows: It holds for most situations in which Pavel sends Jirka the book that he sends Jirka the book by the pneumatic post. Thus, the source of the ungrammaticality of example (17) does not lie in the syntactic position of the frequentative adverbial but rather in the lack of other elements in the c-command domain of the adverbial in the vP phase and consequently in the uninterpretability of the sentence. The conclusion drawn from this section is that iterative and frequentative adverbials can be merged in the vP phase as well.

4.3.2 Aspectual adverbials

In this section, I investigate aspectual adverbials, concretely, *už* ‘already’ and *ještě* ‘still’ and show that they can be analysed in a way similar to the frequentative adverbials.

It has been argued that aspectual adverbials like *už* or *ještě* quantify over continuous domains (intervals or phases), see, for example, Löbner (1989) or de Swart (1991). Aspectual

adverbials - similarly as frequentative adverbials - are focus sensitive (see Krifka 2000), according to *Mluvnice češtiny 3* (1987) they prototypically precede the focused elements and according to Jacobs (1986, 1988) focus-sensitive adverbials must c-command their focus. Then, given the proposal that elements in the CP phase (the background domain) go into the restrictor of the adverbial and elements in the ν P phase (the focus domain) go into the nuclear scope, one expects that if the adverbial occurs by itself in the ν P phase, the sentence will be ungrammatical. This is indeed the case, as shown by example (19).

- (19) * [CP [MoodP Tu knihu pošle [TP Pavel Jirkovi [ν P už]]]].⁹
the book_{ACC} sends Pavel_{NOM} Jirka_{DAT} already

Similarly as in the case of the frequentative adverbial *většinou* in the preceding section, if an element occurs in the ν P phase and is c-commanded (preceded) by the aspectual adverbial, the sentence becomes grammatical, as demonstrated by example (20). According to Krifka (2000), aspectual adverbials require the set of alternatives to the focus to be ordered and the focused value to be the highest or lowest element with respect to the alternatives. This means that in example (20), the set of alternatives to the focus can contain, for example, Wednesday and Friday and given the semantic properties of *už*, both Wednesday and Friday must follow the focused Monday. More concretely, when the sentence is uttered, for example, on Thursday, then the Friday in the set of focus alternatives cannot be the next-day Friday. This is so because sentence (20) implicates that Pavel will send Jirka the book earlier than expected.

- (20) [CP [MoodP Tu knihu pošle [TP Pavel Jirkovi [ν P už v pondělí]]]].
the book_{ACC} sends Pavel_{NOM} Jirka_{DAT} already on Monday
‘Pavel will already send Jirka the book on Monday.’

Whether the focus value is the highest or the lowest value with respect to the focus alternatives depends on the type of the aspectual adverbial and also on the type of the focused element. According to Krifka (2000), focus on temporals switches the earliness/lateness implicatures of aspectual adverbials. Consider sentence (21), which minimally differs from

⁹ One might propose that (19) is ungrammatical because *už* is phonologically too light. However, ungrammaticality is also obtained with *ještě* ‘still’, which is not phonologically weak, consider (i):

(i) * [CP [MoodP Tu knihu pošle [TP Pavel Jirkovi [ν P ještě]]]].
the book_{ACC} sends Pavel_{NOM} Jirka_{DAT} still

sentence (20) containing the temporal adverbial and where the alternative to the focus value *zabalenou* ‘wrapped’ is *rozbalenou* ‘unwrapped’.

- (21) [CP [MoodP Tu knihu pošle [TP Pavel Jirkovi [vP už zabalenou]]]].
 the book_{ACC} sends Pavel_{NOM} Jirka_{DAT} already wrapped
 ‘Pavel will already send Jirka the book wrapped.’

This example can be used in a situation, where Pavel bought an unwrapped book as a Christmas present for Jirka’s sister and wrapped it into a Christmas wrapping paper so that Jirka would not have to wrap it by himself. This shows that the focus value *zabalenou* asserted in (21) represents the highest value, in contrast to the lowest value asserted in example (20).

Let us go back to the syntactic properties of aspectual adverbials. So far, it has seemed that aspectual adverbials cannot occur in the sentence-final position. However, a closer look at data reveals that there are sentences with a sentence-final aspectual adverbial. As an illustration of this, consider example (22a) with the vP-internal *ještě* ‘still’.

- (22) a. [CP [MoodP Pavel tu je [TP [vP ještě]]]].
 Pavel_{NOM} here is still
 ‘Pavel is still here.’
 b. * [CP [MoodP Pavel tu byl [TP [vP ještě]]]].
 Pavel_{NOM} here was still

It is important to notice that the verb is in the present-tense form. If it is in the past-tense form, the sentence is ungrammatical, compare example (22a) with (22b). In sentence (22b), as in the ungrammatical example with the sentence-final adverbial *už* above, something is missing. Specifically, it is the piece of information about the asserted (focused) time interval. In contrast, this is not the case in example (22a), where, given the present-tense form of the verb, the speech time coincides with the reference time and the event time. Thus, in sentence (22a) the time interval does not have to be expressed overtly because it can be interpreted as ‘now’, that is, as the time of the speech time.

As expected, if sentence (22b) is modified and a temporal adverbial appears in the c-command domain (nuclear scope) of the aspectual quantifier, as shown in (23), the sentence becomes grammatical.

(23) [_{CP} [_{MoodP} Pavel tu byl [_{TP} [_{vP} ještě včera]]]].

Pavel_{NOM} here was still yesterday

‘Pavel was still here yesterday.’

I now summarise the section. As in the case of iterative and frequentative adverbials, I conclude that aspectual adverbials can be merged in the vP phase and that they can appear in the sentence-final position. The ungrammaticality of the sentences under discussion is based on the uninterpretability of the aspectual adverbial in the sentence-final position, concretely, on the lack of an element in its nuclear scope. The grammatical sentence (22a) which, given the tense properties, can be interpreted without an element overtly c-commanded by the aspectual quantifier shows that the grammaticality problem does not arise due to the syntactic position of the aspectual adverbial.

4.3.3 Sentence adverbials

With respect to the proposal that adverbials generally can be merged in the vP phase, the most interesting cases of preverbal adverbials are sentence adverbials because they are the highest ones in the adverbial hierarchy. In this section, I argue that sentence adverbials can be merged in the vP phase, can occur in the sentence-final position and can be focused there. The ungrammaticality of certain sentence adverbials in the sentence-final position in the vP phase is due to the fact that they cannot serve as the focus in the appropriate sentence. Concretely, I argue that sentence adverbials can appear in the sentence-final position only if they represent the extreme value with respect to the set of focus alternatives.

Sentence adverbials such as the epistemic *možná* ‘possibly’, *pravděpodobně* ‘probably’ or the evaluative *naštěstí* ‘fortunately’ cannot appear in the sentence-final position in the vP phase, as shown by example (24).

(24) a. * [_{CP} [_{MoodP} Tu knihu pošle [_{TP} Pavel Jirkovi [_{vP} možná]]]].

the book_{ACC} sends Pavel_{NOM} Jirka_{DAT} possibly

b. * [_{CP} [_{MoodP} Tu knihu pošle [_{TP} Pavel Jirkovi [_{vP} pravděpodobně]]]].

the book_{ACC} sends Pavel_{NOM} Jirka_{DAT} probably

c. * [_{CP} [_{MoodP} Tu knihu pošle [_{TP} Pavel Jirkovi [_{vP} naštěstí]]]].

the book_{ACC} sends Pavel_{NOM} Jirka_{DAT} fortunately

intended: ‘Pavel will possibly/probably/fortunately send Jirka the book.’

This is not surprising because it has been shown that in other languages, too, sentence adverbials cannot occur in the sentence-final position unless they are separated by a comma intonation. Consider, for example, Jackendoff (1972, 50) for English (25a), Belletti (1990, 53) for Italian (25b) and French (25c), Alexiadou (1997, 157) for Greek (25d) or Cinque's (1999, 31) Italian example in (25e).¹⁰

- (25) a. * Horatio has lost his mind evidently/probably.
 b. * Gianni partirà probabilmente.
 Gianni will leave probably.
 c. * Jean partira probablement.
 Jean will leave probably.
 d. * O Janis tha figi pithanos.
 the-John-NOM FUT go-3SG probably
 e. * Gianni lo merita francamente/fortunatamente/evidentemente/probabilmente/forse/...
 Gianni deserves it frankly/luckily/evidently/probably/perhaps/...

This seems to be in accordance with the claim that sentence adverbials occupy a fairly high position in the clausal structure (see, for example, Jackendoff 1972, Cinque 1999 or Laenzlinger 2002).

There is also a semanticopragmatic approach to the question why the adverbials in (24) cannot appear in the sentence-final position. According to Lang (1979), sentence adverbials like epistemic or evaluative ones are focus-sensitive operators and they themselves cannot be focused and accented. According to Koktová (1987, 1999) or Hajičová, Partee & Sgall (1998), the prototypical position of focus-sensitive adverbials is at the boundary between the background and the focus and according to Jacobs (1986, 1988) or Krifka (1992a) focusing adverbials must c-command their focus.¹¹

Nevertheless, there are sentence adverbials that can appear in the sentence-final position, as demonstrated by the Italian example (26), taken from Cinque (1999, 180 note 80), and the Czech example (27) containing *určitě* 'certainly'. The adverbial *určitě* is more or less as high as the epistemic adverbial *možná* in the adverbial hierarchy, which poses a problem

¹⁰ The glosses and translations are taken from the original literature.

¹¹ Note that it is not sufficient when the adverbial c-commands only the covert copy of the focused constituent, as shown in (i) with the contrastively focused object:

(i) * [_{CP} [_{MoodP} TU KNIHU_i pošle [_{TP} Pavel Jirkovi [_{VP} možná t_i]]]].
 the book_{ACC} sends Pavel_{NOM} Jirka_{DAT} possibly

for the argument that the source of the ungrammaticality of sentence adverbials in the sentence-final position is the height of their structural position in the sentence. As already mentioned, non-clausal adverbials are merged to the left in Czech, hence the example cannot be accounted for through merger of the adverbial in a higher structural position to the right. In addition, example (27) shows that the ungrammaticality of (24) is not due to the general impossibility of sentence adverbials to appear in the sentence-final position and be accented there.

(26) Gianni lo merita sicuramente/di sicuro

‘Gianni deserves it surely.’

(27) [CP [MoodP Tu knihu pošle [TP Pavel Jirkovi [vP určitě]]]].

the book_{ACC} sends Pavel_{NOM} Jirka_{DAT} certainly

‘Pavel will certainly send Jirka the book.’

In order to account for this type of data, Cinque (1999, 180 note 80) proposes that adverbials like *sicuramente* belong to the class of realis mood adverbials and can be used as a focusing adverbial (the Czech equivalent *určitě* would probably be analysed in the same way). More concretely, Cinque follows Kayne (1994), hence adjunction to a maximal projection is excluded, and analyses adverbials like *sicuramente* as heads that take their modiftees as a complement and allow their complement to move across them.

Lang (1979) distinguishes between three classes of sentence adverbials in German. Adverbials of class A are, for example, *wahrscheinlich* ‘probably’, *möglicherweise* ‘possibly’, adverbials of class B are *bedauerlicherweise* ‘unfortunately’ or *überraschenderweise* ‘surprisingly’ and adverbials of class C are *tatsächlich* ‘really’ or *in der Tat* ‘certainly’. According to Lang, adverbials of class C differ from adverbials of class A and B in that they can be accented and focused. Thus, according to Lang’s classification, *určitě* in example (27) belongs to class C and adverbials *možná*, *pravděpodobně* and *naštěstí* from example (24) belong to class A and B.

However, both proposals have a problem with cases like (28) because the sentence-final adverbial *možná* is epistemic (that is, Lang’s class A), is accented and represents the focus itself; it is associated with the focus-sensitive adverbial *jenom* ‘only’. Thus, Cinque’s (1999) focusing-adverbial proposal cannot be used either.

- (28) [CP [MoodP Tu knihu pošle [TP Pavel Jirkovi [vP jenom možná]]]].
 the book_{ACC} sends Pavel_{NOM} Jirka_{DAT} only possibly
 ‘It is only possible that Pavel will send Jirka the book.’

In what follows, I argue that sentence adverbial can also be merged in the vP phase and that it depends on their lexicosemantic properties (and properties of other elements in the sentence) whether or not they can be interpreted there.

I will begin with the semantic difference between adverbial *určitě* on the one side and adverbials *možná*, *pravděpodobně* and *naštěstí* on the other side. It is not difficult to show that the adverbials have different lexicosemantic properties. For instance, they behave differently in environments licensing negative polarity items. Sentence adverbials like *možná*, *pravděpodobně* or *naštěstí* are unacceptable in sentences with the question operator or the imperative operator, as demonstrated for *možná* in example (29a) and (29b), respectively.¹²

- (29) a. * Pošle Pavel Jirkovi tu knihu možná?
 sends Pavel_{NOM} Jirka_{DAT} the book_{ACC} possibly
 b. * Pošli Jirkovi tu knihu možná!
 send Jirka_{DAT} the book_{ACC} possibly

In contrast, adverbial *určitě* can appear in these environments, as shown by question (30a) and the imperative sentence (30b).

- (30) a. Pošle Pavel Jirkovi tu knihu určitě?
 sends Pavel_{NOM} Jirka_{DAT} the book_{ACC} certainly
 ‘Is it certain that Pavel will send Jirka the book?’
 b. Pošli Jirkovi tu knihu určitě!
 send Jirka_{DAT} the book_{ACC} certainly
 ‘Make certain that you send Jirka the book.’

¹² Adverbials *pravděpodobně* and *naštěstí* behave in the same way. It makes no difference whether or not the adverbial occurs in the sentence-final position:

- (i) a. * Pošle možná Pavel Jirkovi tu knihu?
 sends possibly Pavel_{NOM} Jirka_{DAT} the book_{ACC}
 b. * Pošli možná Jirkovi tu knihu!
 send possibly Jirka_{DAT} the book_{ACC}

It has been proposed that the imperative and question operator are nonveridical (see Giannakidou 1999, 2002). More concretely, Giannakidou (2002, 33) defines (non)veridicality for propositional operators as follows:

(31) (Non)veridicality for propositional operators

- (i) A propositional operator F is veridical iff Fp entails p : $Fp \rightarrow p$;
otherwise F is nonveridical.
- (ii) A nonveridical operator F is antiveridical iff Fp entails *not* p : $Fp \rightarrow \neg p$.

It is obvious that when somebody asks whether Pavel will send Jirka the book, then it does not entail that Pavel will send Jirka the book.

Given the different behaviour of the adverbials in (29) and (30) and the contrast between (24) and (27), one could suggest that the reason why sentences in (24) are ungrammatical is that the appropriate sentence adverbials are in the scope of a nonveridical operator. Since there is no such overt operator in the sentences, the operator would have to be covert. It could be, for example, an assertion operator (compare Jacobs 1988, 1991 or Krifka 1999). This seems to be feasible because when one asserts a proposition, then it does not entail that the proposition is true.

Sentence adverbials of the *možná* type do not behave uniformly in all syntactic positions in the sentence. If adverbial *možná* occurs in the CP phase of a declarative sentence, that is, in the background domain, the sentence is grammatical, as demonstrated by the following example.

(32) a. Komu pošle Pavel tu knihu?

‘To whom will Pavel send the book?’

b. [_{CP} [_{MoodP} Tu knihu pošle [_{TP} možná Pavel [_{VP} Jirkovi]]]].

the book_{ACC} sends possibly Pavel_{NOM} Jirka_{DAT}

‘Pavel will possibly send Jirka the book.’

Given the grammaticality contrast between (32b) and (24a) and the fact that the assertion operator has in its scope the whole sentence, one needs to use a tripartite structure for the operator. This is in line with Jacobs (1988), who argues that all sentences have a focus-sensitive element (either overt or covert) and that all illocutionary operators can be focus sensitive and can form the tripartite structure. If one wants to maintain the idea that it is the nonveridicality of the assertion operator, to which the sentence adverbial is sensitive, the

assertion operator would have to be veridical in its restrictor (in the background domain) and nonveridical in its nuclear scope (in the focus domain).

However, there is a reason to think that nonveridicality of the focused position is not the right solution here. The argument goes as follows. According to Zwart (1995), the dyadic operator *or* (both exclusive and nonexclusive) is nonveridical in both conjuncts. Zwart (1995, 288) defines (non)veridicality for dyadic operators as follows:

(33) (Non)veridicality for dyadic operators

Let C be a dyadic truth-functional connective. C is said to be *veridical* with respect to $p [q]$ just in case $pCq \Rightarrow p [pCq \Rightarrow q]$ is logically valid.

If C is not veridical with respect to $p [q]$, then C is *nonveridical* with respect to $p [q]$.

For instance, from the claim ‘Either the neighbour is cooking or her husband is painting his car.’ does not follow that the neighbour is cooking (nor that her husband is painting his car). This means that *možná* should be bad in this environment. This is indeed the case, as shown by the following example.

- (34) ?? Bud’ sousedka možná vaří, nebo soused lakuje auto.
 either neighbour_{FEM} possibly cooks or neighbour_{MASC} paints car
 intended: ‘Either the neighbour possibly is cooking or her husband is painting his car.’

However, according to Czech speakers, there is a clear contrast in judgments of example (34) with *možná* in the background position and (35) with *možná* in the focus position. And this is unexpected since, given the discussion above, the clause-final (focused) position of the adverbial in (35) should also be excluded due to nonveridicality.

- (35) * Bud’ sousedka vaří možná, nebo soused lakuje auto.
 either neighbour_{FEM} cooks possibly or neighbour_{MASC} paints car

Since the explanation in terms of nonveridicality of the focused position does not work, let us turn to other interesting approach to this issue, to the downward-monotonicity approach.

Nilsen (2003) argues that sentence adverbials like *možná*, *pravděpodobně* and *naštěstí* are positive polarity items and as such are excluded from environments licensing negative polarity items. More concretely, he argues that they are excluded from downward-entailing

environments.¹³ Downward-entailing operators reverse the direction of entailment, which means that in downward-entailing environments truth is preserved when an element is replaced by a stronger (subset) element. Consider the definition of downward-entailing function in (36), taken from Nilsen (2003, 41):

(36) DE function

A function f is downward-entailing iff whenever a is semantically stronger than b , it holds that $f(b)$ is semantically stronger than $f(a)$.

Let us demonstrate it with sentences containing negation, which is a downward-entailing operator. Consider first sentences without the negation operator (37b,c) in the following example. Sentence (37b) entails sentence (37c), which means that the entailment goes from the subset (*zajímavou knihu*) to the superset (*knihu*).

(37) a. Co pošle Pavel Jirkovi?

‘What will Pavel send Jirka?’

b. Pavel pošle Jirkovi zajímavou knihu.

Pavel_{NOM} sends Jirka_{DAT} interesting book_{ACC}

‘Pavel will send Jirka an interesting book.’

c. Pavel pošle Jirkovi knihu.

Pavel_{NOM} sends Jirka_{DAT} book_{ACC}

‘Pavel will send Jirka a book.’

In example (38) with the negated sentences, the direction of entailment is reversed. Sentence (38a) entails (38b); the replacement of *knihu* with the stronger (subset) predicate *zajímavou knihu* preserves the truth under negation.

(38) a. Pavel nepošle Jirkovi knihu.

Pavel_{NOM} neg.sends Jirka_{DAT} book_{ACC}

‘Pavel will not send Jirka a book.’

¹³ Compare, for example, Ladusaw (1980, 13):

(i) A negative-polarity item is acceptable only if it is interpreted in the scope of a downward-entailing expression.

- b. Pavel nepošle Jirkovi zajímavou knihu.
 Pavel_{NOM} neg.sends Jirka_{DAT} interesting book_{ACC}
 ‘Pavel will not send Jirka an interesting book.’

In order to explain the contrast between the behaviour of the sentence adverbial *určitě* (27) and the sentence adverbials like *možná* (24), and the contrast between the behaviour of *možná* in the focus position (24a) and in the background position (32b), one would have to assume that the covert assertion operator is downward-entailing in its nuclear scope (in the focus domain) but not in its restrictor (in the background domain). However, this does not go through, as demonstrated by example (37), with the appropriate context (37a). This example shows that the focus position is not downward entailing. On the contrary, as already discussed above, the fact that sentence (37b) entails (37c) shows that the focus position is upward-entailing.

Thus, if it is not nonveridicality or downward-monotonicity that makes the sentence adverbials like *možná* bad in the sentence-final position in declarative sentences, it is necessary to find an alternative account.

If we accept Chomsky’s (2001) suggestion that every phase has its own lexical subarray, which chooses its elements from the lexical array (numeration), it can happen (unless we make an additional assumption) that a sentence adverbial is chosen from the lexical array by the *vP* subarray and that it is merged in the *vP* phase.¹⁴ Given the proposal that the *vP* phase is interpreted as the domain of information focus, adverbials in the sentence-final position in *vP* are necessarily interpreted as focused at the semantic interface and introduce a set of focus alternatives.

Piñón (2006) suggests that Krifka’s (1995) approach to polarity items can be used for analysing modal sentence adverbials. Krifka (1995) proposes that polarity items as well as focused elements introduce alternatives and that the alternatives are ordered according to semantic strength, that is, set relations. The focused value and its alternatives can also be represented by a value on a scale.

In order to account for the behaviour of sentence adverbials in the sentence-final position and the difference in behaviour between the adverbials *možná* and *určitě*, I make use of Krifka’s (1995) notion of ‘extreme value’. Specifically, I propose that a sentence adverbial

¹⁴ Note that under the standard assumption adverbials (adjuncts) neither have syntactic selectional requirements nor they are selected, hence they theoretically can appear in any position in the *vP* phase. As for the semantic mismatches, they can be solved through covert movement similarly as in the case of QR-ed arguments.

can appear in the sentence-final position in the vP phase and be focused (accented) there only if it represents the extreme value with respect to the set of alternatives.¹⁵ Epistemic adverbials can be taken to correspond to certain values on an epistemic (or probability) scale. As far as the realis mood adverbial *určitě* ‘certainly’ is concerned, it is a lexicosemantic property of this adverbial that it corresponds to the highest value on the epistemic scale. This means that *určitě* represents the extreme value with respect to the focus alternatives because all other alternatives are, of course, lower on the epistemic scale. Therefore, sentences with *určitě* occurring in the focused sentence-final position are grammatical.

In contrast, given its lexicosemantic properties, *možná* ‘possibly’ does not represent an extreme value on the epistemic scale; therefore it cannot serve as the focus value. Thus, when *možná* appears in the sentence-final position in the vP phase, the sentence is ungrammatical. However, this changes when the exclusive adverbial *jenom* ‘only’ is added. As demonstrated by example (28), repeated here for convenience as (39), the sentence adverbial *možná* can in fact occur in the sentence-final position.

- (39) [CP [MoodP Tu knihu pošle [TP Pavel Jirkovi [vP jenom možná]]]].
the book_{ACC} sends Pavel_{NOM} Jirka_{DAT} only possibly
‘It is only possible that Pavel will send Jirka the book.’

It is well known that the exclusive adverbial *only* is focus sensitive; see, for example, Rooth (1985), Beaver & Clark (2003) or Krifka (2006). In sentence (39), *jenom* associates with the focused sentence adverbial *možná* and excludes all other alternatives. The sentence then gets the interpretation according to which it is only possible – not probable or certain, which are possible alternatives to the focused *možná* here - that Pavel will send Jirka the book. *Jenom* makes from *možná* the lowest alternative on the epistemic scale, which means that this alternative has the required extreme value; but in this case, it is extreme low probability. Sentence (39) shows that sentence adverbials other than realis mood adverbials can also merge within the vP phase and appear in the sentence-final position if the appropriate semantic condition is met. The long-standing practice of taking sentence adverbials as high in the clausal structure has thus been challenged.

¹⁵ In this respect, sentences with a focused sentence adverbial resemble exclamative sentences, which also convey the extreme degree meaning (see Zanuttini & Portner 2003), and sentences with aspectual adverbials, as discussed in section 4.3.2, in which the focus value is either the highest or the lowest value with respect to the focus alternatives (see Krifka 2000).

It does not concern only the adverbial *možná*. Similarly, the epistemic adverbial *pravděpodobně* ‘probably’ can also occur in the sentence-final position if it represents the extreme value with respect to the set of focus alternatives. This is demonstrated in the following example.

- (40) a. * [CP [MoodP Pavel přijde [vP pravděpodobně]]].
 Pavel_{NOM} comes probably
 b. [CP [MoodP Pavel přijde [vP nanejvýš pravděpodobně]]].
 Pavel_{NOM} comes most.highly probably
 ‘It is at most probable that Pavel will come.’
 ‘It is highly probable that Pavel will come.’

Sentence (40a) shows that under usual circumstances, *pravděpodobně* is ungrammatical in the sentence-final position in the vP phase. However, as demonstrated in (40b), after adding adverbial *nanejvýš*, the sentence becomes grammatical. This example is especially interesting because it allows the extreme value to appear on either end of the epistemic scale. The first interpretation is the extremely-low-value interpretation, according to which there is no focus alternative on the epistemic scale lower than the *pravděpodobně* value. In this case, (40b) can be continued, for example, by the following sentence: *Určitě ne najisto*. ‘Certainly not beyond doubt.’ According to the second interpretation, the probability of Pavel’s coming is highest; it is in fact certain that Pavel will come. Hence, in this case, the asserted alternative represents the extremely high value on the epistemic scale.

Similarly as in the case of sentence (39), sentence (40) demonstrates that although the adverbial cannot occur in the vP position by itself, it can be merged there and appropriately interpreted if it gets help through another element. Hence, the problem does not lie in the low syntactic position of the adverbial, counter to the syntactic accounts like, for example, Cinque (1999).

Other focus particles can also be used to derive the extreme-value interpretation with *pravděpodobně*. Consider example (41), where *pravděpodobně* associates with the focus particle *dokonce* ‘even’.

- (41) [CP [MoodP Pavel přijde [vP dokonce pravděpodobně]]].
 Pavel_{NOM} comes even probably
 ‘It is even probable that Pavel will come.’

It is known that scalar focus particles like *dokonce* assign their domain an extreme position on a scale that is formed of the contextually determined alternatives (see, for example, Jacobs 1988 or König 1991). Thus, in the right context, *pravděpodobně* can represent the extreme high value with respect to the focus alternatives. (41) is appropriate, for example, in a situation where somebody is asking a few friends whether they will come to his party. Some guys before Pavel say that they will not come or that they possibly come and other guys do not know whether or not they will come. In this context, the value of *pravděpodobně* is extreme because it is unexpectedly high on the probability scale with respect to the alternatives.

I conclude from this section that sentence adverbials can be merged in the ν P phase, that they can occur in the sentence-final position, can be accented there and focused. Depending on their lexicosemantic properties and on the properties of the appropriate sentence, either they can be interpreted in the ν P-internal position or they cannot. This means that the (un)grammaticality of the appropriate sentence depends on the interpretability of the adverbial in the ν P phase and not on the syntactic position of the adverbial itself. The ungrammaticality of certain sentence adverbials in the sentence-final position in the ν P phase is due to the fact that they cannot serve as the focus in the given sentence. Concretely, sentence adverbials can appear in the sentence-final position only if they represent the extreme value with respect to the set of focus alternatives.

4.4 Conclusion

In this chapter, I have argued that adverbials generally can be merged in the ν P phase. This was demonstrated with various types of adverbials. I have also argued that under the right circumstances adverbials can occur in the sentence-final position in ν P. It depends on lexicosemantic properties of the adverbial and on properties of the appropriate sentence whether or not the adverbial can be interpreted in such a position. This means that the ungrammaticality of the sentence containing an adverbial in the sentence-final position in the ν P phase does not arise due to the syntactic position of the adverbial but due to the uninterpretability of the adverbial in that position.

Chapter 5

Hierarchy and movement of adverbials

5.1 Introduction*

It has been argued by numerous researches that there is an adverbial hierarchy. Therefore, in this chapter, I investigate whether Czech reflects adverbial orderings that have been described in the literature. Using the Czech National Corpus, I show that in Czech, too, there is an adverbial hierarchy and that this hierarchy is in accordance with the adverbial hierarchy proposed in the literature.

I will examine some phenomena having to do with the adverbial hierarchy and will argue that the adverbial hierarchy is not directly dependent on phrase structure and that an adjunct-based approach to the adverbial ordering is more appropriate than the feature-based approach, which expresses the adverbial hierarchy in terms of a fixed sequence of functional heads. I will show that with respect to data the feature-based approach is on one hand too narrow and on the other hand too rough. I will argue that the adverbial hierarchy results from several different factors and that the factors are often orthogonal to narrow syntax.

I will first investigate adverbial orderings in complex sentences and will show that adverbials from different clauses also interact and that they in many cases preserve the same relative orders as adverbials occurring in a single clause. I will argue that the relative orders of adverbials in complex sentences are determined not only by the scope relations between particular adverbials and the interplay of their lexicosemantic properties but also by semantic properties of other elements in the sentence. Another relevant factor affecting the adverbial

* Some parts of this chapter appeared as Biskup (2007c).

ordering is the event structure of the sentence. Adverbials occurring in different clauses can interact when the clauses relate to the same event in the complex sentence but they do not interact when the clauses relate to different events.

Furthermore, I will investigate stacked as well as non-stacked adverbials of the same class. These adverbials, too, show ordering preferences that cannot be accounted for only with recourse to phrase structure. I will propose the Superset Principle, which applies at the semantic interface and which determines the relative orders of adverbials of the same class. This principle has to have access not only to the structural relations between particular adverbials but also to their lexicosemantic properties. In addition, the Superset Principle must also have access to the event-structural properties of the sentence.

Then I will examine the adverbial ordering in the case of adverbials expressing an interval and will argue that it is determined by the natural evolution of spatiotemporal domains. Therefore, I will propose the Principle of Natural Evolution of Intervals, which also works at the semantic interface and which drives the relative order of stacked as well as non-stacked adverbials expressing an interval. I will argue that this principle, in contrast to the Superset Principle, is restricted to phase domains. This means that only adverbials occurring in the same phase must observe it.

I am also concerned with adverbial movement in this chapter. I will argue that adverbials can undergo short movement as well as long movement. This will be demonstrated by different types of reconstruction phenomena, by scope relations between particular adverbials, between an adverbial and negation and by interpretational effects. I will also argue that, given the fact that adverbials move, they can be interpreted in the form of several copies in the syntactic structure. Then, I will show that the phase structure is an important factor in adverbial movement and ordering. I will argue that in certain cases the canonical order of adverbials can be reversed if the adverbials occur in different phases.

The chapter is organised as follows. In section 5.2, I investigate the Czech National Corpus with respect to the adverbial ordering. In section 5.3, I briefly introduce two major approaches to the syntax of adverbials and their hierarchy. Section 5.4 deals with adverbials from different functional hierarchies. In section 5.5, I discuss adverbials of the same class and propose the Superset Principle and in section 5.6 I deal with relative orders of adverbials expressing an interval and propose the Principle of Natural Evolution of Intervals. In section 5.7, I argue that adverbials can move. Section 5.8 concludes the chapter.

5.2 Adverbial ordering

In this section, I investigate various pairs of adverbials and try to find out whether there is a difference in the frequency of occurrences of their relative orders.

5.2.1 Preverbal adverbials

Let us first look at relative orders of preverbal adverbials. As a starting point, I take Rizzi's (2004) analysis of preverbal adverbials. Rizzi discusses the ordering of preverbal adverbials in different languages and shows that evaluative adverbials precede epistemic adverbials, which precede frequentative adverbials, and that frequentatives in turn precede celerative adverbials. Following Cinque (1999), he argues that the order reflects the positioning of the adverbials in appropriate functional projections of a universal hierarchy. In the examples here, I use the following adverbials: evaluative *naštěstí* 'fortunately', epistemic *pravděpodobně* 'probably' and *asi* 'perhaps', frequentative *často* 'often' and celerative/manner *rychle* 'quickly'. The Czech National Corpus gives the following results:

(1) Evaluative adverbial *naštěstí* 'fortunately' and epistemic adverbial *asi* 'perhaps'

- a. order *naštěstí asi*: 22 occurrences / 5 relevant¹
- b. order *asi naštěstí*: 11 / 0

(2) Evaluative *naštěstí* 'fortunately' and frequentative *často* 'often'

- a. order *naštěstí často*: 20 / 13
- b. order *často naštěstí*: 3 / 0

(3) Epistemic *pravděpodobně* 'probably' and celerative/manner *rychle* 'quickly'

- a. order *pravděpodobně rychle*: 12 / 7
- b. order *rychle pravděpodobně*: 5 / 0

¹ The type of the query is identical for all pairs and looks as follows:

(i) [word="[Nn]aštěstí"] [] {0,10} [word="asi"] within <s>

This query means that the first adverbial (*naštěstí*) can also occur in the sentence-initial position, that maximally ten lexical items can intervene between both adverbials and that both adverbials must occur in the same sentence. What is important here is the number of relevant occurrences. 'Non-relevant' occurrences cover cases where the appropriate adverbials are coordinated or cases where each adverbial of the pair belongs to a distinct hierarchy (in accordance with Cinque (2004), for example, cases where each adverbial of the pair occurs in a distinct clause or one of the adverbials modifies an adjective and the other the verb). It is important to note that without further investigation, the occurrence data do not show whether the appropriate adverbials occur in a base-generated or moved positions.

(4) Frequentative *často* ‘often’ and celerative/manner *rychle* ‘quickly’

- a. order *často rychle*: 49 / 13
- b. order *rychle často*: 44 / 0

The data presented above demonstrate that there is a clear difference in the frequency of occurrences of particular adverbial relative orders and that they are in line with Rizzi’s proposal (2004). A closer look at the order preferences reveals that they also confirm the adverbial ordering found in other languages; compare, for example, Alexiadou (1997), Cinque (1999), Ernst (2002) or Laenzlinger (2002), among others. Concretely, the hierarchy of adverbials under discussion is as follows: evaluative adverbials > epistemic > frequentative > celerative/manner adverbials (where ‘x > y’ means that x precedes y).

5.2.2 Circumstantial adverbials

In this section, I investigate circumstantial adverbials. The following examples of pairs of randomly chosen adverbials show that in the case of circumstantial adverbials and adverbials of the same class, there are ordering preferences as well. As in the case of preverbal adverbials, there are clear differences between the frequencies of the relevant occurrences of the relative orders and the order preferences come out as expected; compare Haider (2000a, 2004), Nilsen (2000), Cinque (2002, 2004)²; for Czech compare the ‘systemic ordering’ of circumstantial adverbials in Sgall, Hajičová & Buráňová (1980) and Koktová (1987).³ Concretely, the investigation of the Czech National Corpus reveals that temporal adverbials precede the locatives and both types precede the manner adverbials.

In the case of adverbials of the same class, the superset adverbial, that is, the adverbial of the larger domain, precedes the subset adverbial, that is, the adverbial of the smaller domain. Consider the following examples from the Czech National Corpus.

(5) Temporal *včera* ‘yesterday’ and locative *ve městě* ‘in the town’

- a. order *včera ve městě*: 74 / 53
- b. order *ve městě včera*: 18 / 9

² In contrast to these works, Cinque (1999) argues that circumstantial adverbials are not rigidly ordered; for the same point, see Ernst (2002) and his participant adverbials.

(6) Temporal *dnes* ‘today’ and manner *hlasitě* ‘loudly’

a. order *dnes hlasitě*: 10 / 7

b. order *hlasitě dnes*: 2 / 0

(7) Locative *doma* ‘at home’ and manner *pečlivě* ‘carefully’

a. order *doma pečlivě*: 8 / 4

b. order *pečlivě doma*: 6 / 2

Circumstantial adverbials of the same class:

(8) Temporals: *včera* ‘yesterday’ and *večer* ‘in the evening’

a. order *včera večer*: 1238⁴

b. order *večer včera*: 43

(9) Locatives: *doma* ‘at home’ and *v pokoji* ‘in the room’

a. order *doma v pokoji*: 12 / 7

b. order *v pokoji doma*: 0

Thus, the data from the Czech National Corpus clearly show that there are order preferences between adverbials. Since the linear order of adverbials (and other elements too) reflects the hierarchical syntactic structure, one can conclude that there is an adverbial hierarchy. This adverbial hierarchy corroborates the adverbial hierarchy proposed, for example, by Cinque (1999, 2002, 2004), Haider (2000a, 2004), Nilsen (2000), Ernst (2002), Laenzlinger (2002), Rizzi (2004). Furthermore, the fact that hierarchically higher adverbials are ordered to the left of the hierarchically lower adverbials shows that non-clausal adverbials are adjoined to the left in Czech. In this respect, Czech behaves similarly as OV languages like German and differently from VO languages like English.⁵

5.3 The adjunct approach and the feature-based approach

In this section, I briefly overview two major approaches to the syntax of adverbials and their hierarchy. I reject Travis’s proposal (1988) that adverbs are heads that do not project their

³ The term ‘systemic ordering’ refers to the ordering in deep structure (the tectogrammatical structure) in the Praguean Functional Generative Description (FGD), for details see, for example, Sgall, Hajičová & Buráňová (1980) and Sgall, Hajičová & Panevová (1986).

⁴ The relevant occurrences were not counted on account of their high number.

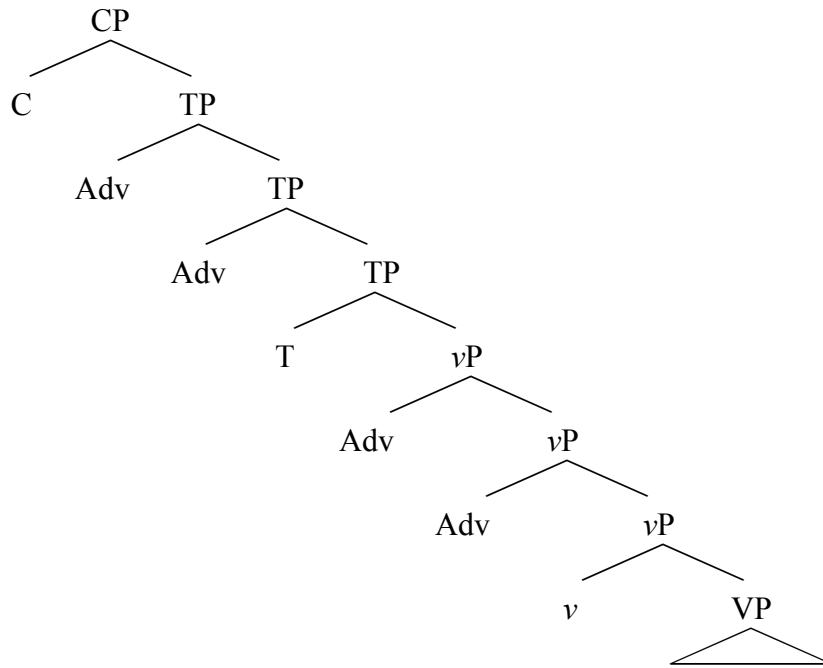
own phrase because adverb(ial)s show a phrasal behaviour. They can be moved by an XP-movement like, for example, topicalization, as shown in example (10a); they can be crossed by verb (head) movement, as shown in (10b); they can be modified by other adverbials, as shown in (10c); and some adverbials can also take a complement, as shown in example (10d). Compare also arguments against Travis's proposal (1988) in Alexiadou (1997, 2002) and Cinque (1999).

- (10) a. ... denně že Pavel líbá svoji ženu.
 daily that Pavel_{NOM} kisses his wife_{ACC}
 ‘that daily, Pavel kisses his wife.’
- b. Pavel (líbá) denně (líbá) svoji ženu.
 Pavel_{NOM} kisses daily kisses his wife_{ACC}
 ‘Pavel kisses his wife daily.’
- c. Pavel líbá (skoro denně) svoji ženu (skoro denně).
 Pavel_{NOM} kisses almost daily his wife_{ACC} almost daily
 ‘Pavel kisses his wife almost daily.’
- d. Pavel kupuje auta nezávisle na svojí ženě.
 Pavel_{NOM} buys cars_{ACC} independently of his wife
 ‘Pavel buys cars independently of his wife.’

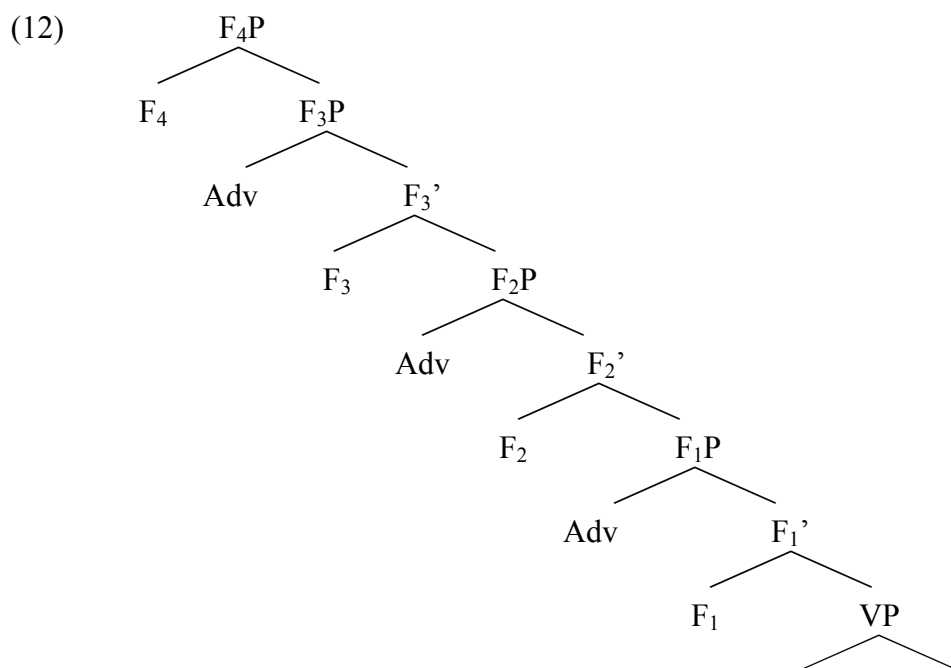
Let us begin with the adjunct approach. This approach is represented, for example, by Ernst (1998, 2002), Frey & Pittner (1998), Shaer (1998), Haider (2000a, 2004), Svenonius (2002), among many others. Adverbials are treated as adjuncts and their hierarchy is not directly dependent on phrase structure. Given their lexicosemantic properties and scope requirements, they can adjoin - according to many authors - to any available projection in which they are interpretable. Thus, syntactic positions of adverbials are predictable by their semantic properties and the relative order of adverbials is related to their relative scope. There is free multiple adjunction of adverbials and in some approaches also right adjunction is allowed. As an illustration of this approach, consider the phrase structure in (11), with adverbials adjoined to *vP* and *TP*.

⁵ This goes against Ernst's (2003, 193-194) generalisation that in SVO languages the complement position as well as the adjunct positions are to the right of their heads.

(11)



I now turn to the feature-based approach. In this approach, which is represented, for example, by Alexiadou (1997), Cinque (1999, 2004), Laenzlinger (2002) - again somewhat generalised - adverbials are merged as specifiers that check an appropriate feature of the semantically related functional projection (in Alexiadou 1997, certain adverbials, for example, manner adverbials, are first merged in the complement position of the verb and then they move to the specifier position of the related functional projection). These functional projections are organised in a universal hierarchy. Hence, the adverbial ordering is a direct reflection of the universal clausal structure, as illustrated in the simplified phrase structure (12), with four functional projections (FPs). There mostly are only unique specifiers merged to the left but there are also exceptions, for example, Laenzlinger (2002) assumes two specifiers and allows right adjunction in certain cases.



In the following sections, I will discuss some interesting data with respect to the relative order of adverbials and will argue that the adjunct-based (a semantic) approach to adverbials is superior to the feature-based approach. I will show that with respect to the data the feature-based approach is on one hand too narrow and on the other hand too rough. I will argue that more than just the syntactic hierarchy is needed and that factors that are orthogonal to phrase structure come into play.

5.4 Adverbials from different functional hierarchies

In this section, I am concerned with the interaction of adverbials from different clauses and show that the attractiveness of the feature-based approach - that the adverbial hierarchy is tied to the clausal architecture and thus the adverbial hierarchy gets a syntactic explanation - is at the same time the weakest point of the theory because it makes the approach too narrow.

As demonstrated by the example from the Czech National Corpus in (13), adverbial sequences can appear in different positions in clauses. For instance, in the clause-initial position, as shown in example (13a), in the middle field position, as in (13b), or in the clause-final position, as shown in (13c). They can also appear in a complex participial AP, as demonstrated by example (14), where the superset locative precedes the subset locative and both precede the manner adverbial. Haider (2000a, 2004) argues that the relative order is the same for adjectival modifiers, adverbial modifiers of participial APs and adverbial modifiers

of VPs.⁶ According to Shaer (1998), the ordering preferences also hold for corresponding nominalizations.

- (13) a. ..., pravděpodobně rychle změni názor. (#36707220)
 probably quickly change mind_{ACC}
 ‘They will probably quickly change their mind.’
- b. Podrobnosti a praktický dopad projektu vyjdou pravděpodobně
 details and positive effect_{NOM} of project come out probably
 velice rychle ve známost a... (#21644441)
 very quickly in knowledge and...
 ‘Details and the positive effect of the project probably become known very quickly.’
- c. Podle vyjádření dálniční policie z Bernartic jel řidič
 according to report of highway police from Bernatice drove driver_{NOM}
 kamiónu pravděpodobně příliš rychle a... (#97852225)
 of truck probably too fast and
 ‘According to Bernatice highway police report, the truck driver drove too fast.’
- (14) ..., říkal Borek tichým, doma před holicím zrcátkem pečlivě
 said Borek_{NOM} by soft at home in front of handglass carefully
 nastudovaným hlasem,... (#3537206)
 practised voice
 ‘Borek said (it) by a soft voice carefully practised at home in front of the handglass.’

As discussed in Cinque (2004), data like (13) can be analysed by assuming movement of the appropriate elements across the adverbials and examples like (14) as well as Haider’s examples can be analysed by assuming that complex APs are derived from small clause relatives. So far so good, it is theoretically always possible to embed a new functional hierarchy in the sentence.

⁶ Haider (2000a, 101) demonstrates it by examples (i), (ii) and (iii). According to Haider, permutations of the italicised adjuncts are ungrammatical or meaning changing.

(i) die *gestrigen* *rechtzeitigen* *mehrfachen* *gründlichen* Durchsuchungen der Räume
 the of-yesterday timely repeated thorough searches of the rooms
 (ii) die *gestern* *rechtzeitig* *mehrfach* *gründlich* durchsuchten Räume
 the yesterday timely repeatedly thoroughly searched rooms
 (iii) Man hat die Räume *gestern* *rechtzeitig* *mehrfach* *gründlich* durchsucht
 they have the rooms yesterday timely repeatedly thoroughly searched

However, as shown by Abels (2003), the real problem is the fact that adverbials from different clausal hierarchies interact as well, which is unpredictable in the feature-based approach. Abels (2003) shows that the relative order between two adverbials must also be preserved in the case where one of them occurs in the matrix clause and the second one in the embedded clause.⁷ Consider the contrast in the following example with adverbials *already* and *no longer*, taken from Abels (2003, 109):

- (15) a. It is already the case that he no longer goes to school.
 b. * It is no longer the case that he already goes to school.

This contrast cannot be reproduced in Czech since it does not have such a negative adverbial as *no longer*. However, the same effect – a semantically deviant complex sentence – can be produced with other adverbials. Example (16) with the aspectual adverbial *už* ‘already’ and the iterative adverbial *dvakrát* ‘twice’ illustrates that the rigid ordering holds across clausal functional hierarchies in one sentence; *už* must precede *dvakrát*.⁸

- (16) a. Už to tak bylo, že Pavel měl dvakrát holku.
 already it so was that Pavel_{NOM} had twice girl_{ACC}
 ‘It was already the case that Pavel had sex with two girls.’
 ‘It was already the case that Pavel had sex with a girl twice.’

⁷ Williams (2000) also argues that the ordering restrictions are preserved between adverbials from different functional structures; compare Cinque (2004, fn. 14), for the discussion of the example given by Williams.

⁸ Control sentences (i)-(iv) demonstrate that *dvakrát* and *už* can occur in the matrix clause and the embedded clause. And (v) demonstrates that the adverbial ordering is the same in the one-clause counterpart of (16).

- (i) Dvakrát to tak bylo, že Pavel měl holku.
 twice it so was that Pavel_{NOM} had girl_{ACC}
 ‘It was twice the case that Pavel had sex with a girl.’
 (ii) Už to tak bylo, že Pavel měl holku.
 already it so was that Pavel_{NOM} had girl_{ACC}
 ‘It was already the case that Pavel had sex with a girl.’
 (iii) To tak bylo, že Pavel měl už holku.
 it so was that Pavel_{NOM} had already girl_{ACC}
 ‘It was the case that Pavel already had sex with a girl.’
 (iv) To tak bylo, že Pavel měl dvakrát holku.
 it so was that Pavel_{NOM} had twice girl_{ACC}
 ‘It was the case that Pavel had sex with two girls.’
 ‘It was the case that Pavel had sex with a girl twice.’
 (v) a. Pavel měl už dvakrát holku.
 Pavel_{NOM} had already twice girl_{ACC}
 ‘Pavel already had sex with two girls.’
 ‘Pavel already had sex with a girl twice.’
 b. * Pavel měl dvakrát už holku.
 Pavel_{NOM} had twice already girl_{ACC}

- b. * *Dvakrát to tak bylo, že Pavel měl už holku.*
 twice it so was that Pavel_{NOM} had already girl_{ACC}

This problem does not arise in the adjunct approach since there adverbial orders do not result from selectional relations between functional projections of a single clause. The bad order then is excluded at the semantic interface. To be more specific, iterative adverbials such as *dvakrát* pluralise events. In the case under discussion, *dvakrát* denotes the cardinality of times the event of Pavel's having sex with a girl happened. We have already seen that aspectual adverbials like *už* can be treated as quantifiers quantifying over continuous domains like intervals or phases (Löbner 1989, de Swart 1991, Krifka 2000). As far as the meaning of *už* in (16a) is concerned, there is a presupposition that for the time before Pavel's second sexual encounter with a girl it is not true that Pavel had sex with two girls or with one girl twice. And the assertion is that for the time since Pavel's second sexual encounter with a girl it is true that Pavel had sex with two girls or with one girl twice. Thus, there is no problem with the sentence at the semantic interface. By contrast, in example (16b) *dvakrát* scopes over *už*, therefore it should be twice the case that Pavel already had sex with a girl. However, such an interpretation is not available since after Pavel's first sex with a girl it holds forever that he had sex with a girl, hence the pluralisation by *dvakrát* does not work. This shows that in cases like this, adverbial ordering preferences are based on the relative scope of the adverbials and their interpretational interplay.

A similar behaviour can be observed with other adverbials as well. Consider now the interaction between *dvakrát* and the frequentative adverbial *často* 'often'. The ordering example (17), where one of the adverbials again occurs in the matrix clause and the second one in the embedded clause, is also in line with Cinque's (1999) adverbial hierarchy. When *často* takes scope over *dvakrát*, as in (17a), the sentence is grammatical because *často* can quantify over situations in which it happens that Pavel had sex with two girls or that he had sex with a girl twice. By contrast, example (17b), where *dvakrát* takes scope over *často*, is ungrammatical because in this sentence *dvakrát* cannot pluralise situations that are large enough for the quantifier *často* and Pavel's having sex with girls.⁹

⁹ Control examples (i) and (ii) show that *často* can occur in the matrix and embedded clause; for *dvakrát* see the preceding note.

(i) *Často to tak bylo, že Pavel měl holku.*
 often it so was that Pavel_{NOM} had girl_{ACC}
 'It was often the case that Pavel had sex with a girl.'

note continued on next page

- (17) a. Často to tak bylo, že Pavel měl dvakrát holku.
 often it so was that Pavel_{NOM} had twice girl_{ACC}
 ‘It was often the case that Pavel had sex with two girls.’
 ‘It was often the case that Pavel had sex with a girl twice.’
- b. *Dvakrát to tak bylo, že Pavel měl často holku.
 twice it so was that Pavel_{NOM} had often girl_{ACC}

However, interpretability (and grammaticality) of examples like (17) does not depend solely on the relative scope of the appropriate adverbials. The semantic interface also has to take into account lexicosemantic properties of other elements in the sentence. For instance, if example (17b) is repaired so that the situation which *dvakrát* pluralises is explicitly enlarged, as shown in example (18), the sentence becomes grammatical because semesters are domains that are large enough for *často* quantifying over Pavel’s having sex with girls.

- (18) Dvakrát to tak na univerzitě bylo, že Pavel měl často holku, v prvním
 twice it so at university was that Pavel_{NOM} had often girl_{ACC} in first
 a třetím semestru.
 and third semester
 ‘It was twice the case at the university that Pavel often had sex with a girl, in the first
 and third semester.’

Another relevant factor affecting the adverbial ordering is the event structure of particular clauses. In sentences in (16) and (17), both clauses relate to the same event(s), therefore the adverbials occurring in different clauses can interact. The following example, which is a modified example (16), shows that adverbials do not interact in the complex sentence when they relate to different events. The added participle *řčeno* ‘said’ brings about a new event and *už* in (19a) and *dvakrát* in (19b) relate to this new event. Since *dvakrát* and *už* do not interact in (19b), the sentence is grammatical, in contrast to the ungrammatical (16b), irrespective of whether or not *dvakrát* and *už* are in a bad scope relation.

-
- (ii) To tak bylo, že Pavel měl často holku.
 it so was that Pavel_{NOM} had often girl_{ACC}
 ‘It was the case that Pavel often had sex with a girl.’

- (19) a. Už to bylo řečeno, že Pavel měl dvakrát holku.
 already it was said that Pavel_{NOM} had twice girl_{ACC}
 ‘It was already said that Pavel had sex with two girls.’
 ‘It was already said that Pavel had sex with a girl twice.’
- b. Dvakrát to bylo řečeno, že Pavel měl už holku.
 twice it was said that Pavel_{NOM} had already girl_{ACC}
 ‘It was said twice that Pavel already had sex with a girl.’

The same also holds true in the case of example (17). When the example is modified and the passive participle *řečeno* is added, as demonstrated in (20), a new event structure appears and the bad sentence (17b) becomes grammatical, as shown in example (20b), where *dvakrát* and *často* relate to different events.

- (20) a. Často to bylo řečeno, že Pavel měl dvakrát holku.
 often it was said that Pavel_{NOM} had twice girl_{ACC}
 ‘It was often said that Pavel had sex with two girls.’
 ‘It was often said that Pavel had sex with a girl twice.’
- b. Dvakrát to bylo řečeno, že Pavel měl často holku.
 twice it was said that Pavel_{NOM} had often girl_{ACC}
 ‘It was said twice that Pavel often had sex with a girl.’

So far, we have seen that in a complex sentence, preverbal adverbials from different clauses also interact and that they preserve the same relative orders as adverbials occurring in a single clause, which poses a problem for approaches that relate adverbial orders to the phrasal structure of one clause. We have also seen that adverbial orders and grammaticality of sentences are also determined by factors that have semantic nature, which is a problem for approaches that want to account for relative orders of adverbials just in terms of the syntactic structure and functional hierarchy.

Now, let us turn to the relative order between preverbal and circumstantial adverbials. In example (21), the iterative adverbial *dvakrát* and the temporal adverbial *včera* ‘yesterday’ are tested. According to Cinque (1999), temporal PPs and bare NP temporals can occur either in the left periphery of the sentence in the position of frame adverbials, where they can take scope over iterative adverbials, or within VP, that is, lower than iteratives. Hence, one expects that both orderings of *dvakrát* and *včera* are grammatical. Example (21a), where *včera* takes scope over *dvakrát* is grammatical, as expected, but (21b), where the scope relation is

reversed, is ungrammatical.¹⁰ This seems to go against the two-different-position analysis of the temporal adverbial.

- (21) a. Včera to tak bylo, že Pavel měl dvakrát holku.
 yesterday it so was that Pavel_{NOM} had twice girl_{ACC}
 ‘Yesterday, it was the case that Pavel had sex with two girls.’
 ‘Yesterday, it was the case that Pavel had sex with a girl twice.’
- b. * Dvakrát to tak bylo, že Pavel měl včera holku.
 twice it so was that Pavel_{NOM} had yesterday girl_{ACC}

However, a closer look at the data reveals that the ungrammaticality of (21b) is a particular interpretational effect. Consider example (22), where *včera* is replaced by the temporal *ve čtvrtek* ‘on Thursday’. Both relative orders are grammatical. What is crucial in (21b) is that the deictic adverbial *včera*, which occurs in the scope of the iterative *dvakrát*, cannot be pluralised. Under usual circumstances, there are not two yesterdays. However, this is not the case with the temporal *ve čtvrtek*. There can be two different Thursdays, on which Pavel had sex with a girl; therefore there is no interpretational problem in (22b).

- (22) a. Ve čtvrtek to tak bylo, že Pavel měl dvakrát holku.
 on Thursday it so was that Pavel_{NOM} had twice girl_{ACC}
 ‘On Thursday, it was the case that Pavel had sex with two girls.’
 ‘On Thursday, it was the case that Pavel had sex with a girl twice.’
- b. Dvakrát to tak bylo, že Pavel měl ve čtvrtek holku.
 twice it so was that Pavel_{NOM} had on Thursday girl_{ACC}
 ‘It was twice the case that Pavel had sex with a girl on Thursday.’

Similarly as in the case of relative orders of preverbal adverbials, the event structure of the complex sentence plays an important role. When (21b) is modified and a new event is added through the participle *řečeno*, the sentence becomes grammatical because *včera* and *dvakrát* then relate to different events. This is illustrated by the following example.

¹⁰ Example (i) shows that the ungrammaticality of (21b) is not due to the fact that *včera* cannot occur in the embedded clause.

(i) To tak bylo, že Pavel měl včera holku.
 it so was that Pavel_{NOM} had yesterday girl_{ACC}
 ‘It was the case that Pavel had sex with a girl yesterday.’

- (23) Dvakrát to bylo řečeno, že Pavel měl včera holku.
 twice it was said that Pavel_{NOM} had yesterday girl_{ACC}
 ‘It was said twice that Pavel had sex with a girl yesterday.’

Thus, a preverbal adverbial and a circumstantial adverbial occurring in different clauses in the complex sentence can also interact and the semantic interface has to take into account lexicosemantic properties of particular adverbials as well as the event-structural properties of the particular clauses.

In section 5.2.2, we saw that there are ordering preferences between circumstantial adverbials. Let us look at how these adverbials behave in the complex sentence. Consider example (24) with the temporal adverbial *včera* and the locative *na nádraží* ‘at the station’. While (24a), where *včera* set the reference-time frame for the event of Pavel’s having sex with a girl at the station, is grammatical, example (24b), where *na nádraží* takes scope over *včera* in the embedded clause, is bad.¹¹

- (24) a. Včera to tak bylo, že Pavel měl na nádraží holku.
 yesterday it so was that Pavel_{NOM} had at station girl_{ACC}
 ‘Yesterday, it was the case that Pavel had sex with a girl at the station.’
 b. * Na nádraží to tak bylo, že Pavel měl včera holku.
 at station it so was that Pavel_{NOM} had yesterday girl_{ACC}
 c. Na nádraží to bylo řečeno, že Pavel měl včera holku.
 at station it was said that Pavel_{NOM} had yesterday girl_{ACC}
 ‘At the station, it was said that Pavel had sex with a girl yesterday.’

Example (24b) suggests that the locative adverbial cannot frame the event of Pavel’s having sex with a girl that is modified by *včera*. On the assumption that the spatiotemporal domain of frame adverbials should be able to include the domain of the appropriate event with its modifiers, we get an explanation why (24b) is ungrammatical. The spatiotemporal domain of the adverbial *na nádraží* is not large enough to include the domain of *včera* with the event of

¹¹ The control example in the preceding note shows that *včera* can occur in the embedded clause and (i) below shows that *na nádraží* can occur in the matrix clause.

(i) Na nádraží to tak bylo, že Pavel měl holku.
 at station it so was that Pavel_{NOM} had girl_{ACC}
 ‘At the station, it was the case that Pavel had sex with a girl.’

Pavel's having sex with a girl (at least according to our world knowledge of how long on the average person stays at the station).

If the inclusion requirement does not apply, which happens in the case where the adverbials relate to different event structures, the sentence should be grammatical. As shown by example (24c) with the verb *řečeno*, this prediction is correct.

Another prediction with respect to (24b) is that if the spatiotemporal domain of *na nádraží* is enlarged so that it can include the domain of *včera* with the appropriate event, the sentence becomes grammatical. The domain of *na nádraží* can be enlarged, for example, by a generic operator, as demonstrated in example (25), where *na nádraží* relates to the predicate *bývalo*, which expresses genericity. In this environment, however, only adverbials that can be quantified can appear. Therefore the deictic adverbial *včera* must be replaced with a temporal that can be quantified and whose domain is of the same size as *včera*, for example, with *ve čtvrtek*. Then, the sentence is grammatical, in accordance with the prediction, and is appropriate, for example, in a context where Pavel worked at the station for a certain time. In such a context, the domain of *na nádraží* is large enough to include the Thursday situations of Pavel's having sex with a girl.

- (25) Na nádraží to tak bývalo, že Pavel měl ve čtvrtek holku.
at station it so was that Pavel_{NOM} had on Thursday girl_{ACC}
'At the station, it was generally the case that Pavel had sex with a girl on Thursday.'

As in the case of preverbal adverbials or preverbal and circumstantial adverbials, one comes to the conclusion that the relative order of circumstantial adverbials cannot be determined only by the phrasal structure. I have shown that circumstantial adverbials can also interact across clausal boundaries and that their ordering preferences are based to certain extent on semantic factors.

In general, the complex-sentence data show that relative orders of adverbials and consequently the adverbial hierarchy cannot be accounted for only in terms of syntactic structure and in terms of a single clause. The data show that adverbial ordering is a complex issue. We have seen several different factors. In addition to the scope relations of particular adverbials and the interplay of their lexicosemantic properties, adverbial orders are determined by semantic properties of other elements in the sentence, by the inclusion requirement in the case of frame-interpreted adverbials and by the event structure of particular clauses.

5.5 The Superset Principle

In the preceding section, we saw that adverbials from different clausal hierarchies can interact and that the feature-based approach is too narrow to account for such data. In this section, I show that in the case of stacked adverbials of the same class the clausal hierarchy of the feature-based approach, on the contrary, is too rough to account for the ordering preferences.

Haider (2000a) argues against the feature-based approach to stacked adverbials, using grammatical German V2 sentences with the constituent of stacked adverbials in SpecCP. Specifically, he argues that adverbials in specifiers of different functional projections do not form a constituent and if they were fronted to SpecCP in a remnant phrase, the remnant would contain a trace of the verb that is not c-commanded, which should lead to ungrammaticality. Cinque (2004) admits that at least stacked adverbials of the same class can be merged as a constituent.

That stacked adverbials of the same class are merged as a constituent is supported by examples in (27), which are based on the corpus sentence (26). Example (27a) demonstrates that the stacked adverbials form a constituent because Czech clitics are second-position clitics (*Mluvnice češtiny* 3. 1987, Toman 1996, Vos & Veselovská 1999, Franks & King 2000, Veselovská 2001) and example (27b) demonstrates the same because long topicalization can affect only one constituent, as we saw in chapter 3. Consider also the contrast between the grammatical sentence (27b) with stacked adverbials *zítra večer* ‘tomorrow evening’ and the ungrammatical (27c), where the temporal adverbial *zítra* and the directional adverbial *k jihu* ‘southwards’ are not merged as a constituent. The control sentence (27d) demonstrates that the ungrammaticality of (27c) is not due to the impossibility of *k jihu* to be long moved. Example (27e) then shows that the reversed order between the stacked adverbials is ungrammatical.

(26) *Zítra předpokládáme, že tlaková výše postoupí k jihu.* (#22265481)
tomorrow suppose that pressure-high_{NOM} moves southwards
‘Tomorrow, we suppose that the high pressure front will move southwards.’

(27) a. *Zítra večer se tlaková výše posune k jihu.*
tomorrow evening self pressure-high_{NOM} moves southwards
‘The high pressure front will move southwards tomorrow evening.’

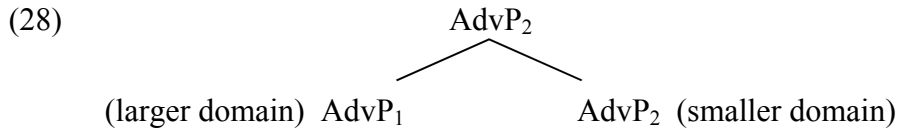
- b. Zítřa večer předpokládáme, že tlaková výše postoupí k jihu.
 tomorrow evening suppose that pressure-high_{NOM} move southwards
 ‘Tomorrow evening, we suppose that the high pressure front will move southwards.’
- c. * Zítřa k jihu předpokládáme, že tlaková výše postoupí.
 tomorrow southwards suppose that pressure-high_{NOM} moves
- d. K jihu předpokládáme, že tlaková výše postoupí zítřa.
 southwards suppose that pressure-high_{NOM} moves tomorrow
 ‘Southwards, we suppose that the high pressure front will move tomorrow.’
- e. * Večer zítřa se tlaková výše posune k jihu.
 evening tomorrow self pressure-high_{NOM} moves southwards

Since in the case of stacked adverbials of the same class the adverbials of the larger domain precede the adverbials of the smaller domain and since it holds for different adverbial classes, the adverbial orderings can be accounted for by some general semantic principle. This means that at the semantic interface there is a principle at work - let us call it Superset Principle - that determines the relative order of stacked adverbials of the same class (compare Steinitz (1971) for discussion of appositive adverbials and their ‘Enthaltenseinsrelation’ or Ernst (2002) for the case of ‘nested’ adverbials).

A theory that aims to account for the ordering of stacked adverbials in terms of phrase structure will have to somehow get the piece of information about hierarchies of particular adverbial classes into the constituent merged from the appropriate adverbial phrases. More specifically, somewhere in the stacked constituent, it would have to be coded that, for example, deictic adverbials like *zítra* ‘tomorrow’ or *včera* ‘yesterday’ are to be structurally higher than (precede) adverbials denoting parts of the day like *večer* ‘evening’ or *ráno* ‘morning’ or that adverbials referring to days of the week like *v pondělí* ‘on Monday’ or *v úterý* ‘on Tuesday’ are to be structurally higher than the parts-of-the-day adverbials and etc. And this would have to be coded in the phrase structure of the stacked adverbials for all possible adverbial superset-subset relations that show order preferences.

Therefore, instead, I favour the idea that there is a single general principle at the semantic interface - the Superset Principle - that can do such a job, regardless of the class of the adverbials. To be more specific, according to the principle, semantic (set) relations between the stacked adverbials must parallel their syntactic (c-command) relations. Stacked adverbials can be analysed in the way that the adverbial of the larger domain modifies the adverbial of the smaller domain (in our example *zítra večer*, it is the evening that will be

tomorrow and not tomorrow that will be in the evening) and is left adjoined to it because non-clausal adverbials are adjoined to the left, as already discussed. Consider structure (28).¹²



The Superset Principle then states that the adverbial of the larger domain must c-command at least one segment (member)¹³ of the adverbial of the smaller domain; consider the following formulation.

(29) Superset Principle (1st version)

The highest segment of the adverbial of the larger domain must c-command at least one segment of the adverbial of the smaller domain.

Applying this to the adverbial structure in (28), one observes that the adverbial of the larger domain AdvP₁ (its highest segment) is in a c-command relation with AdvP₂, concretely, with the lower segment of the adverbial, which satisfies the Superset Principle. In contrast, the highest segment of the adverbial AdvP₂ does not c-command the adverbial AdvP₁; only the lower segment of the adverbial c-commands AdvP₁. Thus, given the Superset Principle, AdvP₂ cannot be the adverbial of the larger domain; only the adverbial AdvP₁ can. Therefore, the adverbial of the larger domain (AdvP₁) precedes the adverbial of the smaller domain (AdvP₂) and structure (28) represents, for example, the stacked adverbials *zítra večer* in the grammatical example (27a) and the opposite ordering of the adverbials is ungrammatical, as shown in (27e).¹⁴

¹² An analogous structure applies to other categories with the adverbial function, for example, PPs or DPs.

¹³ I use the notion segment in the sense of May (1985, 1988). May differentiates between segments (members) of a category and the category itself. Categories can be composed of more segments.

¹⁴ One might ask why I use ‘the highest segment’ in the Superset Principle and not ‘category’, in the sense of May (1985, 1988). Ungrammatical cases like (27e) then would be excluded by this modified Superset Principle because it would hold that: ‘Adjuncts are not c-commanded by the categories to which they are adjoined’, which would be parallel to May’s (1988, 92) primary theorem of adjunction (ii) based on (i) (May 1988, 91-92):

(i) Theory of Adjunction

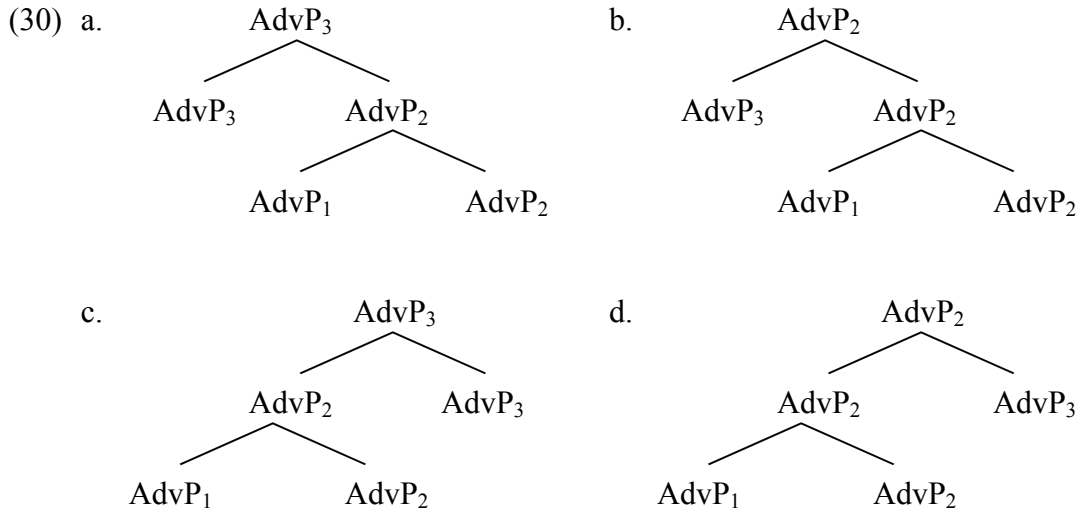
a. A Category $C = \{n_1, \dots, n_n\}$

b. C dominates $\alpha \text{ =}_{\text{df}} \forall n \in C (n \text{ dominates } \alpha)$

(ii) Adjuncts are not dominated by the categories to which they are adjoined.

Although this would exclude the ungrammatical cases of stacked adverbials, such a modified Superset Principle could not handle cases of non-stacked adverbials of the same class where the adverbial of the larger domain is modified because in such a case not all segments of the adverbial would c-command at least one segment of the adverbial of the smaller domain. In contrast, the Superset Principle in (29) can handle such cases. For discussion of non-stacked adverbials of the same class, see below.

In cases where more than two adverbials are stacked, the proposal works in the same way. Let us consider, for example, cases with three stacked adverbials of the same class. Building on the grammatical structure (28), where the adverbial of the larger domain AdvP₁ is adjoined to the adverbial of the smaller domain AdvP₂, we get four structures.¹⁵



In (30a,b) there are two left-ascending structures. Structure (30a), where AdvP₃ projects, should be bad because adverbials adjoin to the left in Czech. Given the Superset Principle, AdvP₃ must be of the smallest domain. Then, after linearisation AdvP₃ precedes AdvP₁ and AdvP₂. And this case is indeed excluded, as shown by example (31a), which is ungrammatical with a normal intonational pattern and where the adverbial of the smallest domain *odpoledne* ‘afternoon’ precedes *minulý měsíc* ‘last month’ (AdvP₁) and *v neděli* ‘on Sunday’ (AdvP₂).^{16,17}

By contrast, (30b), where AdvP₂ projects, is a possible structure. Given the Superset Principle, adverbial AdvP₃ must be larger than AdvP₂ and AdvP₁ must also be larger than AdvP₂. In addition, adverbial AdvP₃ is also in a c-command relation with the adverbial AdvP₁ and given the Superset Principle it must be larger than AdvP₁. After linearisation of (30b), we get the order where AdvP₃ precedes AdvP₁ and AdvP₁ in turn precedes AdvP₂. The grammatical example (31b), where the adverbial of the largest domain *minulý měsíc* (AdvP₃) precedes *v neděli* (AdvP₁) and this adverbial precedes the adverbial of the smallest domain *odpoledne* (AdvP₂) demonstrates that there is indeed no problem with structure (30b).

¹⁵ The structures can again contain adverbials of different sorts of categories.

¹⁶ That the stacked adverbials form a constituent is again evidenced by the second position clitic *se*.

¹⁷ Cases of this type could be, of course, saved if one assumed a model where directionality of merger has no relevance to word order and where linearisation is based on the c-command relations. See also (30d).

- (31) a. * *Odpoledne minulý měsíc v neděli se Pavel vyboural.*
 afternoon last month on Sunday self Pavel_{NOM} crashed
- b. *Minulý měsíc v neděli odpoledne se Pavel vyboural.*
 last month on Sunday afternoon self Pavel_{NOM} crashed
 ‘Pavel had an accident on a Sunday afternoon last month.’
- c. * *V neděli odpoledne minulý měsíc se Pavel vyboural.*
 on Sunday afternoon last month self Pavel_{NOM} crashed

In (30c,d) there are two right-ascending structures. Structure (30d), where AdvP₂ projects, should be again excluded because of the right adjunction. Given the Superset Principle, AdvP₃ must be of the largest domain and after linearisation it should follow AdvP₁ and AdvP₂. As illustrated by example (31c), with *minulý měsíc* (AdvP₃) following *v neděli* (AdvP₁) and *odpoledne* (AdvP₂), such an ordering is ungrammatical, as expected.

The right-ascending structure (30c), where, on the contrary, AdvP₃ projects, is possible. Because of the Superset Principle, adverbial AdvP₂ must be larger than the projecting AdvP₃ and AdvP₁ in turn must be larger than the projecting AdvP₂. Linearisation of (30c) then results in an ordering where adverbial AdvP₁ precedes AdvP₂ and AdvP₂ precedes AdvP₃. Thus, structure (30c) can represent the grammatical order *minulý měsíc v neděli odpoledne* (AdvP₁ > AdvP₂ > AdvP₃) in example (31b).¹⁸

Having said this, it is obvious that, given the Superset Principle, when AdvP₃ is of the larg-er/est domain, it must be adjoined (and it must happen to the left) and when it is of the small-er/est domain, it must project (and merge to the right). To put it differently, structures of stacked adverbials are grammatical if the Superset-Principle-c-command relations between sisters keep one direction, specifically, from left to right, as in (30b,c). When they go in different directions, as in (30a,d), the structures are ungrammatical (they are also ungrammatical in the unidirectional right-to-left case).

It seems that the Superset Principle can also be at work in the case of adverbials of the same class that are not stacked. As shown by example (32), which minimally differs from example (27a), the temporal adverbials can also occur in the sentence independently and be separated by clitic *se*. In this case, the interpretation of the sentence changes. In example (32) the temporal adverbials do not refer to the reference time jointly, as in (27a), and *zítra* behaves like a frame adverbial. The interpretation is roughly this: As for tomorrow, it will be

the case that the high pressure front will move southwards in the evening. The different interpretation confirms that the temporal adverbials are not stacked and that the clitic was not put into its position by phonological movement.

- (32) Zítřa se večer tlaková výše posune k jihu.
tomorrow self evening pressure-high_{NOM} moves southwards

The adverbial of the smaller domain *večer* can also appear in a lower position in the sentence, in fact, in all possible positions, as demonstrated by the following example.

- (33) Zítřa se tlaková výše (večer) posune (večer) k jihu (večer)
tomorrow self pressure-high_{NOM} evening moves evening southwards evening
'Tomorrow, the high pressure front will move southwards in the evening.'

However, when the relative order of the adverbials is reversed, the sentence becomes ungrammatical, as shown by example (34). And it does not play a role how many elements between the adverbials intervene.

- (34) * Večer se (zítra) tlaková výše (zítra) posune (zítra)
evening self tomorrow pressure-high_{NOM} tomorrow moves tomorrow
k jihu (zítra).
southwards tomorrow

The same can be observed in the case of other adverbials of the same class. Consider the following example with two locative adverbials. When the locative of the larger domain *doma* 'at home' precedes the locative of the smaller domain *v kuchyni* 'in the kitchen', the sentence is grammatical, as shown in (35a).¹⁹ By contrast, when *v kuchyni* precedes *doma*, as in (35b), the sentence is bad.

- (35) a. Doma Pavel (v kuchyni) zabil (v kuchyni) souseda (?v kuchyni).
at home Pavel_{NOM} in kitchen killed in kitchen neighbour_{ACC} in kitchen
'Pavel killed his neighbour at home in the kitchen.'

¹⁸ The question of whether or not the structures (30b) and (30c) must correspond to different intonational patterns of *minulý měsíc v neděli odpoledne*, I leave for future research.

¹⁹ Only the sentence-final position of *v kuchyni* is slightly degraded.

- b. * V kuchyni Pavel (doma) zabil (doma) souseda (doma).
 in kitchen Pavel_{NOM} at home killed at home neighbour_{ACC} at home

According to Cinque (2004), the fact that only the adverbial of the larger domain can be fronted in the case of adverbials of the same class may indicate that the adverbials were merged together as a constituent. However, he gives no arguments for this claim and it is, in fact, theoretically possible that they are merged in the structure independently. One also finds arguments showing that at least in certain cases, the adverbials are indeed merged independently.

The first argument is based on the Coordinate Structure Constraint (CSC) and across-the-board (ATB) movement. It is known that CSC prohibits extraction out of a conjunct, see (36), taken from Ross (1967, 89), and that it can be obviated if the relevant movement happens out of all conjuncts, that is, when the appropriate element undergoes ATB movement.

(36) Coordinate Structure Constraint

In a coordinate structure, no conjunct can be moved, nor may any element contained in a conjunct be moved out of that conjunct.

It has been also argued that there is a parallelism requirement on the ATB movement, concretely, that the moved element must be extracted from the parallel syntactic position. For instance, according to Lechner (2001), all traces of the ATB-moved element must occur in strictly parallel positions if the second conjunct has been affected by ellipsis (Gapping, ATB movement). Now, consider example (37). If Cinque (2004) were right in that the adverbials of the same class *zítra* and *večer* started as a constituent, as indicated in (37), then the extracted *zítra* would have to be ATB-moved. Given the fact that the subject *tlaková výše* is elided in the second conjunct (concretely, it is ATB-moved), traces of the ATB-moved element *zítra* should occur in strictly parallel positions in the conjuncts. However, this poses a problem because *zítra* would have to be extracted out of the constituent of the stacked adverbials in the first conjunct but there is no such constituent in the second conjunct.

- (37) Zítra₁ se tlaková výše bude [pravděpodobně posouvat [AdvP t₁ večer]
 tomorrow self pressure-height_{NOM} will probably move evening
 k jihu] a [ohrožovat místní úrodu].
 southwards and endanger local harvest

‘Tomorrow, the high pressure front will probably move southwards in the evening and endanger the local harvest.’

That *zítra* is not ATB-moved (extracted out of the constituent of stacked adverbials in the first conjunct) is also confirmed by the following example, where *pozítří* ‘the day after tomorrow’ appears in the third conjunct.

- (38) *Zítra₁ se tlaková výše bude [pravděpodobně posouvat [AdvP t₁ večer] k jihu,] [ohrožovat místní úrodu] a [pozítří vracet k severu].*
 tomorrow self pressure-high_{NOM} will probably move evening
 southwards endanger local harvest and day after tomorrow come back northwards
 ‘Tomorrow, the high pressure front will probably move southwards in the evening, endanger the local harvest and come back northwards the day after tomorrow.’

The second argument goes as follows. Consider first the slightly marked example (39a) and the ungrammatical example (39b). The contrast between them shows that in these cases, too, the temporal adverbials of the same class *zítra* and *večer* must preserve the relative order. If the adverbials started as a constituent, then *zítra* would have to be extracted out of the constituent of stacked adverbials inside the complex PP, as illustrated in example (39a). However, the problem is that PPs are islands for extraction of modifiers of the prepositional complement, as demonstrated in example (39c) and controlled in example (39d).²⁰

- (39) a.? *Zítra₁ se tlaková výše posune k jihu [PP v té době [AdvP t₁ večer,] kdy všichni spí].*
 tomorrow self pressure-high_{NOM} move southwards in the time evening
 when all sleep
 ‘Tomorrow, the high pressure front will move southwards at the evening time when all are sleeping.’
 b.* *Večer se tlaková výše posune k jihu v té době zítra,*
 evening self pressure-high_{NOM} move southwards in the time tomorrow
 when all sleep

- c. * Jaké se zítra tlaková výše posune k jihu [v době]?
 what self tomorrow pressure-high_{NOM} move southwards in time
- d. Zítra se tlaková výše posune k jihu [v jaké době]?
 tomorrow self pressure-high_{NOM} move southwards in what time
 ‘At what time will the high pressure front move southwards tomorrow?’

Thus, it seems that adverbials of the same class can be merged in the structure independently and that the Superset Principle applies to them as well.

We have shown that in the case of adverbials from different clauses the event structure is an important factor in the adverbial ordering and that the adverbial ordering does not have to be preserved if the relevant adverbials do not relate to the same event. Let us look at how it works in the case of adverbials of the same class. We have already seen above that *zítra* and *večer* must preserve their relative order. Now, let us test them in a sentence where they can relate to different events. The contrast between (40a) and (40b) shows that when the adverbials relate to the same event in the sentence, they must preserve the known relative order. By contrast, when they relate to different events in the sentence, both relative orders are grammatical, as demonstrated by examples (40c) and (40d). Thus, in the case of non-stacked adverbials of the same class within a single clause, the event-structural properties of the clause are a relevant factor in the adverbials ordering as well.

- (40) a. Zítra bude večer Pavel vzrušený kvůli tomu utkání.
 tomorrow will evening Pavel_{NOM} excited because of the match
 ‘Pavel will be excited tomorrow evening because of the match.’
- b. * Večer bude zítra Pavel vzrušený kvůli tomu utkání.
 evening will tomorrow Pavel_{NOM} excited because of the match
- c. Zítra bude Pavel vzrušený kvůli tomu utkání večer.
 tomorrow will Pavel_{NOM} excited because of the match evening
 ‘Pavel will be excited tomorrow because of the match in the evening.’
- d. Večer bude Pavel vzrušený kvůli tomu utkání zítra.
 evening will Pavel_{NOM} excited because of the match tomorrow
 ‘Pavel will be excited in the evening because of the match tomorrow.’

²⁰ The same also holds for the complement of the prepositional complement. And preposition stranding is also ungrammatical.

This means that in the case of non-stacked adverbials of the same class, the Superset Principle should be restricted to cases where the relevant adverbials relate to the same event. Therefore, I state the Superset Principle, as shown in (41).

(41) Superset Principle (final version)

The highest segment of the adverbial of the larger domain must c-command at least one segment of the adverbial of the smaller domain if the adverbials relate to the same event.

The question arises whether the Superset Principle should not be restricted even more, concretely, to cases where there is a c-command relation between the relevant adverbials. One might claim that the Superset Principle in (41) is too strong because it also rules out cases with adverbials of the same class relating to the same event that have no c-command relation in the sentence. Although most cases with adverbials of the same class without a c-command relation are excluded from the application of the Superset Principle by the event if-clause, one can find a case where the adverbials relate to the same event and yet have no c-command relation. This is illustrated in example (42). Since the adverbial *zítra*, which is embedded in the complex PP, and *večer* are not in a c-command relation and they relate to the same event, the sentence is correctly ruled out by the Superset Principle. Thus, it seems that the version of the Superset Principle in (41), which is not restricted to adverbials with a c-command relation, is the right one.

- (42) * [PP V té době zítra, kdy všichni budou spát,] se tlaková výše
 in the time tomorrow when all will sleep self pressure-high_{NOM}
 večer posune k jihu.
 evening move southwards

Since stacked adverbials of the same class always relate to the same event (and they are always in a c-command relation), we do not need two different Superset Principles, which means that the Superset Principle in (41) applies to non-stacked adverbials of the same class as well as to stacked adverbials of the same class.

A closer look at the definition reveals that the Superset Principle also applies to adverbials occurring in different clauses in a complex sentence. Then, one expects that if the adverbial of the larger domain occurs in the matrix clause and the adverbial of the smaller domain in the embedded clause in our well-known example, the sentence is grammatical. And

when the adverbials are switched, the sentence should be ungrammatical. This expectation turns out to be correct, as demonstrated by example (43).²¹

- (43) a. Včera to tak bylo, že Pavel měl večer holku.
 yesterday it so was that Pavel_{NOM} had evening girl_{ACC}
 ‘Yesterday, it was the case that Pavel had sex with a girl in the evening.’
 b. * Večer to tak bylo, že Pavel měl včera holku.
 evening it so was that Pavel_{NOM} had yesterday girl_{ACC}

To conclude this section, there are ordering preferences in the case of stacked adverbials of the same class and they cannot be accounted for only with recourse to phrase structure. I have proposed that the relative orders are determined by the Superset Principle. The same also holds for adverbials of the same class that are not stacked. The Superset Principle, which operates at the semantic interface, has to have access not only to the structural relations between particular adverbials but also to their lexicosemantic properties. In addition, the Superset Principle must also have access to the event-structural properties of the sentence. From this point of view, the adjunct approach seems to be more appropriate than the feature-based approach.

5.6 The Principle of Natural Evolution of Intervals

In the preceding section, I showed that adverbials of the same class and stacked adverbials of the same class must preserve certain relative orders. Then, I proposed that the relative orders are determined by the Superset Principle. A similar behaviour can be observed in the case of stacked adverbials expressing a path or an interval. Consider the following example with stacked temporal adverbials, where the second-position clitic *by* ‘would’ controls that they form a constituent. When the adverbial expressing the beginning of the time interval precedes the adverbial expressing the end of the interval, the sentence is grammatical but when the order is reversed, the sentence is bad with the normal intonational pattern (compare also the base order of adverbials of this type in Sgall, Hajičová & Buráňová 1980 and Koktová 1999).

²¹ The Superset Principle and the inclusion requirement in the case of frame adverbials can overlap to certain extent but note that the current version of the Superset Principle applies only to adverbials of the same class and that it has nothing to say about frame-interpreted adverbials.

- (44) a. Od dvou do pěti by Pavel pracoval rád.
 from two to five would Pavel_{NOM} worked glad
 ‘Pavel would like to work from 2 p.m. to 5 p.m.’
 b. * Do pěti od dvou by Pavel pracoval rád.
 to five from two would Pavel_{NOM} worked glad

This holds not only for temporal or locative stacked adverbials expressing an interval but also for stacked adverbials that denote an abstract interval. As demonstrated by example (45), the adverbial expressing the beginning must also precede the adverbial expressing the end in the case of the event of reading a book.

- (45) a. Od začátku do konce si Pavel přečetl jedinou knihu.
 from beginning to end self_{DAT} Pavel_{NOM} read single book_{ACC}
 ‘Pavel read only one book from beginning to end.’
 b. * do konce od začátku si Pavel přečetl jedinou knihu.
 to end from beginning self_{DAT} Pavel_{NOM} read single book_{ACC}

Thus, it seems that the adverbial ordering in such cases is determined by natural evolution of spatiotemporal domains. In the standard minimalist theory, there is no way to implement such a notion in narrow syntax. Therefore, I propose that there is a general principle at the semantic interface that determines relative orders of appropriate adverbials in accordance with natural evolution of intervals, regardless of the type of the adverbials. Consider the Principle of Natural Evolution of Intervals, stated in (46), which works analogically to the Superset Principle.

(46) Principle of Natural Evolution of Intervals

The highest segment of the adverbial that is closer to the starting point of the interval must c-command at least one segment of the adverbial that is further from the starting point if the adverbials relate to the same event.

I use the term ‘interval’ as a cover term for all domains that show a directed span. It does not have to be only a spatial domain (locative paths) or a temporal domain (time intervals) but also, as we saw above, abstract intervals. Thus, the Principle of Natural Evolution of Intervals derives the right ordering of stacked adverbials by means of the c-command relation between their segments, as the Superset Principle does. And since the principle is defined in a

comparative way (‘closer’ versus ‘further’), it can also handle cases where there are more stacked adverbials expressing an interval.

The Principle of Natural Evolution of Intervals, as formulated in (46), also applies to non-stacked adverbials expressing an interval. Let us test whether it is correct. Consider example (47), with the non-stacked temporal adverbials *od dvou* and *do pěti*. As expected, example (47a), where *od dvou* precedes *do pěti* and which is in accordance with the Principle of Natural Evolution of Intervals, is grammatical. However, in contrast to our expectation, example (47b), where *do pěti* precedes *od dvou* is grammatical as well, which goes against (46).

- (47) a. Pavel pracuje od dvou vždy do pěti.
 Pavel_{NOM} works from two always to five
 ‘Pavel always works from 2 p.m. to 5 p.m.’
 b. Pavel pracuje do pěti vždy od dvou.
 Pavel_{NOM} works to five always from two
 ‘Pavel always works from 2 p.m. to 5 p.m.’

What is interesting in example (47b) is that the adverbial *do pěti*, in contrast to *od dvou*, is interpreted as backgrounded, as evidenced by the fact that (47b) can only answer questions where only *od dvou* or *vždy od dvou* is questioned, like, for example: *Když Pavel pracuje do pěti, tak kdy začíná?* ‘When Pavel works till 5 p.m., then what time does he begin to work?’

Recall that I proposed in chapter 2 that there is a correlation between the phase structure, tripartite quantificational structure and the information structure of the sentence. Given this proposal, the adverbial *do pěti* occurs in the CP phase and the adverbial *od dvou* in the vP phase in (47b). The adverbial *do pěti* can be merged in the CP phase in two different ways. Either by external merger when it is chosen by the CP phase lexical subarray from the lexical array (under the assumption that non-stacked adverbials expressing an interval can be merged independently, in analogy to non-stacked adverbials of the same class; compare also Nam (2004) and Markovskaya (2006) for the claim that source PPs and goal PPs can be merged in different positions in the verbal phrase) or by internal merger when it is first merged in the vP phase and then moved to the CP phase. In the next section, I will show that adverbials can indeed move. Consequently, an analysis of the problematic example (47b) can be based on the phase status of the Principle of Natural Evolution of Intervals in the case of non-stacked adverbials expressing an interval. Concretely, I propose that the principle must be observed

when the relevant adverbials occur in the same phase but does not have to be observed when they appear in different phases.

Example (48), without *vždy*, supports this analysis. In example (48a), the adverbials *do pěti* and *od dvou* occur in the reversed order in the last two positions in the sentence. Given the model proposed in this dissertation, at least the adverbial *od dvou* must occur in the *vP* phase and be interpreted as focused. In fact, it is the only element in the sentence that can be non-contrastively focused, which means that the adverbial *do pěti* cannot occur in the *vP* phase and must be in the CP phase.

There are again two possibilities of how *do pěti* can be merged in the CP phase. Either it is merged in the CP phase by external merger or it is moved to its overt position from a position in the *vP* phase. Note that the adverbial merger itself is not driven by the Principle of Natural Evolution of Intervals (or by the Superset Principle); the principle applies not earlier than at the semantic interface. Thus, since the two adverbials occur in different phases, the Principle of Natural Evolution of Intervals does not apply here and the fact that the adverbial that is further from the starting point of the interval c-commands the adverbial that is closer to the starting point does not play a role and the sentence is grammatical.

- (48) a. Pavel pracuje do pěti od dvou.
 Pavel_{NOM} works to five from two
 ‘Pavel works from 2 p.m. to 5 p.m.’
 b. Pavel pracuje od dvou do pěti.
 Pavel_{NOM} works from two to five
 ‘Pavel works from 2 p.m. to 5 p.m.’

In contrast to this, when *od dvou* precedes *do pěti*, as shown in (48b), both adverbials can be interpreted as focused, which means, given the proposed correlation, that both adverbials occur in the *vP* phase. Then, being in the same phase, the adverbials must observe the Principle of Natural Evolution of Intervals, which they do, therefore the sentence is grammatical.²²

²² The adverbials can also be stacked in the *vP* phase. Then, they have to observe the Principle of Natural Evolution of Intervals as well, which they again do; hence the grammaticality of the sentence is not affected. If only *do pěti* is interpreted as focused in (48b), then the adverbials occur in different phases and the Principle of Natural Evolution of Intervals is irrelevant to the grammaticality of the sentence.

If this analysis is correct and the application of the Principle of Natural Evolution of Intervals is indeed restricted to particular phases in the case of non-stacked adverbials, it predicts that when both adverbials occur in the CP phase or the vP phase, then the order *od dvou do pěti* should be grammatical and the order *do pěti od dvou* ungrammatical.

As far as the order *do pěti od dvou* in the vP phase is concerned, we saw already in the discussion of example (48a) that the adverbials cannot appear in this order in the vP phase; this order is grammatical only if the adverbials occur in different phases. As far as the order *od dvou do pěti* in the vP phase is concerned, we saw in example (48b) that this order is grammatical. For clearly non-stacked adverbials in the grammatical order *od dvou do pěti*, consider example (47a), where both adverbials can occur in the vP phase, as evidenced by the fact that (47a) can answer question *Kdy Pavel pracuje?* ‘What time does Pavel work?’

As for the adverbials in the CP phase, consider the following example, where the clitic *se* controls that the adverbials are not stacked. Example (49a) can answer, for example, question *Jak se Pavlovi pracuje od dvou do pěti?* ‘Does Pavel like the working time from 2 p.m. to 5 p.m.?’ which shows that the relevant adverbials occur in the CP phase. The adverbial *od dvou* precedes *do pěti* and the sentence is slightly marked. By contrast, example (49b), where the adverbials appear in the reversed order, is bad with an unmanipulated intonational pattern. This means that the prediction is correct.

- (49) a. ? *Od dvou se do pěti Pavlovi pracuje dobře.*
 from two self to five Pavel_{DAT} works well
 ‘From 2 p.m. to 5 p.m., it is easy for Pavel to work.’
 b. * *Do pěti se od dvou Pavlovi pracuje dobře.*
 to five self from two Pavel_{DAT} works well

To summarise this section, I have argued that the adverbial ordering in the case of adverbials expressing an interval is determined by the natural evolution of spatiotemporal domains. Therefore, I proposed the Principle of Natural Evolution of Intervals, which works at the semantic interface and which drives the relative order of stacked as well as non-stacked adverbials expressing an interval. This principle, in contrast to the Superset Principle, is restricted to the phase domain, which means that only adverbials occurring in the same phase must observe it.

5.7 Adverbial movement

In the preceding section, I showed that adverbials expressing an interval can occur in the reversed relative order under certain circumstances. I have argued that this is possible when the appropriate adverbials occur in different phases. And this can happen in the case where the lower adverbial (the adverbial that is further from the starting point) is directly merged in a phase that is higher than the phase of the higher adverbial or in the case where the lower adverbial moves to a higher phase leaving the higher adverbial in the lower phase. Therefore, in the following sections, I am concerned with adverbial movement.

In the literature, there is no agreement with respect to the question whether adverbs and adverbials move. On one hand, for example, Alexiadou (1997), Frey & Pittner (1998), Ernst (2002), Frey (2004), Junghanns (2006) argue that adverbials can move. Fox & Pesetsky (2003) even propose that English adverbs can be moved by ‘Adverb Shift’, which moves them from *vP* to *TP* and in this way the adverbial movement masks movement of English main verbs to the head *T*.

On the other hand, Haider & Rosengren (1998, 2003), Fanselow (2001)²³ argue that adverbials do not scramble and that scrambling is restricted to arguments and according to Fanselow (2003) the issue of short scrambling of adjuncts is far from clear. Boeckx (2003) and Boeckx & Grohmann (2004) argue that short scrambling of true adjuncts is a base-generation phenomenon and that true adjuncts cannot undergo long scrambling because they cannot form resumptive chains, given the fact that they are not headed by a *D* projection.

In the following sections, I will argue that both circumstantial and preverbal adverbials can be moved. I will also show that adverbials can undergo short movement as well as long movement. I will demonstrate it by different types of reconstruction phenomena, by scope relations between particular adverbials, between an adverbial and negation and by interpretational effects. I will also argue that, given the fact that adverbials move, they can be interpreted in several positions (copies) in the syntactic structure.

Further, I will argue that the phase boundary is an important factor in adverbial movement and ordering. Concretely, I will argue that in certain cases the canonical order of adverbials can be reversed if the adverbials occur in different phases.

5.7.1 Short movement

5.7.1.1 Preverbal adverbials

Let us begin with short movement of preverbal adverbials. Consider example (50), with two scope-bearing adverbials *často* ‘often’ and *dvakrát* ‘twice’, and the reconstruction behaviour of *dvakrát*.

- (50) V pátek hraje Pavel dvakrát často Dvořáka.
on Friday plays Pavel_{NOM} twice often Dvořák_{ACC}
‘On Fridays, Pavel often plays Dvořák’s pieces twice.’

Although the iterative adverbial *dvakrát* precedes the frequentative adverb *často*, the sentence receives an interpretation where *často* scopes over *dvakrát*. Such an interpretation is appropriate in a situation where Pavel is used to playing his favourite pieces twice. On Fridays, the pieces he plays twice are often those of Dvořák. The presence of the focused object *Dvořáka* in the clause-final position ensures that scope of *často* over *dvakrát* is not due to the presence of narrow focus on *často* and its covert movement, as discussed in Phillips (2003) and Williams (2003). Concretely, Phillips argues that the right-to-left scope in English in the case of two right-peripheral adverbials is due to the presence of focus on the last adverbial and that if a third adverbial is added, this scope effect disappears. Thus, the fact that *dvakrát* reconstructs below *často* argues for movement of preverbal adverbials and is in line with the claim that the frequentative adverbial *často* is generated higher than the iterative adverbial *dvakrát* in the adverbial hierarchy (see, for example, Cinque 1999; compare also the discussion of *často* and *dvakrát* in section 5.4). If there is a canonical ordering and adverbial hierarchy (for now, it does not matter how it is determined), according to which *často* is higher than *dvakrát*, then the question arises why it is not observed in example (50).

In section 5.6, we saw that the relative order of adverbials expressing an interval can be reversed if they occur in different phases. It seems that the same also holds in the case under discussion. It is obvious from the discussion of the context situation of (50) in the paragraph above that the adverbial *dvakrát* is interpreted as backgrounded in the sentence, which means, given the proposed correlation between the phase structure and the information structure, that the adverbial occurs in the CP phase. To be more accurate, the adverbial must be interpreted as backgrounded; only with this interpretation, the sentence is grammatical. This is even more

²³ According to Fanselow (2001), certain adverbs, however, can be topicalized in German.

obvious when the two adverbials appear at the end of the sentence, as shown in example (51). Sentence (51c), in contrast to (51b), cannot answer the context question (51a), which confirms that the adverbial *dvakrát* can precede the higher adverbial *často* only if it occurs in the CP phase and consequently is interpreted as backgrounded. Thus, the phase structure plays an important role in the ordering of preverbal adverbials and the reversed relative order of preverbal adverbials is possible when they occur in different phases.

- (51) a. Hraje Pavel v pátek Dvořáka?
 ‘Does Pavel play Dvořák’s pieces on Fridays?’
 b. (Jo.) Pavel hraje v pátek Dvořáka často dvakrát.
 Pavel_{NOM} plays on Friday Dvořák_{ACC} often twice
 ‘(Yes.) Pavel often plays Dvořák’s pieces twice on Fridays.’
 c. # (Jo.) Pavel hraje v pátek Dvořáka dvakrát často.
 Pavel_{NOM} plays on Friday Dvořák_{ACC} twice often
 ‘(Yes.) Pavel often plays Dvořák’s pieces twice on Fridays.’

As far as the place of the interpretation of *dvakrát* is concerned, cases like (51c) show that the adverbial is interpreted at least in two different positions. Scopally, below *často* in the vP phase (*často* is interpreted as focused in (51c)) and information-structurally, in the moved position in the CP phase. Given the Last Resort principle, one has to ask how this movement is triggered. Since it is standardly assumed that adverbials do not move to check case or ϕ -features, not many possibilities remain. Following my proposal in chapter 2, I assume that *dvakrát* bears the μ_{EPP} -feature. This feature is responsible for overttness and the backgrounded interpretation of the copy in the CP phase. The scope interpretation below *často* is then ensured by the lower copy in the vP phase.

The frequentative adverbial *často* can move as well, as demonstrated by the relative scope between *často* and negation in the corpus example (52). The adverbial reconstructs below negation and the sentence receives the inverse scope interpretation.²⁴ The presence of the deictic adverbial *tak* ‘so’ modifying *často* also supports the scrambling analysis. Similar phenomena can be observed in other languages, too; for instance, Laenzlinger (2002) argues

²⁴ This goes against approaches that consider *often* as having a fixed VP-adjoined position, see, for example, Pollock (1989). However, compare alternative proposals in Belletti (1990) and Alexiadou (1997).

that German *oft* ‘often’ can scramble and Belletti (1990) shows that Italian *spesso* ‘often’ can move (topicalize) as well.²⁵

- (52) Ostatně v té době už jsem tak často nevyhledával přátele, ...
 by the way in that time already am so often neg.sought friends_{ACC}
 ‘By the way, at that time, I did not spend time with my friends as often as earlier, ...’
 (#5932884)

So far, I have dealt with overt movement. In what follows, I argue that adverbials can also be moved covertly. In chapter 4, I argued that sentence adverbials like the epistemic *možná* can be merged in the *vP* phase and that they can appear in the sentence-final position in the *vP* phase if they represent the extreme value with respect to the set of focus alternatives, which can happen, for example, in the case where the epistemic adverbial *možná* is associated with the focusing exclusive adverbial *jenom* ‘only’. It is a well-known fact that sentence adverbials are interpreted fairly high in the sentence and that they take scope over negation. Thus, if we derive a sentence with a negated predicate and the focused adverbial *možná* in the sentence-final position in the *vP* phase, we can test whether or not the sentence adverbial covertly moves. Here is a relevant example.

- (53) Pavel ho nezabil jenom možná.
 Pavel_{NOM} him_{ACC} neg.killed only possibly
 literally: ‘It is only possible that Pavel did not kill him.’

The example shows that the sentence adverbial indeed scopes over negation. The sentence receives an interpretation according to which it is only possible (not certain or probable, which are the possible alternatives on the epistemic scale to the focused *možná* in (53)) that Pavel did not kill him. In fact, one infers that it is probable that Pavel killed him.²⁶ Thus, *možná* is covertly moved to the CP phase (compare Junghanns 2006, who argues that sentence adverbials covertly move in Czech).

²⁵ Compare also Rizzi (2004), who proposes that there are three distinct structural positions for preposed adverbs: FocusP, TopicP and Mod(ifier)P. Thus, a preposed adverb is either contrastively focused or topicalized or moved to the specifier position of the dedicated Mod head, which makes the adverb prominent and resembles scrambling.

²⁶ With an appropriate intonation, negation could scope only over the adverbials and the sentence would mean that it is not only possible (but probable or certain) that Pavel killed him.

In example (53), too, the adverbial is interpreted in more than one position. As discussed in chapter 2, covert movement is triggered by the pure μ -feature. Thus, since the μ -feature of *možná* has no EPP-subfeature, the copy in the ν P phase is spelled out and interpreted there as focused and induces the set of relevant focus alternatives. And since *možná* is covertly moved and values the unvalued μ -feature in the CP phase, it is also interpreted in its copy in the CP phase, which results in wide scope of the adverbial with respect to negation.

5.7.1.2 Circumstantial adverbials

I will now turn to short movement of circumstantial adverbials. In the case of circumstantials, there are more testing possibilities with respect to movement. That these adverbials can move can be demonstrated, for example, by binding phenomena. In the following examples, reconstruction phenomena with respect to Condition A show that the adverbials containing the anaphor are merged in the c-command domain of the subject and then moved.²⁷ Consider example (54) with the topicalized and sentence-initial temporal adverbial and example (55) with the topicalized and sentence-initial manner adverbial.

- (54) a. ... o svých₁ prázdninách že Pavel_{1/pro1} líbal Marii.
 on self holidays that Pavel_{NOM} kissed Marie_{ACC}
 ‘that during his holidays, Pavel/he kissed Marie.’
- b. O svých₁ prázdninách Pavel_{1/pro1} líbal Marii.
 on self holidays Pavel_{NOM} kissed Marie_{ACC}
 ‘Pavel/he kissed Marie during his holidays.’
- (55) a. ... tím svým₁ způsobem že Pavel_{1/pro1} líbal Marii.
 the self way that Pavel_{NOM} kissed Marie_{ACC}
 ‘that in his own way, Pavel/he kissed Marie.’

²⁷ Example (i) shows that anaphors must be c-commanded by their antecedent. In Czech, anaphors are strongly subject-oriented. Consider the contrast between (ia), where the anaphor is c-commanded only by the higher subject and cannot be bound by the lower subject, and (ib), where the anaphor is c-commanded by both subjects and both binding relations are grammatical.

- (i) a. Ina₁ o svých_{1,*2} třicátých narozeninách viděla matku₂ bít psa.
 Ina_{NOM} on self thirtieth birthday saw mother_{ACC} beat dog_{ACC}
 ‘Ina saw her mother to beat a dog on her thirtieth birthday.’
- b. Ina₁ viděla matku₂ o svých_{1,2} třicátých narozeninách bít psa.
 Ina_{NOM} saw mother_{ACC} on self thirtieth birthday beat dog_{ACC}
 ‘Ina saw her mother to beat a dog on her thirtieth birthday.’

- b. Tím svými₁ způsobem Pavel₁/*pro*₁ líbal Marii.
 the self way Pavel_{NOM} kissed Marie_{ACC}
 ‘Pavel/he kissed Marie in his own way.’

As demonstrated by the following examples with quantifier-bound pronouns, the topicalized and sentence-initial temporal and manner adverbials are moved to their surface position.²⁸ Since the pronouns contained in the adverbials can be bound by the quantifier,²⁹ examples (56) and (57) suggest that there is a lower copy of the adverbial c-commanded by the scrambled indirect object.

- (56) a. ... o jeho₁ narozeninách že každému dítěti₁ dali dárek.
 on his birthday that every child_{DAT} gave present_{ACC}
 ‘that on his birthday, they gave every child a present.’
 b. O jeho₁ narozeninách každému dítěti₁ dali dárek.
 on his birthday every child_{DAT} gave present_{ACC}
 ‘They gave every child a present on his birthday.’
- (57) a. ... tím jeho₁ způsobem že každému dítěti₁ signalizovali konec hry.
 the his way that every child_{DAT} signalled end_{ACC} game
 ‘that in his own way, they signalled every child that the game ended.’
 b. Tím jeho₁ způsobem každému dítěti₁ signalizovali konec hry.
 the his way every child_{DAT} signalled end_{ACC} game
 ‘They signalled every child in his own way that the game ended.’

The interaction between adverbials like *chytrě* ‘cleverly’ and negation also argues for movement of circumstantial adverbials. The feature-based approach is sometimes called a ‘tight-fit’ approach to adverbial distribution (see Ernst 2002) because it relies on the one-to-one relation between the position of an adverbial and its interpretation. Consider example (58) with the notorious adverbial *chytrě*. The feature-based approach assumes two different positions in the clausal hierarchy for adverbials of this type (see, for example, Cinque 1999 and Laenzlinger 2002). Specifically, in the position above negation, the adverbial should get

²⁸ Fox & Nissenbaum (2003) on the basis of data with an elided VP contained in an adverbial (ACD phenomena with QR of the temporal adverbial) also show that certain temporal adverbials can move. See also McCloskey (2002), who shows that in Irish temporal, manner and locative adverbials can move and that the movement is morphologically reflected on the head C.

²⁹ The disjunctive interpretation, however, seems to be preferable.

the subject-oriented (event-related) reading and in the position below negation it should get the manner reading.

(58) a. Pavel Jirkovi chytře neodpověděl.

Pavel_{NOM} Jirka_{DAT} cleverly neg.replied

‘Pavel did not cleverly reply to Jirka.’

‘Pavel cleverly did not give Jirka an answer.’

b. Pavel Jirkovi neodpověděl chytře.

Pavel_{NOM} Jirka_{DAT} neg.replied cleverly

‘Pavel did not cleverly reply to Jirka.’

However, as demonstrated by the translations, the interaction between the position of the adverbial and its interpretation is not as straightforward as suggested by the feature-based approach. Sentence (58a) can receive both interpretations, not only the subject-oriented interpretation, as predicted by the feature-based approach. According to Cinque (2004), adverbials like *chytře* express only a core meaning - which is common to both readings - and can be treated as underspecified with respect to the two positions. However, such an analysis still maintains the one-to-one relation between the position of the adverbial in the sentence and its interpretation, hence it cannot account for the ambiguity of example (58a).

The problem is that the feature-based approach does not admit movement in cases like this and wants to account for the data with the ambiguously interpreted adverbials through external merger in different positions in the clausal hierarchy. The ambiguity of sentence (58a), however, can be naturally explained by movement and two different syntactic positions of the adverbial *chytře*.

As for the first interpretation - that is, *chytře* interpreted in the scope of negation - it is achieved by interpreting the copy of the adverbial in the *vP* phase. Note that the adverbial can be merged in the *vP* phase, as shown by example (58b), where it is interpreted as focused (given the proposed correlation between the phase structure and the information structure). In fact, the adverbial is interpreted in two different positions in this case: as for the scope properties, below negation in the *vP* phase and for the information-structural properties, in the moved position in the CP phase, where it is interpreted as backgrounded. This does not pose a problem because other adverbials as well as arguments sometimes behave in the same way, as already discussed above.

The second interpretation of (58a) - that is, *chytře* scoping over negation – is not as interesting as the first one, and is achieved by interpreting the adverbial (in its wholeness) in its overt position in the CP phase.

That circumstantial adverbials move can also be demonstrated by selected manner adverbials. These adverbials are externally merged in the complement position of the verb, as shown in example (59a), which conforms to the standard assumption that selected adverbials – just like arguments - are merged in the local domain of the main verb and get their θ -role via external merger. Note that Czech is a VO language and that the reversed relative order between the verb and the adverbial makes the sentence marked, as in (59b). Specifically, the markedness is based on the fact that the adverbial *dobře* is interpreted as backgrounded. Given my proposal in chapter 2 and the correlation between the domain of background and the CP phase, this means that *dobře* scrambles to the CP phase across the verb.

- (59) a. Zatím to vypadá dobře. (#7166651)
 so far it seems good
 ‘So far, it seems to be good.’
 b. ? Zatím to dobře vypadá.
 so far it good seems
 ‘So far, it seems to be good.’

In this respect, Czech differs from VO languages like English, Romance or Scandinavian languages, in which selected manner adverbials in a preverbal position are ungrammatical, as argued by Haider (2000b). This means that Haider cannot be right in that there is no VO language in which selected manner adverbials move to the left out of VP.

Other elements such as result predicates or depictive predicates, which according to Haider also cannot move to the left out of VP in VO languages, in fact, scramble as well. Consider example (60b) with the scrambled depictive predicate *syrové* ‘raw’, a translation of Haider’s example (2000b, 55).³⁰ Adverbial *opravdu* ‘really’ indicates that *syrové* is not externally merged in the preverbal position in the local domain of the verb (as in OV languages). That *syrové* is moved in (60b) is evidenced by the fact that sentence (60b) is

³⁰ Haider (2000b) uses the following example:

(i) a. The meat was served *raw*.
 b. * The meat was *raw* served.

Compare also Chomsky (1986), who argues that object predicates like *raw*, subject-oriented predicates and subject-oriented adverbs do not wh-move.

marked with respect to (60a). This is again a consequence of the fact that *syrové* is interpreted as backgrounded, which means that it is scrambled to the CP phase.

- (60) a. To maso bylo (opravdu) servírováno syrové.
 the meat_{NOM} was really served raw
 ‘The meat really was served raw.’
 b. To maso bylo syrové (opravdu) servírováno.
 the meat_{NOM} was raw really served
 ‘The meat really was served raw.’

Consider now example (61), with the selected manner adverbial *blbě* ‘silly’ and the frequentative adverbial *často* ‘often’. Since *blbě* is externally merged in the complement position of the verb, it must be lower than *často* in the structure. However, both relative orders between the adverbials are possible. This means that *blbě* moves across *často* in example (61b).³¹

- (61) a. Pavel vypadá často blbě.
 Pavel_{NOM} looks often silly
 ‘Pavel often looks silly in his clothes.’
 b. Pavel vypadá blbě často.
 Pavel_{NOM} looks silly often
 ‘Pavel often looks silly in his clothes.’

Since I proposed that overt movement of adverbials is driven by the unvalued μ_{EPP} -feature, which occurs on a head in the CP phase, then it predicts that the moved *blbě* is interpreted as backgrounded at the semantic interface. This prediction turns out to be correct because sentence (61b) cannot answer question *Jak Pavel vypadá?* ‘How does Pavel look?’ which

³¹ See also Shields (2007), who shows that in Russian, Japanese and Korean, adverbs can scramble across another adverbs. Consider example (i), taken from Shields (2007, 162-163), which shows that the manner adverb *bystro* can cross the frequentative *často*.

- (i) a. Ona často bystro zavodilas’.
 she often quickly started
 ‘It often started quickly.’
 b. Ona bystro₁ často t₁ zavodilas’.
 she quickly often started
 ‘It often started quickly.’

should be possible if *blbě* were focused. And since it is not interpreted as focused, then it must be backgrounded. By contrast, sentence (61a), where *blbě* follows *často*, can answer the question, which is in accordance with the fact that the ν P position of *blbě* is lower than the position of *často*.

Thus, for cases like this, it holds that the relative order of the adverbials cannot be reversed if they occur in the ν P phase. This is based on the fact that the selected adverbial is merged in the complement position of the verb, hence it is always lower than the non-selected adverbials, and the fact that movement targets the CP phase.

So far, I have dealt with adverbial movement triggered by the μ_{EPP} -feature or by the μ -feature. Now, I will turn to the EPP-feature. In chapter 3, I proposed that the head Mood bears the pure EPP-feature that triggers formal movement of an XP. Since this EPP-feature has no subfeature and there are no matching EPP-features in the minimalist model, this feature can move elements of different nature. One then expects that the EPP-feature also triggers movement of adverbials. This expectations turns out to be correct, as shown by the corpus example (62b), with the manner adverbial *dobře* ‘well’, which modifies the infinitival verb *zařídít* ‘arrange’. Although the adverbial is neither topicalized nor backgrounded, as indicated by context (62a), it moves to the sentence-initial position in (62b).

- (62) a. Já vím, svatý Rolf s věčně krvácejícím srdcem se odchází oženit s ubohou zneuctěnou pannou.
 ‘Surely, saint Rolf with his bleeding heart is going to marry a dishonoured virgin.’
 b. Dobře sis to uměl zařídít, ty prevíte falešná, spal jsi s námi oběma.
 well self.are it managed arrange, you crap false, slept are with us both
 ‘You managed to arrange it very well, bastard, you slept with both of us.’ (#164880)

5.7.2 Long movement

I demonstrated already in chapter 3 that adverbials can undergo long movement. Consider example (63a), repeated from section 3.6. The fact that the temporal adverbial *zítra* ‘tomorrow’ modifies the predicate of the embedded clause shows that it was merged there and then moved to the matrix clause. In order to control that the adverbial indeed modifies the embedded predicate, consider example (63b), where the embedded predicate is in the past-tense form. Since it does not match the time expressed by the temporal adverbial, the sentence is semantically deviant.

- (63) a. Zítra předpokládáme, že tlaková výše postoupí k jihu.
 tomorrow suppose that pressure-high_{NOM} moves southwards
 ‘Tomorrow, we suppose that the high pressure front will move southwards.’
 (#22265481)
- b. * Zítra předpokládáme, že tlaková výše postoupila k jihu.
 tomorrow suppose that pressure-high_{NOM} moved southwards

Islands are standardly used as a test for movement. When we modify example (63a) and add a *wh*-element inducing a *wh*-island, the sentence becomes ungrammatical, as we already saw in section 3.6, which supports the claim that the temporal adverbial moves. Thus, consider the contrast between the ungrammatical sentence with the preposed adverbial in (64b) and the control sentence (64a), where the adverbial remains in the embedded clause and is grammatical.

- (64) a. Víme, proč tlaková výše zítra postoupí k jihu.
 know why pressure-high_{NOM} tomorrow moves southwards
 ‘We know why the high pressure front will move southwards tomorrow.’
- b. * Zítra víme, proč tlaková výše postoupí k jihu.
 tomorrow know why pressure-high_{NOM} moves southwards

In chapter 3, I also argued that long movement in Czech is topicalization and that it is driven by the unvalued uninterpretable μ_{EPP} -feature on the head *C* in the matrix clause. The Phase Featuring principle proposed in chapter 2 puts the unvalued uninterpretable features on the intermediate phase heads and ensures that the movement successfully happens in the successive-cyclic way. In cases like (63a), the goal μ_{EPP} -feature on the moved adverbial values the probe μ_{EPP} -feature on the matrix *C* and determines that the adverbial is spelled out and interpreted in the matrix CP phase, that is, in the restrictive clause and background of the matrix clause. Since in the model proposed here, the syntactic, semantic and information structure is recursive, the adverbial topicalized to the left periphery of the matrix clause can serve as a topic of the whole sentence. In the case of sentence (63a), then the interpretation can be paraphrased as follows: As for tomorrow, it holds that we suppose that the high pressure front will move southwards. And the modifier interpretation of *zítra* – that is, expressing the reference time of the embedded clause – is obtained through a lower copy in the embedded clause.

Another argument for long movement of adverbials comes from binding, concretely, Condition A. In the following example, the embedded subject *Pavel* can bind the possessive anaphor *svém* within the locative adverbial occurring in the left periphery of the matrix clause. This reconstruction behaviour shows that the locative adverbial was merged in the c-command domain of the subject and then moved.

- (65) V tom svém₁ zahradním domku myslím, že Pavel₁ schoval motorku.
 in the self garden house think that Pavel_{NOM} hid motorbike_{ACC}
 ‘In his lodge, I think that Pavel hid a motorbike.’

The next argument supporting long movement of adverbials is based on the relative scope of two quantifiers. In example (66), the manner adverbial can be interpreted as a modifier of the embedded predicate and then the existential quantifier within the manner adverbial in the left periphery is overscoped by the universal quantifier in the embedded clause.

- (66) Nějakým způsobem říkal, že to vyřešil každý.
 a way said that it solved every_{NOM}
 ‘He said that every somehow solved it.’

The next scope argument is based on the relative scope of the iterative adverbial *dvakrát* ‘twice’ and negation. Consider the example below, where the iterative adverbial pluralises the event in the embedded clause and is overscoped by negation. The interpretation of (67) can be paraphrased as follows: I think that it is not the case that he will come twice.

- (67) Dvakrát myslím, že nepřijde.
 twice think that neg.comes
 ‘I think that he will not come twice.’

That adverbials can undergo long movement is also supported by selected manner adverbials. As demonstrated by example (68), the deictic manner adverbial *takhle* is moved to the left periphery of the matrix clause from its external merge position in the complement of the embedded predicate.

- (68) Takhle tvrdil, že nevypadá.
 so claimed that neg.looks
 ‘Like this, he claimed that he does not look.’

To sum up, adverbials can undergo short as well as long movement. Given this fact, adverbials are often interpreted in more than one position in the syntactic structure. I have shown that the phase structure plays an important role in the adverbial ordering. I have demonstrated with certain cases that the canonical order of adverbials cannot be reversed when the adverbials occur in the vP phase but that it can be reversed when the adverbials occur in different phases.

5.8 Conclusion

In this chapter, building on the investigation of data from Czech National Corpus, I have argued that there is an adverbial hierarchy. I have argued that the adverbial hierarchy is determined by different factors and that the factors are often semantic in nature and are orthogonal to narrow syntax. The adverbial ordering is determined by lexicosemantic properties of adverbials, their scope relations, lexicosemantic properties of other elements in the sentence and by the event-structural properties of the sentence. I have investigated in more detail the relative orders of stacked and non-stacked adverbials of the same class and proposed that their relative orders are determined by the Superset Principle. I have also proposed the Principle of Natural Evolution of Intervals, which determines the relative order of stacked as well as non-stacked adverbials expressing an interval. Then, I have argued that adverbials can undergo both short and long movement and that they can be scrambled as well as topicalized. Given their movement, adverbials can be interpreted in more than one position (copy) in the sentence.

Chapter 6

Adjunction, Condition C and the Background Adjunct Coreference Principle

6.1 Introduction*

In this chapter, I argue that the proposed correlation between the phase structure, tripartite quantificational structure and the information structure plays an important role in anaphoric relations. I will investigate four types of adjuncts with respect to anaphoric relations – clausal and non-clausal adnominal adjuncts and clausal and non-clausal adverbial adjuncts – and will show that they cannot be treated uniformly. More specifically, I will argue that there is a need to differentiate between clausal and non-clausal adjuncts with respect to coreference and Condition C.

I will show that non-clausal adnominal adjuncts containing a coindexed r-expression always produce a Condition C effect regardless of the presuppositional and information-structural status of the phrase containing the adjunct.¹ Non-clausal adverbial adjuncts, too, always induce a Condition C effect.

Clausal adjuncts of both types – in contrast to non-clausal adjuncts - can obviate Condition C effects under certain conditions. I will show that coreference between an r-expression in the clausal adjunct and the coindexed pronoun is possible if presuppositional status can be accorded to the clausal adjunct or the element containing it (inherently presuppositional wh-phrases or backgrounded elements) and if the appropriate r-expression is

* Some parts of this chapter appeared as Biskup (2006b) and will appear as Biskup (in press) and Biskup (to appear a).

¹ I use ‘Condition C effect’ as a cover term for both an effect induced by a Condition C violation and an effect induced by the impossibility of coreference.

interpreted as backgrounded. In addition, the clausal adjunct cannot be spelled out in a position c-commanded by the coindexed pronoun.

I will discuss how the relevant data are treated by the acyclic merger approach, as proposed, for example, by Lebeaux (1988), and by the cyclic merger analysis proposed by Chomsky (2004). I will argue that the Condition C data can be accounted for neither by acyclic merger of adjuncts nor by the special status of adjunct merger. Both approaches have problems with the data because they treat all adjuncts uniformly. They also cannot explain why certain adjuncts cannot avoid Condition C effects and cannot give an explanation for the dependency between the availability of coreference and the syntactic position and information-structural status of the r-expression in clausal adjuncts.

I will argue that both types of adjuncts are merged cyclically and that Condition C effects are not a uniform phenomenon. They can be induced by three different factors, by the violation of Condition C itself, by the violation of the Background Adjunct Coreference Principle and by the violation of the antilocality requirement on coreference. Condition C effects in the case of clausal adjuncts can be attributed to Condition C or the Background Adjunct Coreference Principle and Condition C effects in the case of non-clausal adjuncts can be attributed to Condition C or the antilocality requirement on coreference.

As far as the Condition C violation is concerned, I will show the backgrounded or presuppositional status of clausal adjuncts or the elements containing them helps them not to reconstruct and hence not to violate Condition C. Concretely, the antireconstruction behaviour and the backgrounded status of the appropriate moved element is due to the checking of the μ_{EPP} -feature in the CP phase.

Further, I will argue that for coreference – similarly as in the case of reference issues – the correlation between the phase structure, tripartite quantificational structure and information structure of the sentence is relevant. R-expressions in the CP phase of clausal adjuncts, in contrast to r-expressions in non-clausal adjuncts, can corefer with the coindexed pronoun because they are sufficiently embedded in the correlated structure. In contrast, r-expressions in non-clausal adjuncts are not sufficiently distant from the coindexed pronoun; hence given the antilocality requirement on coreference, they cannot corefer with the pronoun. And r-expressions in clausal adjuncts can corefer with the coindexed pronoun only if they are spelled out and interpreted in the CP phase of the clausal adjunct because then they are in conformance with the Background Adjunct Coreference Principle.

The chapter is organised as follows. In section 6.2, I briefly overview the cyclic and acyclic approach to adjunct merger. In section 6.3, I investigate different types of adjuncts and

discuss how the cyclic approach and the late merger approach handle them. In section 6.4, I show that both the discussed approaches have problems with the data presented. In section 6.5, I will argue that both clausal and non-clausal adjuncts are merged cyclically. In section 6.6, I discuss the relation between Condition C, presuppositionality and reconstruction. In section 6.7, I deal with the second factor in Condition C effects, with the Background Adjunct Coreference Principle. The third factor in Condition C effects, the antilocality requirement on coreference, I discuss in section 6.8. Finally, section 6.9 summarises the chapter.

6.2 Cyclic and acyclic adjunct merger

The adjunct-argument asymmetry with respect to Condition C has been discussed in the literature for a long time (see, for example, Riemsdijk & Williams 1981; Lebeaux 1988; Speas 1990; Heycock 1995; Fox 1999, 2000; Stepanov 2000, 2001; Lasnik 2003; Chomsky 2004). Consider the contrast in example (1), taken from Chomsky (2004, 117):

- (1) [_{wh} Which [[picture [of Bill]] [that John liked]]] did he buy *t_{wh}*?

The r-expression *Bill* within the complement of *picture* cannot be coreferential² with *he*; it violates Condition C. In contrast, the r-expression *John* within the adjunct *that John liked* can corefer with *he*; no Condition C effect arises. Consider now the Czech example (2), which is analogous to the English sentence (1). As demonstrated by the coindexation, it behaves in the same way as its English counterpart.³

- (2) Který obrázek Karla₁, který měl Jirka₂ rád, si *pro**_{1,2} koupil?⁴
 which picture_{ACC} Karel_{GEN} which had Jirka_{NOM} glad self bought
 ‘Which picture of Karel that Jirka liked did he buy?’

² The term ‘coreferential’ means referential identity of two (or more) expressions. As usual, I mark it by coindexing. Referential identity can be obtained in two ways, by binding or by assigning the same referent from the discourse storage. It will be shown that this distinction plays an important role.

³ I make the standard assumption that relative clauses are adjuncts. All relative clauses in this chapter are meant as restrictive. The grammatical status of some sentences is improved if the relative clause is interpreted non-restrictively. This is not surprising because non-restrictive relatives have many properties that are not typical for restrictives (it has been argued that non-restrictive relatives are generated separately from their host; that they are conjoined to the matrix clause; that they never form a constituent with their head etc., see Bianchi 2002).

⁴ According to some speakers, coreference between *Karel* and the subject of the matrix clause is marginally possible if the overt pronoun *on* ‘he’ is used instead of *pro*. Czech is a *pro*-drop language and when the subject pronoun is overt, then it has a contrastive or emphatic function (see *Mluvnice češtiny* 3. 1987). I use *pro* in examples because it is the unmarked case.

To this issue, two approaches have prevailed in recent years. The late merger approach - building on Lebeaux (1988) - is represented, for example, by Nissenbaum (2000) and Stepanov (2000, 2001). This approach is based on the different timing of adjunct merger and argument merger. Since adjuncts, in contrast to arguments, are not selected, they may be inserted into the structure acyclically. According to Stepanov (2000, 2001), adjuncts in fact must be introduced into the structure postcyclically, that is, after all other processes are complete.

Concretely, after wh-movement of *který obrázek Karla* ‘which picture of Karel’ to SpecCP, as demonstrated in (3c), the relative clause *který měl Jirka rád* ‘that Jirka liked’ is merged with the copy of *obrázek Karla* ‘picture of Karel’ in SpecCP, as shown in (3d). Since wh-movement applies prior to the adjunction of the relative clause, the r-expression *Jirka* contained in the adjunct is not c-commanded by *pro* and Condition C is not violated.

- (3) a. merger of: $[_{NP} \text{obrázek Karla}]$
 b. merger of: $[_{DP} \text{který } [_{NP} \text{obrázek Karla}]] \dots$
 c. wh-movement: $[_{CP} [_{DP} \text{který } [_{NP} \text{obrázek Karla}]] [_{C'} \text{pro si koupil } t_{DP}]]$

 d. merger of:
 $[_{CP} [_{DP} \text{který } [[_{NP} \text{obrázek Karla}] [_{CP} \text{který měl Jirka rád}]]] [_{C'} \text{pro si koupil } t_{DP}]]$

By contrast, since arguments are merged cyclically,⁵ the DP *Karla* is merged as a complement of *obrázek*, as shown in (3a). Consequently, it is c-commanded by *pro*, as indicated by the copy (trace) in (3c) and (3d). Then, given reconstruction of the restriction of the wh-operator with the r-expression *Karla* to the lower position, a violation of Condition C arises. In order to account for the reconstruction behaviour in cases like this, different strategies were used. For example, Lebeaux (1988) assumes that Condition C is an ‘everywhere’ condition and Chomsky (1995) proposes the Preference Principle that forces the restriction of the wh-operator to be minimal.⁶


The second approach is the cyclic merger analysis proposed by Chomsky (2004). This approach argues for strict cyclicity also in the case of adjunction. Specifically, in example (2), the relative clause *který měl Jirka rád* ‘that Jirka liked’ is adjoined to the NP *obrázek Karla*

⁵ For instance, according to Lebeaux (1988), arguments are generated in accordance with the Projection Principle, that is, they must be already present at the D-structure.

⁶ For discussion of different types of reconstruction, see, for example, Fox (1999, 2000) or Sternefeld (2001).

‘picture of Karel’ in its base position, as illustrated in (4b) below. Chomsky’s (2004) approach, which is label-free, is based on the special status of adjunction and different types of merger. In contrast to the symmetrical set merger of two objects α and β resulting in the set $\{\alpha, \beta\}$, adjunction of α to β , is realized as an asymmetrical pair merge operation that results in the ordered pair $\langle\alpha, \beta\rangle$. In this way, adjuncts are kept on a separate syntactic plane and hence they are exempt from standard c-command relations. Later, as part of the spellout operation, adjunction is simplified by the operation Simpl(ification) that converts the ordered pair $\langle\alpha, \beta\rangle$ into the set $\{\alpha, \beta\}$. Since the operation Simpl applies where the relative clause adjunct is spelled out - that is, to the copy merged into SpecCP, as shown in (4d) - and not to the unpronounced copy in the base position, the r-expression *Jirka* is not c-command-visible for *pro*. Therefore *Jirka* cannot be bound by *pro* and Condition C is obeyed. In contrast, since arguments are set merged, the r-expression *Karla* merged in the complement position of *obrázek* in (4a) is c-command-visible for *pro* and Condition C is violated.

- (4) a. merger of: $[_{NP} \text{obrázek Karla}]$
 b. merger of: $[_{NP} [_{NP} \text{obrázek Karla}] [_{CP} \text{který měl Jirka rád}]]$
 c. merger of: $[_{DP} \text{který} [_{NP} [_{NP} \text{obrázek Karla}] [_{CP} \text{který měl Jirka rád}]]] \dots$
 d. wh-movement of DP:

$$[_{CP} [_{DP} \text{který} [_{NP} [_{NP} \text{obrázek Karla}] [_{CP} \text{který měl Jirka rád}]]] [_{C'} \text{pro si koupil } t_{DP}]]$$


In the next section, I will investigate the behaviour of four different types of adjuncts with respect to Condition C effects and will show that they behave differently. Specifically, I will show that it is necessary to distinguish between clausal adjuncts and non-clausal adjuncts. I will also discuss how the particular types of adjuncts are treated by the cyclic approach and the late merger approach to adjunction.

6.3 Adjunct merger and different types of adjuncts

6.3.1 Non-clausal adnominal adjuncts

I begin with non-clausal PP adjuncts. I will deal here only with locative adjuncts, mainly with *z Pavlovy police* ‘from Pavel’s shelf’ but what will be said holds for other non-clausal adnominal adjuncts as well. That *z Pavlovy police* is an adjunct is demonstrated in (5). It has the typical adjunct properties, it is optional, as shown in (5a), it can be used with other adjunct, as shown in (5b), and it can be used with an adjunct of the same type, as

demonstrated in (5c). The adjunct cannot stay closer to the head noun than the complement marked with genitive; consider the contrast between (5d) and (5e). And *z Pavlovy police* preserves the categorial status of its host, as demonstrated by the satisfied selectional properties of the verb in (5f) and (5g).

- (5) a. Přečetl knížku (z Pavlovy police).
 read book_{ACC} from Pavel's shelf
 'He read a book from Pavel's shelf.'
- b. Přečetl knížku z Pavlovy police o Poeovi.
 read book_{ACC} from Pavel's shelf about Poe
 'He read a book about Poe from Pavel's shelf.'
- c. Přečetl knížku z kartonu z Pavlovy police.
 read book_{ACC} from stiff paper from Pavel's shelf
 'He read a book from stiff paper from Pavel's shelf.'
- d. Přečetl knížku pohádek z Pavlovy police.
 read book_{ACC} stories_{GEN} from Pavel's shelf
 'He read a story book from Pavel's shelf.'
- e. *Přečetl knížku z Pavlovy police pohádek.
 read book_{ACC} from Pavel's shelf stories_{GEN}
- f. Přečetl [_{DP} (tu) [_{NP} knížku]].
 read the book_{ACC}
 'He read the book.'
- g. Přečetl [_{DP} (tu) [_{NP} knížku [_{PP} z Pavlovy police]]].
 read the book_{ACC} from Pavel's shelf
 'He read the book from Pavel's shelf.'

I will now investigate wh-movement of the noun phrase containing the adjunct with respect to Condition C effects. Consider the ungrammatical example (6a). In order to account for the Condition C effect in sentence (6a), the r-expression *Pavlovy* within the adjunct should be c-commanded by the *pro* subject. Hence, there must be a lower position in the structure into which the restriction of the wh-operator containing the r-expression is reconstructed. This is naturally ensured if the adjunct is inserted into the derivation cyclically - in the base position of the object – albeit not by pair-merge.

- (6) a. * *Kolik knížek z Pavlovy₁ police pro₁ přečetl?*
 how many books from Pavel's shelf read
- b. *Kolik knížek z Pavlovy₁ police Jirka/pro₂ přečetl?*
 how many books from Pavel's shelf Jirka_{NOM} read
 ‘How many books from Pavel's shelf did Jirka/he read?’

The control sentence (6b) shows that the ungrammaticality of sentence (6a) is indeed due to the given coindexation because (6b) is grammatical with distinct indices or with two different r-expressions.⁷

It is a well-known fact that there is a correlation between bleeding Condition C, wide scope, and the presuppositional interpretation of the appropriate wh-phrase (see, for example, Heycock 1995; Fox 1999, 2000; Witkoś 2003). Let us look at what happens when the presuppositional wh-phrase *který* ‘which’ or partitive *který z* ‘which of’ are used instead of non-presuppositional *kolik* ‘how many’ in sentence (6a). Both wh-phrases presuppose the existence of a set of books on Pavel's shelf, hence one can assume that the restriction of the wh-operator does not reconstruct and Condition C effects do not arise. This expectation, however, is not met, as demonstrated by example (7), where we find the same pattern as in example (6a). The adjuncts in both sentences in (7) show reconstruction behaviour.

- (7) a. * *Kterou knížku z Pavlovy₁ police pro₁ přečetl?*
 which book from Pavel's shelf read
- b. * *Kterou z knížek z Pavlovy₁ police pro₁ přečetl?*
 which of books from Pavel's shelf read

In a similar fashion, example (8), which is a modified version of Fox's example (1999, 165), demonstrates that a Condition C effect arises regardless of whether the scope-bearing element *kolik* ‘how many’ scopes over *rozhodl* ‘decided’ or *rozhodl* over *kolik*.⁸

⁷ Consider also the grammatical example (11) with the coindexed anaphor *své* ‘self’, which shows that the ungrammaticality of (6a) is due to the r-expression.

⁸ *Kolik* represents both parts of the English complex quantifier *how many* (for what number N are there N many). The two readings then can be paraphrased as (i), where *many* scopes over *decide*, and (ii), where *decide* scopes over *many*:

(i) What is the number N, such that there are N many people from Pavel's city, such that he decided to hire them?

(ii) What is the number N, such that he decided to hire N many people from Pavel's city?

- (8) * Kolik lidí z Pavlova₁ města se *pro*₁ rozhodl najmout?
 how many people from Pavel's city self decided hire

A look at the following examples reveals that the information-structural status of the elements containing the adjunct does not play any role either with respect to Condition C effects. It changes nothing on the grammatical fact whether the DP with the adjunct is topicalized (9a) or scrambled (9b), that is, interpreted as backgrounded. The r-expression *Pavlovy* embedded in the adjunct always yields a Condition C effect.

- (9) a. * ... tu knížku z Pavlovy₁ police že *pro*₁ v pátek přečetl.
 the book_{ACC} from Pavel's shelf that on Friday read
 b. * V pátek tu knížku z Pavlovy₁ police *pro*₁/*on*₁ přečetl.⁹
 on Friday the book_{ACC} from Pavel's shelf read

As demonstrated by example (10), when the DP containing the adjunct is focused, that is, it appears in situ in the *vP* phase, where the r-expression contained in the adjunct is c-commanded by the coindexed pronoun, Condition C is violated.

- (10) * V pátek *pro*₁ přečetl tu knížku z Pavlovy₁ police.
 on Friday read the book_{ACC} from Pavel's shelf

The data above suggest that non-clausal adnominal adjuncts are merged cyclically and that they are not merged by the pair merge operation. This seems surprising if one takes into account the possibility of adjuncts merging late - as proposed by the late merger approach - or being c-command-invisible, as proposed by the cyclic merger approach. There is an argument coming from Condition A that shows that non-clausal adnominal adjuncts are indeed merged cyclically and that they are c-command-visible. The grammatical sentence (11) demonstrates that the adjunct with the anaphor *své* 'self' cannot be merged acyclically after wh-movement of the object; it must be merged in the c-command domain of the clausal subject and must be visible for the subject.

- (11) Kolik knížek ze své₁ police Pavel₁/*pro*₁ přečetl?
 how many books from self shelf Pavel_{NOM} read
 'How many books from his shelf did Pavel/he read?'

⁹ The overt pronoun *on* indicates that the scrambled element precedes the subject as well.

Another argument supporting the cyclic merger analysis and the c-command visibility comes from examples like (12). Pronoun *jeho* ‘his’ contained in the adjunct can be bound by the quantifier *každému* ‘everybody’, which shows that the adjunct containing the pronoun was merged with the direct object before its movement to the sentence-initial position.¹⁰

- (12) Knížku z jeho₁ police *pro* každému dítěti₁ četla po večerech.
 book_{ACC} from his shelf every child_{DAT} read in evenings
 ‘She read every child a book from his shelf in the evenings.’

The conclusion drawn from this section is that Condition C effects and reconstruction phenomena suggest that non-clausal adnominal adjuncts are merged cyclically and that they reconstruct regardless of the presuppositional and information-structural status of the containing phrase. The data are summarised in table (13).

(13)

r-expression in non-clausal adnominal adjuncts	Condition C effect
in non-presuppositional whP	√
in presuppositional whP	√
in topicalized or scrambled DP	√
c-commanded by coindexed pronoun	√

Thus, the data pose a problem for both the discussed approaches because theoretically one should get a grammatical sentence with an r-expression within a non-clausal adnominal adjunct, that is, with an r-expression in an adjunct that is either late merged or c-command-invisible.

6.3.2 Clausal adnominal adjuncts

Let us now turn to clausal adnominal adjuncts. In the preceding section, we saw that non-clausal adnominal adjuncts are always bad with respect to Condition C effects. In this section, I demonstrate that, in contrast to the non-clausal adnominal adjuncts, clausal adnominal adjuncts can avoid Condition C effects.

¹⁰ Some speakers prefer the direct object with *nějakou*:

- (i) Nějakou knížku z jeho₁ police *pro* každému dítěti₁ četla po večerech.
 a/some book_{ACC} from his shelf every child_{DAT} read in evenings
 ‘She read every child a book from his shelf in the evenings.’

Example (2) above demonstrates that relative clause adjuncts in Czech behave like their English counterparts. To illustrate this issue properly, let us have a look at more examples. Consider first example (14), which is slightly degraded under the given coindexation. The clausal adjunct with the r-expression *Pavel* does not feed Condition C, which suggests that the relative clause does not have to be present or c-command-visible in the lower copy of the wh-phrase.

- (14) ? Který argument, který Pavel₁ přednesl, *pro*₁ zuřivě bránil?
 which argument which Pavel_{NOM} gave furiously defended
 ‘Which argument that Pavel gave did he defend like fury?’

In the case of the partitive presuppositional wh-phrase, the adjunct also shows an antireconstruction behavior, as shown in (15a); but it seems that with the partitive wh-phrase coreference works a little better. In contrast, when the wh-phrase is non-presuppositional as in (15b) - that is, it is a question only about the number of the arguments with the restriction reconstructed - the sentence is ungrammatical.

- (15) a. (?) Který z argumentů, které Pavel₁ přednesl, *pro*₁ zuřivě bránil?
 which of arguments which Pavel_{NOM} gave furiously defended
 ‘Which of the arguments that Pavel gave did he defend like fury?’
 b. ?* Kolik argumentů, které Pavel₁ přednesl, *pro*₁ zuřivě bránil?
 how many arguments which Pavel_{NOM} gave furiously defended

Example (14) becomes perfectly acceptable if adverbial *taky* ‘also’ – an additive focus particle - is used, as demonstrated by example (16a). *Taky* presupposes a contextually given set of alternatives, to which the element associated with the focus particle *taky* is added. In example (16a), it is the event *zuřivě bránil* ‘defended like fury’ that is added to the alternatives. Since the event of giving the arguments *přednesl* ‘gave’ is introduced into the set of alternatives to the event *zuřivě bránil* and since the arguments were given by *Pavel*, coreference between both subjects *Pavel* and *pro* is necessary in this sentence. Then, the meaning of sentence (16a) can be paraphrased as follows: For which x, such that x is an argument that Pavel gave, does it hold that Pavel also defended x? That *pro* must be coreferential with *Pavel* is illustrated by sentence (16b), which is ungrammatical because of

distinct subjects.¹¹ Thus, the presence of the additive adverbial in (16a) reduces the coreference possibilities, and in this way it improves the grammatical status of sentence (14).¹²

- (16) a. Který argument, který Pavel₁ přednesl, *pro*₁ taky zuřivě bránil?
 which argument which Pavel_{NOM} gave also furiously defended
 ‘Which argument that Pavel gave did he also defend like fury?’
 b. * Který argument, který Pavel přednesl, Jirka taky zuřivě bránil?
 which argument which Pavel_{NOM} gave Jirka_{NOM} also furiously defended

As demonstrated by the following example, the information structure of the relative clause itself is an important factor in Condition C as well (note that information structure can be recursive; see Krifka (1992a), Partee (1992), Meinunger (2000), Ishihara (2003, 2004), Neeleman & Szendrői (2004)). In sentence (17a), which minimally differs from example (14), the r-expression *Pavel* stays in situ and is narrowly focused in the adjunct clause and coreference between *Pavel* and *pro* contained in the matrix clause is not possible. For *Pavel* to be a possible antecedent of *pro*, it must be interpreted as backgrounded, as it is in example (14).¹³ The control sentence (17b) shows that (17a) is ungrammatical due to the coindexation; with distinct indices or with two different r-expressions, the sentence is grammatical.

- (17) a. * Který argument, který přednesl Pavel₁, *pro*₁ zuřivě bránil?
 which argument which gave Pavel_{NOM} furiously defended
 b. Který argument, který přednesl Pavel₁, Jirka/*pro*₂ zuřivě bránil?
 which argument which gave Pavel_{NOM} Jirka_{NOM} furiously defended
 ‘Which argument that Pavel gave did Jirka/he defend like fury?’
 c. * Který argument, který přednesl v pondělí Pavel₁, *pro*₁ zuřivě bránil?
 which argument which gave on Monday Pavel_{NOM} furiously defended

¹¹ Note that the focus particle *taky* may not be stressed because then the associated element would be *Jirka* and this would induce a set of alternatives to him.

¹² The grammaticality of (16b) can be saved (and in a parallel fashion the reference in (16a) changed) by introducing a context where it is presupposed that Jirka has got something to do (else than defending) with Pavel’s arguments.

¹³ Compare van Riemsdijk & Williams (1981, 203), who argue that the coindexed r-expression cannot be a focus NP in English:

- (i) a. Which picture that MARY gave to John₁ did he₁ want most desperately?
 b. * Which picture that Mary gave to JOHN₁ did he₁ want most desperately?

Example (17c) demonstrates that as part of wide focus *Pavel* cannot be the antecedent for *pro* either. The temporal adverbial *v ponděli* ‘on Monday’ and the subject *Pavel* can stay in the *vP* phase and can be focused there and the sentence is still ungrammatical. Thus, the r-expression antecedent of the subject pronoun must be backgrounded in the adjunct clause. From now on, I will refer to this condition as the Background Adjunct Coreference Principle:

(18) Background Adjunct Coreference Principle (1st version)

Coreference between an r-expression within an adjunct clause and the subject pronoun in the matrix clause is possible only if the r-expression is backgrounded in the adjunct clause.

Until now I have restricted my attention to the information structure of the adjunct clause. Let us turn to the information-structural status of the element containing the adjunct clause. In the preceding section, I showed that the information-structural status of the elements containing the non-clausal adjunct is irrelevant to Condition C effects, and that non-clausal adnominal adjuncts always induce a Condition C effect. It is fair to ask how it works in the case of clausal adjuncts. Consider the contrast between sentences (19a) and (19b), which are modified examples taken from Witkoś (2003, 77).

- (19) a. ? ... na Mariinu tetu, kterou si Pavel₁ nepamatuje, že *pro*₁ reagoval
to Marie’s aunt_{ACC} which self Pavel_{NOM} neg.remembers that reacted
s hněvem.
with anger
‘...that to Marie’s aunt that Pavel does not remember he reacted with anger.’
b. * ... na Mariinu tetu, kterou si nepamatuje Pavel₁, že *pro*₁ reagoval
to Marie’s aunt_{ACC} which self neg.remembers Pavel_{NOM} that reacted
s hněvem.
with anger

Example (19) shows that the adjunct clause contained in the topicalized PP can obviate a Condition C effect. Similarly as in the previous sentences with wh-movement (14) and (17a,c), a Condition C effect does not arise when the r-expression is backgrounded in the adjunct clause (19a) but it arises when the r-expression is focused in the adjunct clause (19b). The same result is obtained when the adjunct clause occurs within a scrambled element, as demonstrated by the contrast in example (20).

- (20) a. ? Včera na (tu) Mariinu tetu, kterou si Pavel₁ nepamatuje, *pro*₁
 yesterday to (the) Marie's aunt_{ACC} which self Pavel_{NOM} neg.remembers
 reagoval s hněvem.
 reacted with anger
 'Yesterday, to Marie's aunt that Pavel does not remember, he reacted with anger.'
- b. * Včera na (tu) Mariinu tetu, kterou si nepamatuje Pavel₁, *pro*₁
 yesterday to (the) Marie's aunt_{ACC} which self neg.remembers Pavel_{NOM}
 reagoval s hněvem.
 reacted with anger

The conclusion is obvious; what is critical for the grammaticality of the sentence is the information-structural status of the r-expression in the adjunct clause, not just the adjunct status of the relative clause or the information-structural status of the element containing the adjunct clause.

If the PP containing the adjunct clause is focused in the matrix clause (that is, given the model proposed here, if it occurs in situ in the *vP* phase), the r-expression is c-commanded by the coindexed pronoun and the sentence is, of course, ungrammatical, as shown in example (21a). And it does not help when the r-expression is backgrounded in the adjunct clause; compare (21a) with (21b).

- (21) a. * *pro*₁ reagoval s hněvem na Mariinu tetu, kterou si nepamatuje Pavel₁.
 reacted with anger to Marie's aunt_{ACC} which self neg.remembers Pavel_{NOM}
- b. * *pro*₁ reagoval s hněvem na Mariinu tetu, kterou si Pavel₁ nepamatuje.
 reacted with anger to Marie's aunt_{ACC} which self Pavel_{NOM} neg.remembers

Thus, both the cyclic merger and the late merger approach have a problem with these data because it is not clear what the information-structural status of the r-expression in the adjunct clause contained in an element that is not overtly c-commanded by the *pro* has to do with the timing of adjunct merger or with the type of adjunct merger.

According to Fitzpatrick & Groat (2005), late merger of adjuncts and derivational c-command¹⁴ make interesting predictions for cases where the pronoun relevant for Condition C

¹⁴ Fitzpatrick & Groat (2005) follow Epstein et al. (1998) and Epstein (1999) and define derivational c-command as follows:

(i) A term X c-commands all and only the terms of a term Y with which it is merged.
 note continued on next page

occurs in the DP containing the clausal adjunct. This is demonstrated in (22) by Czech paraphrases of Fitzpatrick & Groat's (2005, 5) examples.

- (22) a. * *Která z jeho_i tvrzení, že Pavel_i byl nemocný, Marie vyvrátila?*
 which of his claims that Pavel_{NOM} was sick Marie_{NOM} refuted
- b. *Který z jeho_i argumentů, které Pavel_i považoval za dobré, Marie kritizovala?*
 Which of his arguments which Pavel_{NOM} considered good Marie_{NOM}
 criticised
 'Which of his arguments that Pavel considered to be good did Marie criticise?'
- c. * *Který z jeho_i argumentů, které považoval za dobré Pavel_i, Marie kritizovala?*
 which of his arguments which considered good Pavel_{NOM} Marie_{NOM}
 criticised

Example (22a) shows that the r-expression *Pavel* inside the complement clause induces a Condition C effect because the complement is merged cyclically prior to merger of the pronoun *jeho* 'his'. In contrast, in sentence (22b), according to Fitzpatrick & Groat (2005), the adjunct clause *které Pavel považoval za dobré* 'that Pavel considered to be good' would be merged acyclically after wh-movement of the wh-phrase *který z jeho argumentů* 'which of his arguments'. This means that the adjunct was not present in the structure when the pronoun was merged; hence the r-expression *Pavel* contained in the adjunct is not derivationally c-commanded by the pronoun. Consequently, no Condition C effect arises.

However, (22c) illustrates that in this case, too, the r-expression cannot be coreferential with the pronoun if the sentence does not observe the Background Adjunct Coreference Principle. Thus, the late merger approach with derivational c-command also cannot explain why adjunct clauses with a focused r-expression as in (22c) cannot avoid a Condition C effect as in (22b). Since the coindexed pronoun in example (22) is not a subject pronoun, I modify the Background Adjunct Coreference Principle as follows:

The terms of X are: a. X
 b. The terms of the daughters of X.

(23) Background Adjunct Coreference Principle (2nd version)

Coreference between an r-expression within an adjunct clause and a pronoun in the matrix clause is possible only if the r-expression is backgrounded in the adjunct clause.

To conclude this section, clausal adnominal adjuncts can – in contrast to non-clausal adnominal adjuncts - obviate Condition C effects. We have seen that factors such as the presuppositional status of the elements containing the adjunct clause or information-structural properties of the coindexed r-expression play a role in the availability of coreference between the r-expression in the adjunct clause and the pronoun in the matrix clause. We have also seen that there are Condition C data that pose a problem for the cyclic merger and late merger approaches. The relevant generalisations are summarised in the following table.

(24)

r-expression in clausal adnominal adjunct that is	Condition C effect
in non-presuppositional whP	√
in presuppositional whP and r-expression is backgrounded	
in presuppositional whP and r-expression is focused	√
c-commanded by coindexed pronoun	√

6.3.3 Non-clausal adverbial adjuncts

Let us turn to adverbial adjuncts now. In this section, I examine the behaviour of some adverbial PPs with respect to Condition C effects. It has been argued that adverbial adjuncts, similarly to adnominal adjuncts, can or must be merged acyclically; see, for example, Bošković & Lasnik (1999), Ochi (1999), Nissenbaum (2000) and (the discussion in) Speas (1990) and Stepanov (2000, 2001). In this section, I will, however, show that non-clausal adverbial adjuncts, like non-clausal adnominal adjuncts, always produce Condition C effects.

As an illustration of this, consider example (25) with the wh-moved temporal adverbial. Although, given the inherent presuppositional status of the wh-word *který* ‘which’, the existence of a set of Pavel’s vacations is presupposed, the coindexed r-expression induces a Condition C effect.

- (25) * O kterých Pavlových₁ prázdninách *pro*₁ líbal Marii?
 during which Pavel’s holidays kissed Marie_{ACC}

The same can be observed in the case of manner adjuncts. The ungrammaticality of sentence (26) suggests that the relevant part of the adverbial adjunct with the r-expression reconstructs and is c-commanded by *pro*, resulting in a violation of Condition C. Nothing changes when a non-presuppositional wh-word is used, as shown in example (26b).

- (26) a. * Kterým Pavlovým₁ způsobem *pro*₁ líbal Marii?
 which Pavel's way kissed Marie_{ACC}
 b. * Jakým Pavlovým₁ způsobem *pro*₁ líbal Marii?
 what Pavel's way kissed Marie_{ACC}

As the following examples show, backgrounded adverbial adjuncts give the same results. This holds for both topicalized adjuncts in a complement clause and adjuncts in the sentence-initial position in root sentences. It seems that the adjuncts cannot be merged directly in the sentence-initial position;¹⁵ they seem to be merged below the position of *pro*, then moved, and although spelled out in a position c-commanding the *pro*, they are still c-command-visible for the *pro*. This is demonstrated by example (27) for temporal adverbials and by example (28) for manner adverbials. Thus, examples like these call Chomsky's (2004) cyclic merger approach into question because according to Chomsky adjuncts are c-command-visible in their overt position.¹⁶

- (27) a. * ... o Pavlových₁ prázdninách že *pro*₁ líbal Marii.
 during Pavel's holidays that kissed Marie_{ACC}
 b. * O Pavlových₁ prázdninách *pro*₁ líbal Marii.
 during Pavel's holidays kissed Marie_{ACC}
 (28) a. * ... Pavlovým₁ způsobem že *pro*₁ líbal Marii.
 Pavel's way that kissed Marie_{ACC}

¹⁵ Theoretically, they could be merged there, but then one should account for why they lower, which is not easy under the standard assumption that adjuncts are not selected.

¹⁶ Example (i) shows that the ungrammaticality of example (27) is due to the given coindexation (the same also holds for example (28)). Compare also the grammatical examples (29) and (30) with the coindexed anaphor showing that the problem is due to the r-expression.

- (i) a. ... o Pavlových₁ prázdninách že Jirka/*pro*₂ líbal Marii.
 during Pavel's holidays that Jirka_{NOM} kissed Marie_{ACC}
 'that during Pavel's holidays, Jirka/he kissed Marie.'
 b. O Pavlových₁ prázdninách Jirka/*pro*₂ líbal Marii.
 during Pavel's holidays Jirka_{NOM} kissed Marie_{ACC}
 'Jirka/he kissed Marie during Pavel's holidays.'

- b. * Pavlovým₁ způsobem *pro*₁ líbal Marii.
 Pavel's way kissed Marie_{ACC}

Concerning the time of adjunction of these adverbial adjuncts, they might be merged acyclically, for example, in a *vP*-adjoined position below scrambled elements, but this late merger would have to precede the merger to the topic position or *wh*-position.¹⁷ And if their late merger also follows merger of the *pro* in SpecTP, it is not possible to employ the derivational c-command approach.

Reconstruction phenomena with respect to Condition A demonstrate that the non-clausal adverbial adjuncts are merged in the c-command domain of the subject and not directly in their surface position. Consider the grammatical example (29) with the topicalized and sentence-initial temporal adverbial and example (30) with the topicalized and sentence-initial manner adverbial, which are taken from the preceding chapter, section 5.7.1.2.

- (29) a. ... o svých₁ prázdninách že Pavel₁/*pro*₁ líbal Marii.
 on self holidays that Pavel_{NOM} kissed Marie_{ACC}
 ‘that during his holidays, Pavel/he kissed Marie.’
 b. O svých₁ prázdninách Pavel₁/*pro*₁ líbal Marii.
 on self holidays Pavel_{NOM} kissed Marie_{ACC}
 ‘Pavel/he kissed Marie during his holidays.’
 (30) a. ... tím svým₁ způsobem že Pavel₁/*pro*₁ líbal Marii.
 the self way that Pavel_{NOM} kissed Marie_{ACC}
 ‘that in his own way, Pavel/he kissed Marie.’
 b. Tím svým₁ způsobem Pavel₁/*pro*₁ líbal Marii.
 the self way Pavel_{NOM} kissed Marie_{ACC}
 ‘Pavel/he kissed Marie in his own way.’

The following examples with quantifier-bound pronouns also demonstrate that the topicalized and sentence-initial adverbial adjuncts are not merged directly in their surface position. Since the pronouns can be bound by the quantifier, examples (31) and (32), repeated from section 5.7.1.2, suggest that there is a lower copy of the adjunct c-commanded by the scrambled indirect object.

- (31) a. ... o jeh₁ narozeninách že každému dítěti₁ dali dárek.
 on his birthday that every child_{DAT} gave present_{ACC}
 ‘that on his birthday, they gave every child a present.’
 b. O jeh₁ narozeninách každému dítěti₁ dali dárek.
 on his birthday every child_{DAT} gave present_{ACC}
 ‘They gave every child a present on his birthday.’
- (32) a. ... tím jeh₁ způsobem že každému dítěti₁ signalizovali konec hry.
 the his way that every child_{DAT} signalled end_{ACC} game
 ‘that in his own way, they signalled every child that the game ended.’
 b. Tím jeh₁ způsobem každému dítěti₁ signalizovali konec hry.
 the his way every child_{DAT} signalled end_{ACC} game
 ‘They signalled every child in his own way that the game ended.’

If the adverbial adjunct containing the r-expression occurs in a position c-commanded by the coindexed pronoun, a Condition C effect appears as well, as demonstrated by the following examples.

- (33) **pro*₁ líbal Marii o Pavlových₁ prázdninách.
 kissed Marie_{ACC} during Pavel’s holidays
- (34) **pro*₁ líbal Marii Pavlovým₁ způsobem.
 kissed Marie_{ACC} Pavel’s way

The conclusion from this section is that non-clausal adverbial adjuncts with an r-expression always induce a Condition C effect and seem to reconstruct below the position of the coindexed pronoun. In the case of wh-movement, Condition C effects arise independently of the presuppositional status of the appropriate wh-word. I summarise the generalisations drawn from the data in the following table.

¹⁷ Johnson (2003) uses the fact that adjuncts feed movement operations like wh-movement against Stepanov (2000, 2001), who proposes that adjuncts are merged into the structure after all other processes are complete.

(35)

r-expression in non-clausal adverbial adjunct	Condition C effect
in non-presuppositional whP	√
in presuppositional whP	√
in topicalized or sentence-initial DP	√
c-commanded by coindexed pronoun	√

While the acyclic merger approach is conceivable under certain (very restricted) conditions, Chomsky's (2004) cyclic merger is not. With respect to the cyclic approach, one has to ask how it is possible that adjuncts overtly c-commanding the pronoun - copies of which should be c-command-invisible - produce Condition C effects. In the case of the acyclic merger approach, one should ask why the late merger does not help adjuncts to avoid Condition C effects.

6.3.4 Clausal adverbial adjuncts

We have already seen that clausal adnominal adjuncts can avoid Condition C effects. One then expects that the clausal status of the adjunct plays a role in the case of adverbial adjuncts as well. Thus, in this section, I will test the prediction that there are cases where an r-expression within a clausal adverbial adjunct can be coreferential with the pronoun in the matrix clause. A look at example (36) reveals that this prediction is met.

- (36) *Než Pavel₁ odjel, pro₁ políbil Marii.*
before Pavel_{NOM} left kissed Marie_{ACC}
'Before Pavel left, he kissed Marie.'

As shown by example (37), if the r-expression *Pavel* is c-commanded by *pro*, the sentence is ungrammatical. Condition C effects can be obviated only when the adjunct clause is preposed, that is, backgrounded, as in example (36). That the temporal adjunct is backgrounded in example (36) is evidenced by the felicitous context question *Co se stalo, než Pavel odjel?* 'What happened before Pavel left?' and the infelicitous question *Kdy políbil Marii?* 'When did he kiss Marie?' given that the question-answer correlation helps to determine information structure; see, for example, Sgall, Hajičová & Buráňová (1980), Büring (1997), Erteschik-Shir (1997), Meinunger (2000), Engdahl (2001), Drubig (2003).

- (37) * *pro*₁ políbil Marii, než Pavel₁ odjel.
 kissed Marie_{ACC} before Pavel_{NOM} left

The availability of coreference between the r-expression within the temporal adjunct and the pronoun in the matrix clause depends on the position of the adjunct clause in the sentence and, as in the case of relative clause adjuncts, on the Background Adjunct Coreference Principle. Consider the ungrammatical example (38a), which minimally differs from example (36) and where the r-expression *Pavel* is focused in the temporal adjunct. As demonstrated by the control example (38b), the ungrammaticality of (38a) is indeed due to the given coindexation.

- (38) a. * Než odjel Pavel₁, *pro*₁ políbil Marii.
 before left Pavel_{NOM} kissed Marie_{ACC}
 b. Než odjel Pavel₁, Jirka/*pro*₂ políbil Marii.
 before left Pavel_{NOM} Jirka_{NOM} kissed Marie_{ACC}
 ‘Before Pavel left, Jirka/he kissed Marie.’

The generalisation also holds in the case of other types of predicates and clausal adjuncts, as shown by the following example containing the transitive predicate within the manner adjunct. Example (39a) with the r-expression *Pavel* interpreted as backgrounded is grammatical, in contrast to example (39b), where *Pavel* stays in situ in the vP phase and is interpreted as focused in the adjunct clause. Example (39c) then shows that the r-expression *Pavel* c-commanded by *pro* produces a Condition C violation.

- (39) a. Tím, že Pavel₁ políbil Marii, *pro*₁ potrestal Jitku.
 the_{INST} that Pavel_{NOM} kissed Marie_{ACC} punished Jitka_{ACC}
 ‘Pavel punished Jitka by kissing Marie.’
 b. * Tím, že Marii políbil Pavel₁, *pro*₁ potrestal Jitku.
 the_{INST} that Marie_{ACC} kissed Pavel_{NOM} punished Jitka_{ACC}
 c. * *pro*₁ potrestal Jitku tím, že Pavel₁ políbil Marii
 punished Jitka_{ACC} the_{INST} that Pavel_{NOM} kissed Marie_{ACC}

The question arises how strong the generalisation is and what happens in the case of non-subject r-expressions. Data show that the coindexed r-expression must also be interpreted as backgrounded in those cases where it is not the subject of the adjunct clause. Compare the grammatical sentence (40a) with the ungrammatical sentence (40b), which differ only in the

information-structural status of the object. In example (40a), *Pavel* is scrambled to the CP phase, hence interpreted as backgrounded, in contrast to (40b), where *Pavel* is interpreted as focused in the adjunct clause.

- (40) a. Poté, co Pavla₁ vyhodili z práce, *pro*₁ začal pít.
 after that Pavel_{ACC} fired from job began drink
 ‘After Pavel was fired from his job, he began to drink.’
 b. * Poté, co vyhodili z práce Pavla₁, *pro*₁ začal pít.
 after that fired from job Pavel_{ACC} began drink

The same fact can also be observed in those cases where the coindexed pronoun is not the subject of the matrix clause, as illustrated by the contrast in example (41).

- (41) a. Poté, co Pavla₁ vyhodili z práce, táta ho₁ začal bít.
 after that Pavel_{ACC} fired from job father_{NOM} him began maltreat
 ‘After Pavel was fired from his job, his father began to maltreat him.’
 b. * Poté, co vyhodili z práce Pavla₁, táta ho₁ začal bít.
 after that fired from job Pavel_{ACC} father_{NOM} him began maltreat

To sum up this discussion, clausal adverbial adjuncts spelled out in a position c-commanded by the pronoun produce a Condition C effect. This fact is in line with the cyclic merger approach and goes against the acyclic merger (of the adjunct clause with *vP* after merger of *pro* in SpecTP) with derivational c-command. The acyclic merger approach without the derivational definition of c-command is possible; it will correctly derive ungrammatical sentences, again assuming adjunction to *vP* and *pro* in SpecTP.

In cases where the clausal adjunct is preposed, a Condition C effect appears when the Background Adjunct Coreference Principle is not observed. This is a problem for the cyclic merger approach with its c-command-visibility analysis. The acyclic merger approach (at least its loose types) can solve this ungrammatical situation arguing that in the appropriate cases, the adverbial adjunct is merged cyclically and then preposed. This, however, cannot account for the dependency between the position of the r-expression in the adjunct clause, its information-structural status and the occurrence of Condition C effects. I conclude this section by summarising the relevant data in table (42).

(42)

r-expression in clausal adverbial adjunct	Condition C effect
that is preposed and r-expression backgrounded	
that is preposed and r-expression focused	√
c-commanded by coindexed pronoun	√

6.4 Problems of the cyclic and acyclic merger approach

Here I sum up the empirical arguments against the cyclic merger approach and the acyclic merger approach. We have seen that there is a distinction in the behaviour of non-clausal and clausal adjuncts. Whereas non-clausal adjuncts – regardless of whether they are adnominal or adverbial – always produce a Condition C effect, clausal adjuncts of both types can obviate Condition C effects under certain conditions. Thus, a theory of adjunction that tries to treat all adjuncts uniformly runs into difficulties.

Let us begin with Chomsky's (2004) cyclic merger approach. According to his approach, all types of adjuncts are always merged by the pair merge operation – in contrast to the set merger of arguments –, which makes them c-command-invisible until spellout. Therefore, Chomsky's approach cannot differentiate between the behaviour of clausal and non-clausal adjuncts.

Another problem of Chomsky's approach (2004) is that the operation *Simpl*, which converts the ordered pair into a set and thus makes adjuncts c-command-visible, applies where the adjunct is spelled out. This predicts that lower copies of the moved adjunct do not induce a Condition C effect. However, this prediction is not true, as was demonstrated by the behaviour of non-clausal adjuncts or clausal adjuncts contained in a non-presuppositional *wh*-phrase.

The cyclic approach of Chomsky (2004) also cannot give an explanation for the dependency between the availability of coreference and the syntactic position and information-structural status of the r-expression in clausal adjuncts.¹⁸

Chomsky also discusses instances of extraposed adjuncts and relative clause adjuncts and argues that adjuncts are always spelled out where their hosts are; consider (43), taken from Chomsky (2004, 119).

¹⁸ Rubin's proposal (2003) faces the same problems as Chomsky (2004) because he suggests that adjuncts are headed by a functional head *Mod*(ification) and all phrases headed by this head are subject to the pair merge operation, which brings about the same consequences as Chomsky's approach (2004).

(43) In $\langle \alpha, \beta \rangle$, α is spelled out where β is

However, there is a counter-argument to this claim, namely discontinuous noun phrases in Slavic languages, Latin, German and other languages; consider the Czech example in (44) and for other languages see, for example, Fanselow & Ćavar (2002) and Bošković (2005b). As demonstrated by (44), spellout of the adjunct PP *z Pavlovy police* ‘from Pavel’s shelf’ can be dissociated from spellout of its host *dvě knihy* ‘two books’.

- (44) a. [Z Pavlovy police]₁ *pro* přečetl dvě knihy *t*₁.
 from Pavel’s shelf read two books_{ACC}
 ‘He read two books from Pavel’s shelf.’
 b. [Dvě knihy]₁ *pro* přečetl *t*₁ z Pavlovy police.
 two books_{ACC} read from Pavel’s shelf
 ‘From Pavel’s shelf he read two books.’

Let us now have a look at the acyclic merger approach. As already mentioned in footnote 17, Stepanov’s proposal (2000, 2001) according to which adjunction must follow all non-adjunct mergers has problems with the fact that adjunction feeds other types of movement, as was pointed out by Johnson (2003). Stepanov (2000, 2001) tries to avoid the problem of wh-adjuncts arguing that wh-adjuncts are in fact selected and consequently, have to be merged cyclically. However, other problems with adjuncts that show reconstruction behaviour, for example, topicalized non-clausal adjuncts, still remain.

In the other acyclic merger approaches (the Lebeaux-style 1988 approaches), adjuncts are just given the possibility of being merged late. This predicts that adjuncts should be able to obviate a Condition C effect. However, as mentioned above with respect to Chomsky’s approach (2004), this is not corroborated by the data. Non-clausal adjuncts never obviate Condition C effects and clausal adjuncts only do so if they are presuppositional or contained in a presuppositional element and obey the Background Adjunct Coreference Principle. Hence, these regularities also pose a problem for the Lebeaux-style approaches.¹⁹

The acyclic approach with derivational c-command (Fitzpatrick & Groat 2005) faces the same problem. For example, it predicts, contrary to fact, that a relative clause adjunct

¹⁹ Such regularities would probably pose a problem also for Kayne’s (2002) movement approach, where the pronoun and its antecedent start as one constituent.

containing a focused r-expression can be merged in the DP with the relevant possessive pronoun acyclically and thus avoid a Condition C violation.

6.5 Adjuncts are merged cyclically

In this section, I argue that both clausal and non-clausal adjuncts are merged cyclically. We have seen that non-clausal adjuncts – no matter whether adverbial or adnominal – always produce a Condition C effect and that they exhibit reconstruction effects with respect to Condition A and quantifier binding. These facts suggest that they are merged cyclically.

In fact, they might be merged acyclically, but, as already discussed in section 6.3.3, this would have to be before their further movement or movement of the element containing them. And if derivational c-command is assumed, it would also have to be before merger of the relevant c-commanding pronoun or before merger of the c-commanding subject in the case of Condition A phenomena or the c-commanding quantified phrase in the case of quantifier binding. Implementation of such a constrained acyclic merger in the minimalist model would be very difficult. In the standard minimalist theory, there is no way to ensure that exactly in those cases where there is a quantified phrase (that later binds the pronoun in the adjunct) the adjunct must be merged cyclically or constrained acyclically or that in cases where the adjunct contains an anaphor, it must be merged cyclically or constrained acyclically. Thus, unless there is a necessity to accept the acyclic merger analysis, I will pursue the cyclic merger approach.²⁰

I will now turn to clausal adjuncts. We have seen that clausal adjuncts can avoid Condition C effects under certain conditions. This can happen in the case of the presuppositional status of the clausal adjunct or the element containing it (inherently presuppositional wh-phrases or backgrounded elements) and the backgrounded information-structural status of the relevant r-expression. In addition, the clausal adjunct cannot be spelled out in a position c-commanded by the coindexed pronoun.

There are two basic points of view. Either clausal adjuncts are merged cyclically similarly to non-clausal adjuncts, and then it is necessary to account for why in the appropriate cases they do not induce a Condition C effect; or they are merged acyclically in

²⁰ Although adjuncts are taken to be merged cyclically, this is not to say that adjuncts cannot be generated in the left periphery of the sentence. Cecchetto & Chierchia (1999) argue that Italian clitic left dislocated PPs are base-generated in the left periphery. In their analysis, given chain binding at LF, a Condition C violation is due to the clitic (or a theta grid element) coming from the lower part of the sentence.

the cases where they do not produce a Condition C effect and cyclically in the cases where they do.²¹

Let us pursue the second possibility for the moment. Recall that obviating a Condition C effect is dependent on the Background Adjunct Coreference Principle. According to the phase-based model proposed in chapter 2, sentences are sent to the interfaces phase by phase and the CP phase is interpreted as the background domain and the ν P phase as the focus domain. Thus, for the Background Adjunct Coreference Principle to be able to filter out the inappropriate cases at the semantic interface of the CP phase of the matrix clause, it must know where the relevant r-expression has been spelled out and interpreted in the adjunct clause. More specifically, it must know whether the coindexed r-expression checks a μ_{EPP} -features, which is responsible for movement to the CP phase in the adjunct clause and consequently for the backgrounded interpretation. Note that the case where the r-expression is not present in the background of the acyclically-merged (and then moved in the case of adverbial adjunct) adjunct clause and consequently this r-expression, not being in accordance with the Background Adjunct Coreference Principle, induces a Condition C effect, is on the first sight indistinguishable from the cases where the adjunct clause with the r-expression in focus is merged cyclically and then moved.²² Thus, if one wanted to maintain the idea of two different mergers (the cyclic merger in cases with a Condition C effect and the acyclic merger in cases without a Condition C effect), it would be necessary to eliminate the cases where adjuncts having the r-expression in focus are merged acyclically. This means that the derivation should know already before merger of the adjunct clause which r-expression - if there are more than one - should corefer and know its information-structural status to be able to decide whether the adjunct clause will be merged cyclically (if the r-expression is to be focused) or acyclically (if backgrounded). In addition, in the case of relative clause adjuncts, the derivation should know before merger of the adjunct whether its prospective host is presuppositional or not.

²¹ This reasoning is relevant to relative clause adjuncts. To clausal adverbial adjuncts, it is relevant only under the assumption of derivational c-command because late merger of clausal adverbial adjuncts is taken to merge these adverbials to the same position as cyclic merger. So, in the cases of obviating a Condition C violation, adverbial adjuncts would be merged into a position below the coindexed pronoun after merger of the coindexed pronoun and then preposed. Another option would be to assume that the preposed clausal adverbial adjuncts that do not induce Condition C effects are merged directly to their overt position; see discussion below.

²² Whereas the first case involves just the process of assigning the same semantic value (coreference without binding), the second one also involves binding.

An analogous look-ahead problem would arise if one wanted to ascribe the Condition C effects in the case of the focused r-expression in the adjunct clause to an independent principle and propose that in such cases the adjunct clauses are always merged acyclically.

Given this look-ahead complication and the fact that the first point of view is theoretically more attractive – there is only one type of adjunct merger and consequently, only one type of merger generally, the cyclic one – the first point of view seems to be preferable to the second one.

There is in fact another possible analysis, which is based on the assumption that merger of adjunct clauses is always acyclic. Condition C effects then would have to be ascribed to the (independent) Background Adjunct Coreference Principle. However, there are a few arguments against this analysis and against acyclic merger generally.

The first argument is conceptual. If we prefer only acyclic merger for clausal adjuncts, we again have two types of merger for adjuncts – the cyclic one for non-clausal adjuncts and the acyclic one for clausal adjuncts – which, given the reductionism of Occam’s Razor, undermines this proposal.

Another argument comes from clausal adnominal adjuncts. In section 6.3.2, I demonstrated by example (15b), repeated below as (45), that the r-expression *Pavel* contained in the adjunct clause merged in the non-presuppositional wh-phrase produces a Condition C effect. Since the antecedent *Pavel* is backgrounded in the adjunct clause, the ungrammaticality of this sentence cannot be accounted for just by violation of the Background Adjunct Coreference Principle. However, it is naturally explained if the restriction of the wh-phrase containing *Pavel* reconstructs and hence violates Condition C. Thus, the adjunct clause cannot be merged acyclically.

- (45) ?* Kolik argumentů, které Pavel₁ přednesl, *pro*₁ zuřivě bránil?
 how many arguments which Pavel_{NOM} gave furiously defended

If one holds the loose acyclic merger position, that is, that clausal adjuncts are merged cyclically in the cases where they produce a Condition C effect, the adjunct clause in (45) is merged cyclically and then moved with its host. However, one then needs to account for why cyclic merger with preposing takes place just in cases of non-presuppositional wh-phrases. Why can clausal adjuncts not be merged cyclically in such cases? And the consequent question is how one can ensure that exactly in cases of non-presuppositional wh-phrases adjunct clauses merge cyclically?

Degree questions represent another argument of this type. According to Heycock (1995), degree questions have an interpretation similar to the non-presuppositional interpretations of amount questions, as in example (45). Since the r-expression within the adjunct clause contained in the wh-moved degree predicate shows reconstruction effects, as shown in (46a), taken from Heycock (1995, 564-565), the clausal adjunct cannot be merged acyclically and consequently merger of adjunct clauses cannot be generally acyclic. As shown by (46b), when the adjunct clause occurs within the definite noun phrase, the sentence is grammatical. In the case of the loose acyclic merger approach, one has to again ask why cyclic merger takes place just in the case of the indefinite noun phrase in (46a) and how such a dependency can be placed in the narrow syntax.

- (46) a. * [How afraid of some question Gore₁ hasn't prepared for]₂ do you think he₁ is t₂?
 b. [How afraid of the people Gore₁ insulted years ago]₂ do you think he₁ is t₂ now?

Further support for the cyclic merger analysis can be found if one considers quantifier-bound pronouns. As demonstrated by example (47), *pro* contained in the relative clause adjunct can be bound by the quantifier *každý* 'everybody'. This suggests that there is a lower copy of the *pro* c-commanded by the matrix clause subject.

- (47) Kolik argumentů, které *pro*₁ považoval za dobré, každý₁ přednesl?
 how many arguments which considered good everybody_{NOM} gave
 'How many arguments that he considered to be good did everybody give?'

A potential argument against cyclic merger of clausal adjuncts might be example (22b), for convenience repeated below as (48). Recall that according to Fitzpatrick & Groat's approach (2005), the relative clause adjunct is merged acyclically after wh-movement of *který z jeho argumentů* 'which of his arguments'. Therefore, given the derivational definition of c-command, there is no Condition C effect.

- (48) Který z jeho₁ argumentů, které Pavel₁ považoval za dobré, Marie kritizovala?
 Which of his arguments which Pavel_{NOM} considered good Marie_{NOM} criticised
 'Which of his arguments that Pavel considered to be good did Marie criticise?'

In order to avoid this problem, I analyse the relative clause *které Pavel považoval za dobré* 'that Pavel considered to be good' as an adjunct to *jeho argumentů* 'his arguments'. This means that the relative clause picks out from the modified NP - the set of his arguments - the

ones that Pavel considered good. Then the derivation continues merging it with the preposition *z* ‘of’ and so on. This analysis is supported by the fact that the following example with the demonstrative pronoun *těch* is grammatical, which shows that the pronoun *jeho* is a modifier and does not represent the head D in sentence (48).

- (49) Který z těch jeho₁ argumentů, které Pavel₁ považoval za dobré, Marie
 Which of the his arguments which Pavel_{NOM} considered good Marie_{NOM}
 kritizovala?
 criticised
 ‘Which of his arguments that Pavel considered to be good did Marie criticise?’

To conclude this section, both clausal and non-clausal adjuncts are merged cyclically. Since obviating a Condition C effect by clausal adjuncts embodies an obvious regularity, in the following sections we will look more closely at this issue. I will argue that Condition C effects are not a uniform phenomenon and that there are three different factors in Condition C effects: Condition C itself, the Background Adjunct Coreference Principle and the antilocality requirement on coreference. I will argue that Condition C effects in the case of clausal adjuncts can be attributed to Condition C or the Background Adjunct Coreference Principle and that Condition C effects in the case of non-clausal adjuncts can be attributed to Condition C or the antilocality requirement on coreference.

6.6 Condition C and presuppositionality

We have seen that not reconstructing the phrase containing the adjunct clause is a prerequisite for avoiding a Condition C violation, but I have not said much about how Condition C works. It was illustrated by example (45) and other examples in section 6.3.2 that the presuppositional status of the *wh*-word in the *wh*-phrase containing the adjunct is crucial for avoiding a Condition C effect.

Heycock (1995) argues that the referential status of the noun phrase within *wh*-moved degree predicates to which the relative clause is adjoined is important for Condition C as well. Consider the contrast in example (50), repeated from (46), where (50a) with the relative clause adjoined to the nonspecific indefinite is ungrammatical, whereas (50b), where the relative clause is adjoined to the presuppositional (definite) noun phrase and therefore not reconstructed, is grammatical.

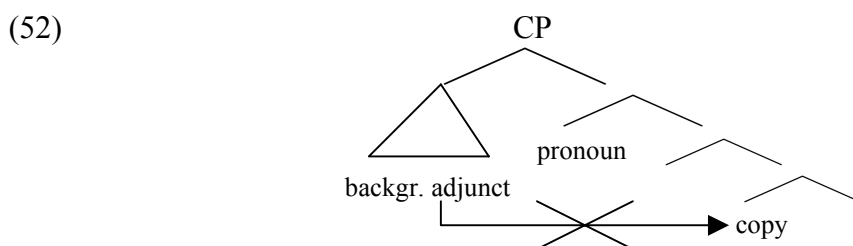
- (50) a. * [How afraid of some question Gore₁ hasn't prepared for]₂ do you think he₁ is t₂?
 b. [How afraid of the people Gore₁ insulted years ago]₂ do you think he₁ is t₂ now?

Recall that I also argued in section 6.3.2 that presupposition triggers, such as certain focus particles, can force the pronoun in the matrix clause and the r-expression in the adjunct to be coreferential.

From the clausal-adjunct data in sections 6.3.2 and 6.3.4, the generalization emerges that for coreference to be possible, the r-expression in its overt position may not be c-commanded by the pronoun. In this respect, Chomsky's proposal (2004) is right in that the place of spellout plays an important role in Condition C. This observation is reminiscent of Lebeaux (1988, 148); consider (51).

- (51) If a, a name, is contained within a fronted adjunct then Condition C effects are abrogated; otherwise not.

Then, the question arises why the overt position is so important. I have already argued that in scrambling languages like Czech, the place of spellout of elements is narrowly associated with their interpretation and information-structural status. A closer look at the grammatical examples with clausal adjuncts in sections 6.3.2 and 6.3.4 reveals - if we abstract away from the wh-examples - that the adjuncts, or the elements containing them, not overtly c-commanded by the pronoun are in fact interpreted in the CP phase, that is, as backgrounded. Since backgrounding implies presuppositionality, the consequence is obvious. The r-expression does not reconstruct into a position below the coindexed pronoun (if there is a copy of the r-expression below the coindexed pronoun) and therefore it does not violate Condition C, as demonstrated in (52).



Thus, the backgrounded or presuppositional status of clausal adjuncts or the elements containing them helps them not to reconstruct and hence not to violate Condition C. More specifically, the antireconstruction behaviour and the backgrounded status of the moved

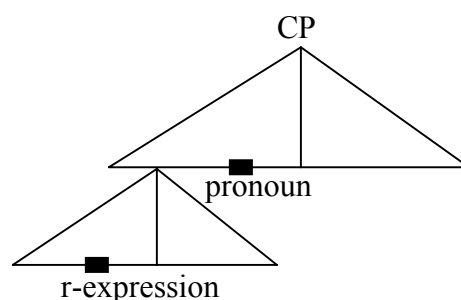
adjunct clause is due to the checking of the μ_{EPP} -feature in the CP phase. If there is no LF level, as Chomsky (2004) proposes, reconstruction (the interpretation of the appropriate copy) takes place at the semantic interface. As already discussed in chapter 2, the presence of the interpretable μ_{EPP} -feature on the appropriate element moved to the CP phase signals that the element must be interpreted in the backgrounded domain and in the restrictive clause at the semantic interface (and spelled out in the CP phase at the phonological interface). This is relevant to Condition C as well as to the Background Adjunct Coreference Principle. To put it differently, the presence of the interpretable μ_{EPP} -feature, for example, on a moved clausal adjunct means that at the semantic interface, the higher copy of the adjunct – that is, the copy in the CP phase of the matrix clause – will be interpreted.

6.7 Background Adjunct Coreference Principle

In the case of clausal adjuncts, one also has to take into account the second factor in Condition C effects. Thus, if the phrase containing the adjunct clause or the adjunct itself is presupposed and the r-expression does not violate Condition C, one has to ask whether the r-expression in the adjunct clause observes the Background Adjunct Coreference Principle, that is, whether the r-expression is spelled out and interpreted in the CP phase of the adjunct clause.

As in the case of the interpretation of the adjunct clause at the semantic interface, it is crucial whether the r-expression checks the appropriate unvalued uninterpretable μ_{EPP} -feature in the CP phase (that is, whether it is topicalized or scrambled), but now it is the CP phase in the adjunct clause. If this is the case, then, given the proposed model, the r-expression is interpreted in the CP phase at the semantic interface, that is, as backgrounded, and consequently coreference is possible. Then the situation with the coreferential r-expression and pronoun – with the adjunct clause interpreted in the CP phase of the matrix clause and the non-c-commanded r-expression interpreted in the CP phase of the adjunct clause – can be schematised as in (53).

(53)



The idea behind the Background Adjunct Coreference Principle is that r-expressions focused in the adjunct clause cannot be coreferential with the matrix clause pronoun because discourse maintains referential continuity; see Reinhart (to appear). This means that only elements whose existence is presupposed – that is, backgrounded elements (in other words, ‘old’ or ‘known’) - are possible antecedents of pronouns.

A question arises what the relation between the Background Adjunct Coreference Principle and Condition C is. According to Junghanns (2002e) and Lenertová (2008), certain left-peripheral adverbial clauses are externally merged to the matrix CP; compare also Iatridou (1991), who argues that at least certain types of clausal adjuncts can be generated in the left periphery. If this is true for sentences (36) and (38a), repeated here as (54a,b), then the contrast between them and the ungrammatical status of sentence (54b) cannot be accounted for by a violation of Condition C, that is, by reconstruction of the r-expression *Pavel* into a copy position c-commanded by the coindexed *pro*.

- (54) a. Než Pavel₁ odjel, *pro*₁ políbil Marii.
 before Pavel_{NOM} left kissed Marie_{ACC}
 ‘Before Pavel left, he kissed Marie.’
 b. * Než odjel Pavel₁, *pro*₁ políbil Marii.
 before left Pavel_{NOM} kissed Marie_{ACC}

As pointed out by Junghanns (2002e) and Lenertová (2008), the CP-external left-peripheral adverbial clauses - in contrast to internal adverbial clauses, which are moved to a lower left-peripheral position from a clause internal position - cannot serve as hosts for clitics. Recall that Czech clitics are of Wackernagel type (second position clitics). The fact that the clitic *se* must be preceded by an additional element in (55a) and cannot directly follow the adjunct clause, as demonstrated by example (55b), shows that the temporal adjunct is merged directly with the matrix CP.

- (55) a. Než Pavel odjel, rozhodl se políbit Marii.
 before Pavel_{NOM} left decided self to kiss Marie_{ACC}
 ‘Before Pavel left, he decided to kiss Marie.’
 b. * Než Pavel odjel, se rozhodl políbit Marii.
 before Pavel_{NOM} left self decided to kiss Marie_{ACC}

Applying this to example (54), there is no position c-commanded by the matrix subject to which the r-expression embedded in the adjunct can reconstruct; therefore the ungrammaticality of sentence (54b) cannot be accounted for by a Condition C violation. This means that the ungrammatical status of (54b) results only from the violation of the Background Adjunct Coreference Principle, which shows that the Background Adjunct Coreference Principle is independent of Condition C. This is in accordance with the claim that coreference - as assigning the same semantic value - and binding are two different linguistic procedures; see, for example, Reinhart (2000, to appear) or Reuland (2001).

In section 6.3.4, I argued that the r-expression in the right-peripheral adjunct clause cannot be coreferential with the pronoun in the matrix clause because *pro* c-commands it, hence Condition C is violated. I showed that if the adjunct clause is preposed, that is, interpreted as backgrounded, the r-expression can corefer with *pro* if it observes the Background Adjunct Coreference Principle. I also showed that the Background Adjunct Coreference Principle holds in cases where the coindexed r-expression is not the subject of the adjunct clause and in cases where the coindexed pronoun is not the subject of the matrix clause. Now the question arises as to what happens if the r-expression occurs in a right-peripheral adjunct clause and the coindexed pronoun occurs in a position not c-commanding the r-expression. Since Condition C and the Background Adjunct Coreference Principle are two independent principles, as I argued above, one expects that the availability of coreference will depend only on the Background Adjunct Coreference Principle when Condition C is not relevant in this case. Let us test this prediction by the following example.

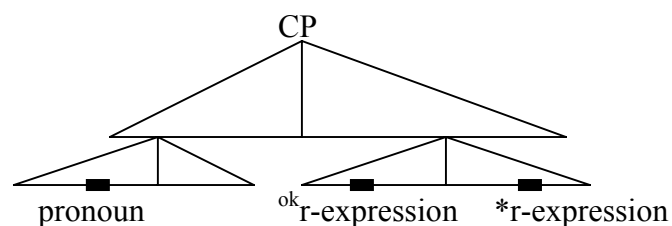
- (56) a. **pro*₁ vzal si Marii poté, co Pavel₁ odešel z práce.
 took self Marie_{ACC} after that Pavel_{NOM} left from job
- b. *pro*₁ vzal si Marii poté, co *pro*₁/Jirka₂ odešel z práce.
 took self Marie_{ACC} after that Jirka_{NOM} left from job
 ‘He married Marie after he/Jirka left his job.’
- c. ? Že si *pro*₁ vzal Marii, bylo ohlášeno poté, co Pavel₁ odešel z práce.
 that self took Marie_{ACC} was announced after that Pavel_{NOM} left from job
 ‘That he had married Marie was announced after Pavel left his job.’
- d. * Že si *pro*₁ vzal Marii, bylo ohlášeno poté, co odešel z práce Pavel₁.
 that self took Marie_{ACC} was announced after that left from job Pavel_{NOM}

Example (56a) is ungrammatical because the adjunct clause is merged within the νP phase and interpreted there at the semantic interface, hence the r-expression is c-commanded by the coindexed pronoun and Condition C is violated. The control sentence (56b) demonstrates that the problem indeed is due to the coindexed r-expression. That the adjunct clause is interpreted in the νP phase of the matrix clause is confirmed by the fact that it is interpreted as focus: (56b) is appropriate in the context *Kdy si vzal Marii?* ‘When did he marry Marie?’ but cannot occur in a context where the adjunct information is already known, for example: *Co bylo poté, co odešel z práce?* ‘What happened after he left his job?’

In the modified sentence (56c), where the adjunct clause is also merged within the νP phase of the matrix clause and interpreted there - the adjunct clause is interpreted as focused and can be construed only as a temporal modifier of the matrix clause *bylo ohlášeno* ‘was announced’ - there is no c-command relation between *pro* in the subject clause and the coindexed r-expression in the adjunct clause. Therefore a Condition C violation cannot arise here and since the r-expression obeys the Background Adjunct Coreference Principle, coreference is possible, as schematised in (57).

As expected, if the r-expression is focused in the adjunct clause (56d), hence the Background Adjunct Coreference Principle is violated, the sentence becomes ungrammatical, as schematised by the starred r-expression in (57). This shows that the structural position of the adjunct clause is not relevant to the Background Adjunct Coreference Principle; it does not play a role whether the adjunct clause occurs (and is interpreted) in the CP phase, as in example (54), or in the νP phase, as in example (56).

(57)



A closer look at example (56c) with the coindexed pronoun in the subject clause also reveals that the Background Adjunct Coreference Principle should be loosened. Specifically, the coreferential pronoun does not have to occur only in the matrix clause. Thus, the final version of the Background Adjunct Coreference Principle is stated in (58).

(58) Background Adjunct Coreference Principle (final version)

Coreference between an r-expression within an adjunct clause and a pronoun in a clause distinct from the adjunct clause is possible only if the r-expression is backgrounded in the adjunct clause.

According to the final version of the Background Adjunct Coreference Principle, the distance between the coindexed pronoun and r-expression should not play a role. This seems to be the case, as illustrated by example (59), where the coindexed pronoun occurs in the complement clause embedded in the subject clause. In example (59a), with the r-expression interpreted as backgrounded, coreference is possible, but in (59b), where the r-expression stays in situ in the *vP* phase and consequently is interpreted as focused, coreference is not possible.

- (59) a. ? *Že pro₂* tvrdila, že si *pro₁* vzal Marii, bylo ohlášeno poté, co
that claimed that self took Marie_{ACC} was announced after that
Pavel₁ odešel z práce.
Pavel_{NOM} left from job
'That she had claimed that he had married Marie was announced after Pavel left his job.'
- b. * *Že pro₂* tvrdila, že si *pro₁* vzal Marii, bylo ohlášeno poté, co
that claimed that self took Marie_{ACC} was announced after that
odešel z práce Pavel₁.
left from job Pavel_{NOM}

Theoretically, some sentences can violate both Condition C and the Background Adjunct Coreference Principle. Take, for example, a focused r-expression within a clausal adjunct contained in a non-presuppositional element that is moved from a position c-commanded by the coindexed pronoun to a non-c-commanded position, as demonstrated by example (60a). It is not a trivial question whether this type of sentence is ruled out by the Background Adjunct Coreference Principle, by Condition C, or by both. However, it seems that the Background Adjunct Coreference Principle is at work in (60a), too, because according to some speakers, example (60a) is worse than example (60b), where the r-expression is backgrounded, hence the Background Adjunct Coreference Principle is not violated.

- (60) a. * Kolik argumentů, které přednesl Pavel₁, *pro₁* zuřivě bránil?
how many arguments which gave Pavel_{NOM} furiously defended

- b. ?* Kolik argumentů, které Pavel₁ přednesl, *pro*₁ zuřivě bránil?
 how many arguments which Pavel_{NOM} gave furiously defended

A question arises whether the Background Adjunct Coreference Principle holds only for adjunct clauses or whether a similar principle can also be used in the case of arguments. The following example shows that arguments behave differently.

- (61) *Že Pavel₁ políbil Marii, *pro*₁ nám říkal včera.
 that Pavel_{NOM} kissed Marie_{ACC} us told yesterday

Although the sentence is an ideal case with respect to the availability of coreference - the r-expression is backgrounded in the complement clause and the clause itself is interpreted as backgrounded (it is moved to the CP phase of the matrix clause) - coreference is not possible. Thus, in contrast to clausal adjuncts, it does not help that the r-expression is separated from the coindexed pronoun by the clausal boundary, and it is still necessary to distinguish between arguments and adjuncts.

Given the selectional difference between arguments and adjuncts, one can propose that reconstruction in the case of arguments, in contrast to adjuncts, is necessary, which has the consequence that Condition C is violated. Since I argue that reconstruction (the place of interpretation) is dependent on semantic properties like presuppositionality and backgrounding of the appropriate elements – which should hold also in the case of arguments - interpretation of more copies is necessary (which is in accordance with the model proposed here, as discussed at the end of section 4.2 and in section 5.7.1; see also Safir (1999) or Sportiche (2005)). Since I am mainly concerned with adjuncts here, I leave this issue open to further research.

6.8 Antilocality requirement on coreference

In this section, I discuss the distinction between clausal and non-clausal adjuncts and try to find out why non-clausal adjuncts always produce a Condition C effect.

I have argued that there is a correlation between the phase structure, tripartite quantificational structure and information structure of the sentence and that this structure can be recursive. A look at figure (53) reveals that r-expressions in clausal adjuncts are one level more deeply embedded in the structure than the coindexed pronoun in the matrix clause, and than r-expressions in non-clausal adjuncts. Thus, it seems that it is the CP phase boundary that makes it possible for r-expressions in clausal adjuncts (if they obey the Background Adjunct

Coreference Principle), in contrast to non-clausal ones, to be coreferential with the coindexed pronoun. Figure (57) then shows that the r-expression observing the Background Adjunct Coreference Principle is two clausal boundaries away from the coindexed pronoun and example (59a) shows that the r-expression is even three clausal boundaries away from the coindexed pronoun. Therefore it is not surprising that both cases are grammatical with the given coindexation.

Thus, there is an antilocality phenomenon in coreference issues; compare the discussion about the depth of embedding of the relevant antecedent in van Riemsdijk & Williams (1981), Speas (1990), Huang (1993). Under the assumption that coreference is established by accessing the discourse storage at the semantic interface (Reinhart 2000, to appear; Reuland 2001; Partee 2004) so that the appropriate pronoun receives a value from the discourse storage, I propose that the too local elements – in the case under discussion, the r-expressions contained in non-clausal adjuncts in Czech – are not established enough in the discourse storage to serve as possible antecedents for the coindexed pronoun.

Since derivations are sent to interfaces phase by phase, the discourse storage can also be filled in a phase-by-phase fashion. Consequently, one might expect that it is a phase boundary that makes the r-expression established enough for the pronoun at the semantic interface. However, example (62) with a ν P-phase boundary between the r-expression and the coindexed pronoun demonstrates that this idea of phase-based coreference does not work. Note that since there is no c-command relation between the coindexed pronoun and r-expression, the ungrammaticality of example (62) cannot be due to a violation of Condition C. This shows that the boundary relevant to the coreferential locality is the CP phase, and not generally every phase.

- (62) * Jana a jeho_I sestra přečetli včera knížku z Pavlovy_I police.
 Jana_{FEM.NOM} and his sister_{NOM} read yesterday book_{ACC} from Pavel's shelf

Speas (1990, 50-52), building on Lebeaux (1988), argues against the embedding analysis, using sentences like (63a,b), where the r-expression is embedded equally. She argues that there is a distinction between ‘theta-marked adjuncts’, which are VP-internal and must be present at D-structure, and ‘non-theta-marked adjuncts’, which are VP-external and are not present at D-structure. Since the locative adjunct in (63b), her example (59b), is a theta-marked adjunct, it produces a Condition C violation. In contrast, the adjunct denoting

temporal location in (63a), her example (59a), is not theta-marked, hence does not violate Condition C.

- (63) a. In Ben₁'s office, he₁ is an absolute dictator.
 b. * In Ben₁'s office, he₁ lay on his desk.

As demonstrated by the following example though, no such distinction is found in the Czech equivalents. Both types of non-clausal adjuncts make the sentence ungrammatical, as expected when no clausal boundary is present between the r-expression and the coindexed pronoun.

- (64) a. * V Benově₁ kanceláři *pro*₁ je absolutní diktátor.
 in Ben's office is absolute dictator
 b. * V Benově₁ kanceláři *pro*₁ ležel na stole.
 in Ben's office lay on desk

In what follows I show that it is not just the depth of embedding of the syntactic structure that is crucial for the coreferential locality with non-clausal adjuncts. This is demonstrated by the ungrammatical sentence (65), with the r-expression embedded in a number of PPs.

This example also shows that the impossibility of coreference is not due to the precedence relation between the coindexed pronoun and r-expression, as one might think looking, for example, at example (62). And if PPs are phases, then example (65) also argues against phase-based coreference, as discussed in connection with example (62), and shows that it is only the CP phase that is relevant to the coreferential locality. The same holds true for DPs if DPs are phases, as sometimes proposed, see, for example, Chomsky (2007). Note that the r-expression is embedded in a number of DPs in (65).²³

- (65) * Kterou knížku na polici u stolu vedle Pavlovy₁ postele *pro*₁ přečetl?
 which book_{ACC} on shelf near table next to Pavel's bed read

Here, I will argue that it is generally the CP boundary that is relevant to the availability of coreference and not the type of the adjunct immediately containing the r-expression itself. In the example below, both the clausal (66a) and non-clausal (66b) adjuncts are adjoined to the same host; hence the different behaviour of clausal and non-clausal adjuncts has nothing to do

with the host. And as expected, the clausal adjunct containing the backgrounded r-expression does not produce a Condition C effect, but the non-clausal adjunct does. If it were the case that the type of the adjunct itself is the decisive factor in the availability of coreference, then one would expect the non-clausal adjunct immediately containing the r-expression to always produce a Condition C effect. However, this is not the case, as illustrated by the grammatical sentence (66c), where the non-clausal adjunct immediately containing the r-expression is embedded in the adjunct clause. Thus, the r-expression must be contained in a CP and it does not play a role where exactly the CP boundary excluding the coindexed pronoun lies.

- (66) a. Tu knížku, kterou má Pavel₁ na polici, *pro*₁ nemá rád.
the book_{ACC} which has Pavel_{NOM} on shelf neg.likes
‘The book that Pavel has on his shelf, he does not like.’
- b. * Tu knížku na Pavlově₁ polici *pro*₁ nemá rád.
the book_{ACC} on Pavel’s shelf neg.likes
- c. Tu knížku, kterou na Pavlově₁ polici viděli všichni, *pro*₁ nemá rád.
the book_{ACC} which on Pavel’s shelf saw all neg.likes
‘The book that everyone saw on Pavel’s shelf, he does not like.’

At this point, we have two factors that can induce Condition C effects in the case of non-clausal adjuncts: Condition C itself and the antilocality requirement on coreference. As in the case of clausal adjuncts, one would like to know more about the relation between them. According to Huang (1993, 106), in English, non-clausal adjuncts can avoid a Condition C violation, as shown by example (67).

- (67) Which pictures near John₁ does he₁ like most t?

However, its Czech counterpart is ungrammatical, as demonstrated by the following example.

- (68) * Které obrázky vedle Johna₁ *pro*₁ miluje nejvíc t?
which pictures_{ACC} near John likes most

If one wants to maintain the idea that there is only one type of merger - the cyclic one - and that languages do not differ in this respect, then one can conclude that the Czech example does not violate Condition C but rather the antilocality requirement on coreference. Recall

²³ I stay here agnostic on the question of whether or not DPs and PPs are phases.

also that there are examples with a non-clausal adjunct such as (62) where the ungrammaticality indeed cannot be due to the violation of Condition C. This means that Czech non-clausal adjuncts containing an r-expression, too, can avoid a Condition C violation, but given the organisation of the grammar system (concretely, given the coreference principles), the pronoun cannot be coreferential with the coindexed r-expression, that is, it cannot get the same semantic value at the semantic interface. It seems that coreference possibilities can be parameterised more easily than binding principles or merger possibilities. Therefore, I conclude that the difference between Czech and English lies in coreference possibilities – concretely in the Czech antilocality requirement on coreference, which requires the coindexed r-expression to be embedded in a CP - rather than in binding principles or in timing of adjunct merger. Then, the three factors in Condition C effects and their relevance are summarised in the following table.

(69)

Factors relevant to Condition C effects	relevant to	
	r-expression in clausal adjunct	r-expression in non-clausal adjunct
Condition C	√	√
Background Adjunct Coreference Principle	√	
Antilocality requirement on coreference		√

Now, the question arises where exactly Condition C itself applies. We have seen that Condition C – concretely, reconstruction - is sensitive to interpretation, similarly as is coreference (assigning the same semantic value). More specifically, it is sensitive to the information-structural and presuppositional properties of adjuncts or elements containing them. Then it is obvious that Condition C cannot apply prior to the semantic interface. And we have seen that it holds for adjuncts or elements containing them appearing in the CP phase of the matrix clause. Hence, it seems that Condition C must be able to wait until the semantic interface of the highest phase in the sentence.

In certain cases, Condition C can span a derivation across several phases. Consider the example below with the adnominal adjunct spelled-out in the lowest vP phase and the pronoun present in the highest CP phase in the sentence. This goes against the claim (Chomsky 2000 et seq.) that once information has been spelled out, it cannot be accessed in

further computation. For further arguments that the derivation cannot completely forget the preceding phases see Cecchetto (2004), Marušić (2005), von Stechow (2005), Boeckx & Grohmann (2007) and Biskup (to appear b).

- (70) **pro*₁ *myslel*, že Pavel říkal, že Honza četl knížku
 thought that Pavel_{NOM} said that Honza_{NOM} read book_{ACC}
 z Petrovy₁ police.
 from Petr's shelf

Another adjunct argument against forgotten phases comes from the coreference behaviour of r-expressions contained in clausal adjuncts. I have shown that they can be coreferential with the matrix clause pronoun only if they are interpreted as backgrounded, that is, moved to the CP phase of the adjunct clause checking the μ_{EPP} -feature. Thus, when the CP phase of the matrix clause is sent to the semantic interface and the coindexed pronoun is interpreted, the piece of information about the appropriate r-expression - whether it has checked the relevant feature in the CP phase of the adjunct clause - must still be accessible.

The next argument comes from example (56c), repeated here as (71).

- (71) ?Že si *pro*₁ vzal Marii, bylo ohlášeno poté, co Pavel₁ odešel z práce.
 that self took Marie_{ACC} was announced after that Pavel_{NOM} left from job
 ‘That he had married Marie was announced after Pavel left his job.’

The example shows that *pro* contained in the subject clause, which was moved to its overt subject position from the verbal object position, can be coreferential with the r-expression within the adjunct clause. A closer look at the example reveals that at the time when the subject clause CP phase with the pronoun is sent to the semantic interface, it probably has no relation to the adjunct clause, which possibly has not been derived yet. This means that the interpretation of the pronoun has to wait for the relevant r-expression and the phase with the piece of information about the uninterpreted pronoun cannot be forgotten. If the piece of information about the uninterpreted pronoun could be forgotten, then it would not be clear why in cases like this the pronoun is not disjoint in reference from elements in other phases. To conclude this discussion, Condition C also applies at the semantic interface, similarly as coreference (assigning the same semantic value), and its applications must be able to wait until the semantic interface of the highest phase in the sentence.

6.9 Conclusion

In this chapter, I have shown that clausal and non-clausal adjuncts behave differently with respect to coreference and Condition C. I have argued that the adjunct data can be accounted for without recourse to the special status of adjunct merger or to acyclic merger of adjuncts. The generalization emerging from the data is that only r-expressions in clausal adjuncts can be coreferential with the coindexed pronoun in a clause distinct from the adjunct clause. I have accounted for the difference between clausal and non-clausal adjuncts in terms of the model proposed in this dissertation, where the phase structure is correlated with the tripartite quantificational structure and information structure of the sentence and the correlated structure can be recursive. R-expressions in clausal adjuncts can corefer, for example, with the coindexed pronoun in the matrix clause because they are embedded in this structure one level deeper than the relevant pronoun. In contrast, r-expressions in non-clausal adjuncts are not separated from the coindexed pronoun by a CP boundary, therefore given the antilocality requirement on coreference, they cannot corefer with the coindexed pronoun. I have also argued that for coreference to be possible, the r-expressions in clausal adjuncts must observe the proposed Background Adjunct Coreference Principle; which means that they have to be spelled out and interpreted in the CP phase of the adjunct clause.

Chapter 7

Conclusions

In chapter 2, I proposed a minimalist model where the phase structure is correlated with the tripartite quantificational structure and information structure of the sentence. At the semantic interface, the ν P phase is interpreted as the nuclear scope of the quantificational structure and as the domain of information focus. The CP phase is interpreted as the restrictive clause and the domain of background.

The backgrounded and specific/definite interpretation of an argument arises in the case of overt movement. I argued that scrambled (object-shifted) elements do not stay at the edge of ν P and that they move to a position in the CP phase. When the CP phase is transferred to the interfaces, the upper copy is both spelled out and interpreted there. The focused and specific/definite interpretation of an argument arises when it is QR-ed. In that case, the upper copy is interpreted in the restrictive clause at the semantic interface and the lower copy is spelled out and interpreted as focused. The focused and existential interpretation of an argument arises when the variable it introduces is bound in ν P by the existential closure. In this case, the argument is both spelled out and interpreted in the ν P phase.

Then, I proposed the Phase Featuring principle that determines the presence of intermediate features on phase heads. Thus, the first step of object shift is driven by the intermediate feature added onto ν by the Phase Featuring principle. This proposal is able to derive not only object shift, but also scrambling of other elements and also long successive-cyclic movement.

In chapter 3, I discussed the dependency between the position of the nominative subject and the position of the finite verb. I analysed this dependency in terms of Pesetsky & Torrego's (2001, 2004, 2007) unification of nominative case on DP and agreement on the

head T and proposed that the head T bears the EPP_T -feature that must be checked either by movement of the nominative subject or by movement of the finite verb.

I also argued that verb movement is not a phonological operation because it has effects on interpretation. In certain cases, verb movement brings about the presuppositional interpretation of the event expressed by the verb because the verb is interpreted in the CP phase at the semantic interface.

I also discussed architecture of the CP phase and proposed that the head Mood bears the EPP-feature that can move the closest XP to SpecMoodP. In contrast to scrambling, this movement is formal because it does not affect interpretation. I further showed that Czech has long- and short-distance topicalization, which moves overtly an XP to SpecCP and behaves like scrambling with respect to the interpretational effects. The topicalized element is interpreted in the domain of restrictive clause and background at the semantic interface.

Chapter 4 dealt with adverbials in the νP phase. I argued that adverbials generally can be merged in the νP phase. This was demonstrated with various types of adverbials, from ‘low’ adverbials like manner adverbials to ‘high’ adverbials like modal sentence adverbials. I also argued that under the right circumstances adverbials can occur in the sentence-final position in νP and that it depends on lexicosemantic properties of the adverbial and on properties of the appropriate sentence whether or not the adverbial can be interpreted there.

Thus, the ungrammaticality of the sentence containing an adverbial in the sentence-final position in νP is not due to purely syntactic factors, but due to the uninterpretability of the adverbial in that position. I argued that the ungrammaticality of certain sentence adverbials in the sentence-final position in the νP phase is due to the fact that they do not represent the extreme value with respect to the set of focus alternatives.

In chapter 5, I discussed the adverbial hierarchy. I argued that the adverbial hierarchy results from different factors and that the factors are often semantic in nature and are orthogonal to narrow syntax. I showed that the adverbial ordering is determined not only by lexicosemantic properties of particular adverbials and their scope relations but also by lexicosemantic properties of other elements in the sentence and by the event-structural properties of the sentence.

In more detail, I investigated relative orders of adverbials occurring in different functional hierarchies in a complex sentence and the relative orders of stacked and non-stacked adverbials of the same class. I proposed that the ordering of adverbials of the same class is driven by the Superset Principle. I also examined stacked and non-stacked adverbials

expressing an interval and proposed that their relative orders are determined by the Principle of Natural Evolution of Intervals.

Furthermore, I showed that adverbials can be scrambled and topicalized and that they can undergo both short and long movement. I argued that the phase structure is an important factor in adverbial movement and ordering. The relative order of certain adverbials can be reversed if the adverbials occur in different phases.

In chapter 6, I investigated various types of adjuncts with respect to anaphoric relations and showed that clausal and non-clausal adjuncts behave differently with respect to coreference and Condition C. Only r-expressions in clausal adjuncts can be coreferential with the coindexed pronoun in a clause distinct from the adjunct clause.

The difference between clausal and non-clausal adjuncts was accounted for in terms of the recursive correlation between phase structure, the tripartite quantificational structure and information structure. R-expressions in clausal adjuncts, in contrast to r-expressions in non-clausal adjuncts, can corefer with the coindexed pronoun because they are sufficiently distant from the coindexed pronoun. I also argued that for coreference to be possible, the r-expressions in clausal adjuncts must observe the proposed Background Adjunct Coreference Principle. This means that they have to be spelled out and interpreted in the CP phase of the adjunct clause.

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