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**THE DEVELOPMENT OF CZECH ASPECTUAL PREFIXES
THROUGH GRAMMATICALIZATION
AND LEXICALIZATION PROCESSES**

by

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B.A. IN LINGUISTICS

THESIS

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ABSTRACT

This master's thesis investigates the development of aspectual prefixes in Czech. The analysis in this work incorporates diachronic and synchronic perspectives and presents a theory about the path of development of aspectual prefixes in the framework of construction grammar. It draws from a central notion that grammar emerges from discourse and argues that the development of aspectual prefixes in Czech was fundamentally based in language use and processing. The synchronic layering of prefixed predicates in Czech provides evidence that the development of aspectual prefixes progressed gradually and suggests that grammaticalization and lexicalization processes took place.

The analysis in this study is based on the assumption that major stages of development are attested in the synchronic layering of aspectual prefixes. Synchronic layering is transparent in semantically distinct types of prefixed predicate constructions. The semantic analysis of aspectual prefixes suggests that prefixed predicates can be categorized in relation to their characteristic stages of development. The semantic classification of prefixed predicates with prefixes *za-*,

na-, *po-*, and *do-* defines six predicate types and studies their distributional properties in order to identify distinct developmental stages of aspectual prefixes in the Czech National Corpus.

The semantic and distributional properties of predicate types present evidence that aspectual prefixes developed unidirectionally through grammaticalization and lexicalization processes. This thesis illustrates the general path of development and maps each aspectual prefix that was analyzed onto this path. It concludes that aspectual prefixes in Czech developed along the same path; however, they reflect distinct stages of development.

The semantic classification of predicate types is supported by a phonological analysis of vowel durations in aspectual prefixes. The phonological analysis establishes that speakers of Czech have distinct mental representations of vowels in aspectual prefixes that directly relate to the grammaticalization and lexicalization processes hypothesized to have taken place.

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1 Introduction

This thesis investigates the role of grammaticalization and lexicalization processes in the development of aspectual prefixes in Czech. The main objective is to explore the path of development of Czech aspectual prefixes as grammatical markers of perfectivity. This study examines the semantic properties of prefixed predicates with aspectual prefixes za-, *po-*, *na-*, and *do-* and proposes that Czech aspectual prefixes developed along a general path. It presents synchronic evidence that aspectual prefixes exhibit different stages of development in the system based on their semantic variation in predicate types. The hypothesis of grammaticalization and lexicalization is supported synchronically from in-depth semantic analyses of aspectual prefixes and further reinforced by phonological analyses of aspectual prefixes.

The first chapter explains the theoretical background supporting the main hypothesis of the path of grammaticalization and lexicalization of aspectual prefixes. It gives an overview of the cognitive approach, construction grammar, and the theory of grammaticalization.

1.1 Theoretical Background

A cognitive linguistic methodology presents language use as strictly experience-based and thus views grammars as dynamic systems with emergent semantic and syntactic linguistic structures. My study is influenced by the concepts developed in the field of cognitive linguistics (Lakoff 1987, Langacker 2008, Croft and Cruse 2004). This emergent knowledge of language from language use is amply described in Croft and

Cruse (2004). In their words, "categories and structures in semantics, syntax, and morphology and phonology are built up from our cognition of specific utterances on specific occasions of use" (Croft and Cruse 2004: 3). This approach to conceiving language as a complex dynamic system highlights the importance of our cognitive abilities, especially our memory and perception. Furthermore, it builds upon the basic human cognitive ability to create prototypes (Rosch 1973, Langacker 1987, Lakoff 1987) and to categorize our experiences in terms of these prototypes. Assuming that our cognition stores prototypes of different categories and structures, it follows that such categorization is also applied to complex syntactic units. This supposition led cognitive linguists to understand that "memory and language storage function in terms of larger formulas rather than in terms of words or phrases" (Fried and Ostman 2004:17, cf. Fillmore 1982, Lakoff 1987, Chafe 1994). Thus, languages make use of constructions, which "display prototype structure and form networks of associations" (Goldberg 1995:5). The notion of complex syntactic unit storage and its processing in language use is the cornerstone of construction grammar.

As a theoretical framework that accounts for the dynamicity of language use, construction grammar allows for a novel approach to the study of Czech perfective constructions and their diachronic development. The analysis presented here draws from the central notion that grammar emerges from discourse (Bybee 2006:711, 1999:578) and that constructions revolve around prototype structures. A central premise to the hypothesis of my project is that constructions are a product of recurrent meaning-form patterns that are "conventionalized" (Croft 2001:19) and, as "basic units of syntactic

representations," (Croft 2001: 46, Fried and Ostman 2004:12) can undergo processes of grammaticalization and lexicalization.

1.1.1   Construction Grammar

There are many approaches to construction grammar and its application to the analysis of language processing; however, the aim here is to summarize the most important concepts that are essential to understanding the hypothesis presented in this thesis. Incorporating the theory of construction grammar brings a different perspective to the study of aspectual prefixes and their path of development.

A family of approaches to construction grammar (Goldberg 1995, Croft 2001, Fried and Ostman 2004) has developed in recent years based on Fillmore et al.'s (1988) claims that there is no strict division between the lexicon and syntax. Goldberg (1995) argues that "both lexical and syntactic constructions are essentially the same type of declaratively represented data structure: both pair form and meaning" (Goldberg 1995: 7). The basic notion that constructions are pairings of meaning and form permeates the central hypothesis of this study. The present analysis of diachronic processes and synchronic patterns of aspectual prefixes is based on the notion that our knowledge of language is dependent on larger syntactic units, which are organized in networks of associations based on their functions. The following sections on the development of aspectual prefixes demonstrate that, "each construction is simply an instance of the more schematic construction(s) in the chain" (Croft 2001:25, cf. Langacker 2008). The implication is that "constructions are organized in complex hierarchical networks with

inheritance, polysemy, and synonymy relations" (Bergs and Diewald 2008: 1, cf. Croft 2001: 27).

This study employs concepts from construction grammar to present a hypothesis about the development of aspectual prefixes in Czech. It analyzes synchronic patterns of Prefixed Perfective constructions (i.e. constructions encompassing predicates with perfective prefixes) as belonging to complex hierarchical networks and hypothesizes their diachronic development in relation to a more schematic construction. The theoretical framework in this thesis assumes that any instantiation of a construction is categorized and stored in our memory as part of a network. The constructional approach asserts that the process of creating a network of constructions involves abstracting away the idiosyncracies of lexical items in constructions and storing the relation between meaning and form as symbolic (Croft 2001:18). Croft explains the relation between the syntactic and semantic structure and the relation between the symbolic relations between meaning and form graphically in a construction *Heather sings* as follows (Croft 2001: 20-21, Figure 1.5 and 1.6 combined):
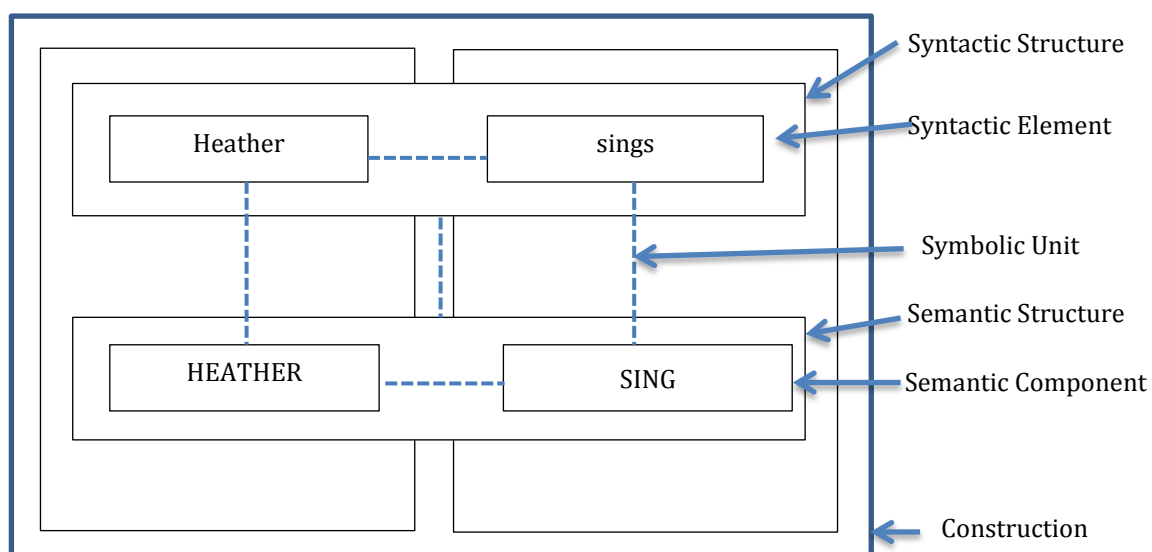
Figure 1.1 Construction grammar representation of the relation between the syntactic and semantic structure and the symbolic relation between syntactic elements and semantic components in a symbolic unit.

Figure 1.1 illustrates that constructions consist of pairings of form and meaning. Croft (2001:19) explains that "the term 'meaning' is intended to represent all of the CONVENTIONALIZED aspects of a construction's function, which may include not only properties of the situation described by the utterance but also properties of the discourse in which the utterance is found." Construction grammar argues that the symbolic pairing between meaning and form is internal to the construction. This symbolic link is exemplified by a dotted line between the syntactic and semantic structure in Figure 1.1. Construction grammar also argues for a symbolic link between individual syntactic elements and the semantic components. This relation is also illustrated by dotted lines in Figure 1.1. Thus, constructions represent complex structures that consist of symbolic relations between form and meaning. The essential relation between the symbolic units of constructions serves as the platform for the present hypothesis of the diachronic development of aspectual prefixes in Prefixed Perfective constructions. This study asserts that grammaticalization processes in Prefixed Perfective constructions took place due to the symbolic meaning and form pairing that yielded pragmatic inferences on the semantic role of aspectual prefixes.

From the view of construction grammar, Prefixed Perfective constructions in Czech represent complex networks of symbolic units, which all share similarities across aspectual prefixes and collectively belong to a more schematic Perfective construction. By invoking constructional properties as a cause in the development of aspectual prefixes, this study attempts to define the grammatical patterning of Prefixed Perfectives in terms of belonging to constructions rather than studying aspectual prefixes as isolated grammatical morphemes. It hypothesizes the symbolic relation between the syntactic and

the semantic structures in frequently occurring constructions with prefixed predicates and argues that the symbolic relations between the semantic and syntactic structures yielded a pragmatic inference on the semantic role of prefixes to signal a perfective aspect.

The symbolic nature of language processing and storage of linguistic structures brings new understanding to the underlying structures in language change. Prominent studies by Bybee et al. (1994), Fried (2008), Croft (2001), Hopper and Traugott (2003), Himmelmann (2004), Bergs and Diewald (ed.) (2008) investigate in detail the role of constructions in language change. The central claim of these studies is that "grammaticalization of lexical item takes place within particular constructions and further that grammaticalization is the creation of new constructions" (Bybee 2003:146). The mechanism that yields the process of grammaticalization of linguistic units has been identified in many cognitive studies as a result of frequency and repetition (Haiman 1994:13; Bybee and Hopper 2001:2, Bybee 2003: 146). Bybee and Hopper (2001) explain their understanding of the emergence of grammar in a usage-based approach in the following quote:

> The fixing of all kinds as recognizably structural units (word and phrase units) is an ongoing process; it is the result at any point in time of the "constant resystematization" of language (Coseriu 1954). From this perspective, mental representations are seen as provisional and temporary states of affairs that are sensitive, and constantly adapting themselves, to usage. "Grammar" itself and associated theoretical postulates like "syntax" and "phonology" have no autonomous existence beyond local storage and real-time processing (Hopper 1987; Bybee, this volume). The notion of language as a monolithic system has had to give way to that of a language as a massive collection of heterogeneous *constructions,* each with affinities to different contexts and constant structural adaptation to usage (Langacker 1987)… It follows that accounts of grammatical (and phonological) structure must take note of how frequency and repetition affect, and ultimately, bring about form in language (2001:2).

Understanding grammar as dynamic and emergent in the context of constructions that are 'constantly adapting' to usage in discourse reveals much about the process of

grammaticalization and language change. This conception of language as a usage-based framework postulates the importance of frequency on the entrenchment of constructions and the effect of recurrence of syntactic patterns on language storage (Langacker 2008).

1.1.2 Frequency and Entrenchment of Linguistic Structures

Frequency and the degree of entrenchment have a central status in language change and grammaticalization (Bybee and Thompson 1997:378). Highly entrenched schematic constructions are easier to access and produce in frequent semantic and pragmatic contexts and become conventionalized. Bybee and Hopper (2001:16) assert "frequency of use may make access of larger units easier." High frequency of use leads to generalizations of semantic properties of constructions and, consequently, affects the functional, grammatical, and phonological properties of highly entrenched constructions (Bybee et al. 1994:5). Studies on frequency and language change have demonstrated that processes of grammaticalization closely correlate with higher frequency of usage (Bybee et al. 1994: 8, Traugott and Trousdale 2010: 36). Entrenched schemas of constructions are generalized and their function is conventionalized in certain contexts, thus yielding new, more generalized, uses in other contexts and expanding the role of all, or at least some, of their symbolic units to take on a new grammatical function.

This thesis presents evidence that the development of aspectual prefixes includes complex grammaticalization and lexicalization processes. It demonstrates the significance of diachronic processes on the synchronic distribution of prefixed predicates in Czech. This thesis argues that Prefixed Perfective constructions developed as a result of grammaticalization processes of Path Prefixes, i.e. prefixes that encode a Path segment in complex predicate constructions. The path of grammaticalization of Prefixed

Perfective constructions will be discussed in detail in Chapter 2. The following section discusses the theory of grammaticalization and identifies the chief mechanisms that lead to grammaticalization processes. Specifically, the upcoming discussion will focus on information that pertains to the path of grammaticalization of aspectual prefixes in Czech.

1.1.3   Theory of Grammaticalization

The theory of grammaticalization provides a framework for understanding language change and the emergence of grammar in languages. Influential studies that have been in the forefront of this theory include Hopper and Traugott (1993), Bybee et al. (1994), and Pagliuca (ed.) (1994). The theory of grammaticalization of lexical constructions has been used in many diachronic studies on language change and have shown that the basic mechanisms leading to grammaticalization are cognitive processes, which are not restricted to any language in particular (Bybee 2003:145). Processes involved in grammaticalization happen gradually and "proceed by minimal steps" (Traugott 2003:626). As such, grammaticalization introduces a slow shift from lexical to grammatical items in highly entrenched linguistic constructions.

Bybee (2003:146) introduces the process of grammaticalization of the English construction 'going to' which was initially used to describe movement. The synchronic analysis of the semantics of this construction yields three distinct uses: movement, intention, and future. Bybee hypothesizes that the gradualness of grammaticalization processes allows for all three constructional meanings to be in use synchronically. Bybee (2003) goes on to elaborate on the gradual development of grammaticalized constructions in general. She claims that "in any language we look at, we find old constructions that are near the end of such a path, as well as new constructions that are just beginning their

evolution and constructions midway along" (Bybee 2003:149). 'Synchronic layering', as Hopper and Traugott (1993:94, cf. Traugott and Dasher 2002) refer to this process, reflects the gradualness of grammaticalization processes that result in multiple stages of development occurring in languages synchronically. They explain that "the persistence of older forms alongside newer forms and meanings, whether derived by divergence from the same source or by renewal from different sources, leads to an effect that can be called 'layering' or 'variability' at any one synchronic moment in time" (Hopper and Traugott 2003: 124). This thesis presents evidence that layering in grammaticalization processes in Czech prefixes contributed to the considerable synchronic diversity in the domain of perfective aspect.

1.1.3.1   *Unidirectionality of Grammaticalization*

Studies on grammaticalization of constructions have come to the conclusion that language change is unidirectional. As Hopper and Traugott (1993:94) explain, "once grammaticalization has set in, there are certain likely paths along which it proceeds." Cross-linguistic studies have noted that a frequent path of grammaticalization involves "the creation of grammatical material as evolution of substance from the more specific to the more general and abstract" (Bybee et al. 1994:13). This path is assumed to be unidirectional in that grammaticalization processes usually proceed along the path from more specific to more general units. Bybee et al. (1994:13) assert that unidirectionality in grammaticalization is also transparent in the phonological changes that affect more grammaticalized forms (Bybee et al. 1994:13). The notion of unidirectionality is essential in studies on the diachronic development of forms that are synchronically attested in languages (Haspelmath 2004:22). The implications of unidirectionality in diachronic

processes may serve as a clue to understanding 'synchronic layering' in the context of grammaticalization and the development of a particular grammatical morpheme.

My study analyzes the semantics of aspectual prefixes and their development as grammatical morphemes. It makes use of unidirectional processes of grammaticalization and draws evidence from semantic and phonological changes. The following sections discuss each mechanism of grammatical change separately in order to establish the background for the semantic and phonological analysis in this paper.

1.1.3.2 *Semantic and Pragmatic Changes*

Semantic change is a motivating mechanism that may lead to grammaticalization of constructions. Many usage-based studies in grammaticalization have identified the role of speaker and hearer and the transmission of information as a main factor leading to semantic change. Hopper and Traugott (1993) offer a nice summary to information transfer between speakers and hearers:

> …hearers play a major role in change because they process input in ways that may not match the speaker's intentions. But speakers also play a major role in enabling change, because in producing speech they have communication as their goal, and therefore are always in search of ways to guide the hearer in interpretation (1993:64).

The view that language is a communicative tool and that speakers and hearers use this tool in order to negotiate meaning reveals its significance in early stages of grammaticalization in which semantic-pragmatic processes are prominent (Traugott 1988:407). In terms of the constructional approach used in the present work, semantic-pragmatic processes will be discussed in so far as they pertain to particular grammatical constructions. In other words, the constructional analysis discussed below will take into

account the pragmatics of inferences in language use as well as cognitive processes in grammaticalization.

1.1.3.2.1 Pragmatic Inferencing

Pragmatic inferencing has been described as a universal mechanism in semantic reanalysis. Eckardt (2001:62) postulates that "the universality of pragmatic inferencing will allow us to draw the plausible links between literal contents and implicatures/entailments." The concept of inferencing has been widely recognized in the literature on grammaticalization. Hopper and Traugott (1993:75) explain that inferencing is only relevant in structures that frequently occur in discourse. Bybee (2003:156) confirms that "when the same pattern of inferences occurs frequently with a particular grammatical construction, those inferences can become part of the meaning of the construction." This thesis argues that patterns of inferences are invited in frequently occurring constructions that offer multiple implications. Thus, concrete meanings may become reanalyzed as abstract and consequently grammatical in specific, frequently occurring constructions.

The diachronic analyses of the development of Prefixed Perfective Constructions makes use of cognitive processes and pragmatics, namely inferencing (Bybee 2003) and semantic reanalysis or "reanalysis of the process of semantic composition" (Eckardt 2001: 58). The later processes of grammaticalization of aspectual prefixes will be discussed in terms of semantic generalization, also referred to as *bleaching* of lexical content (Sweetser 1988:389; Bybee 2003:157) in section 2.3.2.3.

1.1.3.3   Phonological Reduction

Semantic changes are accompanied by phonological changes. Phonological changes may affect lexical units within a construction or a construction as a whole. Bybee et al. (1994:6) state that "with the loss of stress or independent tone that accompanies the loss of lexical status, the consonants and vowels of grams [grammatical units] undergo reduction processes, which often result in the reduction or loss of segmental material and a reduction in the length of the gram." Although semantic changes appear to trigger the process of grammaticalization, the subsequent stages of grammaticalization show that morphosyntactic, phonological, and semantic changes occur parallel to each other. Moreover, phonological changes may be context-specific and only occur in constructions that are in the process of grammaticalization. The reduction of lexical and phonological content results in the grammatical unit being more dependent on the construction and the context in which the construction occurs.

Chapter 4 discusses the relation between grammaticalization and lexicalization processes and phonological changes in the development of aspectual prefixes in Czech. It confirms that phonological reduction is directly related to the loss of lexical content of aspectual prefixes and correlates with increased frequency of highly grammaticalized forms in discourse. Drawing a parallel between semantic and phonological changes in the development of aspectual prefixes in Czech presents evidence that the synchronic layering of Prefixed Perfective constructions is a result of grammaticalization and lexicalization processes. It offers a novel perspective to the study of Slavic aspect in general.

1.1.4   Lexicalization and Language Change

Lexicalization is a type of language change. It can be broadly defined as a process that leads to the adoption of items into the lexicon (Brinton and Traugott 2005:96). Understanding lexicalization processes guides the diachronic and synchronic analysis of aspectual prefixes in Czech. Lexicalization is identified as a major process in the development of aspectual prefixes. This thesis identifies lexicalization processes as distinct from grammaticalization processes. It builds assumptions about lexicalization processes in aspectual prefixes based on Brinton and Traugott's (2005) definition of lexicalization:

> Lexicalization is the change whereby in certain linguistic contexts speakers use a syntactic construction or word formation as a new contentful form with formal AND semantic properties that are not completely derivable or predictable from the constituents of the construction or the word formation pattern. Over time there may be further loss of internal constituency and the item may become more lexical. (Brinton & Traugott 2005:96)

Taking Brinton and Traugott's (2005) approach to lexicalization and identifying lexicalization processes in a constructional framework implies that predicates with aspectual prefixes reflect the following semantic characteristics in later stages of their development: highly entrenched prefixed predicates show new contentful semantic properties; new semantic properties may not be completely derivable or predictable from the meaning of the prefix or the base predicate; the synchronic layering of aspectual prefixes reflects the gradience of lexicalization processes by providing examples of predicates that demonstrate advanced stages of lexicalization, i.e. stages of further loss of internal constituency.

Internal constituency of Prefixed Predicates will be examined in terms of semantic compositionality in Chapter 3. The thesis argues that lexicalization

processes are accompanied by the loss of semantic compositionality, which affects the idiosyncratic properties of Prefixed Predicates. Highly entrenched lexicalized predicates become more idiosyncratic and their semantic compositionality less transparent. This assumption poses a clear distinction between grammaticalization and lexicalization processes in aspectual prefixes.

Grammaticalization processes are argued to affect the lexical meaning of the aspectual prefix; however, the semantic compositionality of grammaticalized predicates remains transparent. As oppose to grammaticalized predicates, lexicalized predicates are hypothesized to lose their compositionality. The semantic analysis in Chapter 3 explores the semantic compositionality in grammaticalized and lexicalized Prefixed Predicates.

2 The Development of Aspectual Prefixes in Czech

The development of grammatical aspect presents an interesting research topic because languages frequently employ grammatical categories to distinguish aspectual features. Bybee (1994:235) notes that "recent cross-linguistic studies on tense and aspect (Comrie 1976, 1985; Bybee 1985; Dahl 1985 and Bybee & Dahl 1989) establish that perfective and imperfective are the most general and the most common senses [of aspect] expressed grammatically in verbal systems in the languages of the world." Comrie (1976:16) identifies the distinction between the perfective and imperfective aspect as a part of general linguistic theory and argues that "perfectivity indicates the view of a situation as a single whole, without distinction of the various separate phases that make up that situation; while the imperfective pays essential attention to the internal structure of the situation." This thesis studies the development of prefixes as grammatical markers of perfective aspect. The present analysis studies Czech aspectual prefixes from two perspectives: diachronic and synchronic. The diachronic study in this chapter postulates the development of aspectual prefixes in a constructional framework. It hypothesizes that pragmatic inferencing and semantic reanalysis played an essential role in the development of aspectual prefixes in the context of complex predicate constructions. This study approaches the development of aspectual prefixes in relation to their semantic role in motion-event complex predicate constructions. The diachronic study in this chapter draws evidence from synchronically attested constructions that exhibit distinct stages of grammaticalization and lexicalization. It offers a clear view of grammaticalization processes in the framework of construction grammar and argues that the development of aspectual prefixes in Czech was fundamentally based in language use and processing.

2.1   Slavic Aspect

For a number of decades, linguistic studies on tense and aspect have been concerned with the idiosyncratic nature of Slavic aspect (Dahl 1985, Eckert 1985, Janda 1985, Bybee and Dahl 1989, Dickey 1995, Hewson and Bubenik 1997, Dickey 2000). Cognitive studies on aspect have focused mainly on Russian aspect or approached Slavic aspect from a typological perspective. Typological evidence shows that aspectual systems in Slavic languages pattern differently from each other and that there are isoglosses that divide Slavic languages based on the pragmatic and semantic uses of the perfective and imperfective (Dahl 1985, Dickey 1995, Dickey 2000). The pragmatic and semantic uses of Czech aspectual prefixes are approached from a diachronic perspective that introduces complex predicate constructions as the prototypical members of the original core schema in Chapter 2. While the insights of a constructional approach might be applicable to a more general historical study of aspect across Slavic languages, my thesis is limited to Czech in particular. This study makes no predictions about the historical processes that might have led to the creation of aspect in other Slavic languages, primarily because the underlying semantic and pragmatic motivations for the onset of grammaticalization processes might be different across Slavic languages.

Although many generative studies on Slavic aspect have focused their attention on the 'so called' binary distribution of perfective and imperfective (Svenonius 2004, Jakobson 1984), the present study rejects the notion of a rigid dichotomy in Czech aspect. Rather than narrowing the scope of this study to merely investigate the morphological nature of aspect by focusing on instances in which perfective prefixes seem to form 'aspectual pairs', this thesis is concerned with the semantic variation of Czech aspectual

prefixes and the implications of the synchronic layering on their development. It provides

a constructional framework to understanding the historical processes that have lead to the

synchronic patterning of aspectual prefixes and argues that aspectual prefixes are a result

of grammaticalization and lexicalization processes in complex predicate constructions.

2.2   Introduction to Complex Predicates

The diachronic analysis hypothesizes that Czech aspectual prefixes developed in

the context of complex predicate constructions. It assumes that aspectual prefixes

developed as a result of their semantic integration in complex event constructions that

yielded the interpretation of a single event, conflating into complex predicates and

yielding grammaticalization processes. This study draws from Talmy's (2000) typology

of complex predicate constructions that identifies a common tendency of languages to

conflate causally related events and syntactically express them in a single clause with a

complex predicate (Talmy 2000:213). Talmy (2000) explains that:

> By the operation of very general cognitive processes that can be termed conceptual
> partitioning and the ascription of entityhood, the human mind in perception or conception
> can extend a boundary around a portion of what would otherwise be a continuum, whether
> of space, time, or other qualitative domain, and ascribe to the excerpted contents within
> the boundary the property of being a single unity entity. Among various alternatives, one
> category of such an entity is perceived or conceptualized as an event. (2000:215)

Talmy (2000:216) proposes that certain complex events, which he terms "macro-events,"

are more prone to conceptual integration. He defines four major semantic components

that make up the internal structure of a framing event, i.e. the conceptual integration of

events expressed in a single clause: the figural entity, the ground entity, the activating

process, and the association function (Talmy 2000:218). He postulates that there is a core

schema in all complex events, which is represented by the association function alone or

the association function with the ground entity (Talmy 2000:218). In a motion event, the figural entity is the figure, i.e. a physical object that is moving, the ground entity is a physical object that is conceptualized as a reference unit, the activating process constitutes the manner of motion of the figure, and the association function refers to the path of motion in reference to the figure and its relation to the ground. Talmy concludes that the core schema of a motion event is defined by the path alone or the path with the ground (Talmy 2000:218). Although languages encode the core schema differently, the common tendency of linguistic systems is to map information about the macro-event onto a core schema (Talmy 2000:221). Recent studies on complex events have proposed a typological distinction to account for three major syntactic strategies in the encoding of core schemas in the world's languages: Verb-framed, Satellite-framed and Equipollent-framed (Slobin 2004, Croft et al. 2010). Verb-framed languages express the main core schema, i.e. the path, in the main verb, while Satellite-framed languages encode the core schema in a satellite. As Croft et al. (2010:207) note, "Equipollent-framed languages use serial verb constructions in which both event and frame are expressed in forms that may occur as predicates on their own." The study on aspectual prefixes in Czech is concerned with the development of aspectual prefixes in constructions that functionally integrate path prefixes onto the core schema in satellite framing motion event constructions. Example in (1) presents a motion event construction that suggests that Czech is a Satellite-framed language. The construction in (1) contrasts with the construction in (2) that presents a "double framing strategy" in Czech, i.e. a prefix and preposition is used to encode information about path in a motion event construction (Croft 2010:208). The path in (2) is expressed in a detached satellite as well as in the verbal prefix.

(1) **Šel   ke dveřím**, pak se   pochybovačně ohlédl
     Go.3sg.PST to door,   then REF doubtingly   turned around
     a   stále si   přitom masíroval krk.
     and still REF while   rub   neck
     He went to the door, than doubtingly turned around, while he kept rubbing his neck.

                                                                    (From Falešní hráči, 2002)

(2) Vzali   koš, **vyšli   na zahradu** a usadili   se na kamennou zídku.
     Take.3PL.PST basket, out-walk on garden   and sit.3PL.PST REF on stone   wall
     They took a basket, walked out into the garden and sat down on a stone wall.

                                                                    (From Dům, 2007)

The complex event in Example (1) demonstrates the encoding of the core schema in a satellite framing construction in Czech. The *figure* in (1) is Edgar, who is the entity in motion. The satellite *ke* 'to/towards' expresses the path of motion. The manner of motion is encoded by the predicate *šel* 'went'. The ground is the door, which encodes the physical object, which is conceptualized as a reference unit in relation to the figure and path of motion. The constructional encoding of the framing event in (1) demonstrates a satellite framing motion event construction. However, the subsequent sections of the diachronic analysis are concerned with double framing constructions, illustrated by the example in (2). The construction in (2) presents a complex motion event that encodes the path of motion in a verbal prefix and in a detached satellite. It introduces a type of construction that is argued to have resulted in pragmatic inferencing and to have led to a semantic reanalysis of aspectual prefixes as encoding a result state.

The notion of complex predicates and the tendency of languages to reconceptualize motion events in terms of a functional integration of path and manner of motion are essential to the claims in this study. As causally related events of motion event expressions become conflated into a complex predicate, such constructions yield more morpho-syntactic integration and may become grammaticalized (Croft et al. 2010:226).

Croft et al. (2010:226) believe that "Talmy's typological classification […] represents a grammaticalization path of morpho-syntactic integration which iconically reflects event integration." They argue that "two grammaticalization paths ultimately end in univerbation of the event and frame morphemes" (Croft et al. 2010:226). Grammaticalization and lexicalization processes have been attested in many diachronic studies on complex predicates (Schaefer 1986, Durie 1997). The diachronic analysis in this thesis presents evidence that aspectual prefixes developed along a grammaticalization path. It is argued that the grammaticalization path of Czech aspectual prefixes ends in lexicalization processes at the end.

The present analysis suggests that Czech perfective complex predicate constructions constitute a strategy for predication that revolves around a prototype structure that has developed along a path of grammaticalization. Approaching the development of aspectual prefixes as grammatical markers that have developed through extensive processes of grammaticalization of motion event complex predicate constructions facilitates plausible explanations for the large array of aspectual prefixes in Czech. It helps us understand why Czech incorporates multiple grammatical markers of perfectivity in the aspectual systems. The strikingly polysemous nature of aspectual prefixes serves as an indicator of grammaticalization in progress and provides evidence of synchronic layering, with spatial prefixes occupying one end of the grammaticalization spectrum and highly grammaticalized 'semantically bleached' prefixes the other. Section 2.4 of this study hypothesizes the path of grammaticalization of Path particles in complex predicate motion-event constructions and introduces lexicalization processes that are characteristic of later stages of the development of aspectual prefixes.

2.3   History of Slavic Aspectual Prefixes

Many typological studies focusing on the development of aspectual prefixes advocate a direct historical relation between perfective prefixes and spatial prepositions (Shull 2003:14, Dickey 2012:71, Deo 2012:163). In their study on grammaticalization of tense-aspect-mood systems, Bybee et al. (1994) present evidence that "tense-aspect grams" originate in lexical sources. This thesis assumes that aspectual prefixes in Slavic languages developed from spatial prepositions. Deo (2012:163) draws a parallel between Slavic prefixes and preverbal particles in other languages, such as the particle *auf* in *auftrinken* (German). He claims that Slavic prefixes are similar to preverbal particles in that "they started out as meaningful prepositional and adverbial elements, belonging to the derivational component of the language, generating new complex verbs with corresponding change in the lexical content" (Deo 2012:163). The diachronic analysis in this chapter assumes a direct relation between aspectual prefixes and spatial prepositions in Czech. It provides evidence that aspectual prefixes developed through the process of pragmatic inferencing and semantic reanalysis in a context of motion event complex predicate constructions with spatial prefixes and prepositions.

2.4   A Constructional Approach to the Development of Aspect in Czech

The present analysis of the development of aspectual prefixes in Czech assumes a constructional framework and argues that aspectual prefixes originated from a double framing core schema encompassing a network of goal oriented motion event constructions. The diachronic analysis presents evidence that aspectual prefixes developed along a grammaticalization and lexicalization continuum. Given that

grammaticalization and lexicalization processes are gradual and that languages frequently retain older constructions along new ones, the diachronic study supports its statements with synchronic data analysis of the semantics of aspectual prefixes and their distribution in the Czech National Corpus (Chapter 3). The diachronic discussion on the grammaticalization of the Czech aspectual system highlights the importance of unidirectionality in the development of grammatical constructions and the evolution of substance from the more specific to the more general and abstract (Bybee et al. 1994:22). It stresses the simultaneity of grammaticalization processes and the gradualness of semantic changes that take place along the way. It attempts to narrow down the spatial constructional schema that was at the starting point of the process of inference and gradually developed into a sophisticated aspectual system in Czech.

2.4.1 Semantic Reanalysis

This study utilizes the fundamental tendency of motion expressions to reconceptualize and functionally integrate path and manner of motion, yielding grammaticalization processes in entrenched complex predicate constructions. Thus, motion-event constructions with path prefixes are the departing point for the analysis of original spatial constructions in the grammaticalization of prefixes in Czech. A recent study on the semantics of spatial prepositions in Czech by Shull (2003) presents evidence that Czech motion event constructions center around the notion of goal. The central position of goal in motion event expressions has been recognized across languages in general. The universal tendency of languages to encode goal as a segment of a complex path schema in a motion event framing constructions has been argued to be conceptually motivated (Rohde 2001:130). Verspoor et al. (1999) claim that "goal-over-source

principle" is employed as a general schema in motion-event expressions across languages and reflects a basic human cognitive need to express the endpoint in a motion event. Stefanowitsch and Rohde (1999) also report that there is a distributional bias toward goals over source segments. Although not all motion expressions fit this description, studies on the semantics of Czech prepositions and prefixes confirm that the major core schema of Czech motion event constructions appears to be goal oriented.

Shull's (2003) extensive analysis of the semantics of spatial prepositions and prefixes is a foundation to Dickey's (2012:73) hypothesis that aspectual prefixes developed from an abstract goal schema, "Transition from [state] S^1 [i.e. initial state] to S^2 [i.e. result state]." Shull (2003) finds that goals tend to be encoded as more salient in Czech. Her study illustrates that the general goal orientation of motion event constructions in Czech favors foregrounding of goal as oppose to source. Dickey suggests that based on Shull's (2003) study, it is plausible to assume that "SOURCE, GOAL and PATH prefixes all typically share an abstract schema of the TRANSITION FROM S1 to S2, and that it is this abstract meaning which provides the lexical telicity needed for a verb to be classified as pf [perfective] in opposition to a simple source verb" (Dickey 2012:78). He further hypothesizes that this inference perhaps initially only affected a class of telic verbs and later on extended the range of certain aspectual prefixes to combine with atelic activities (Dickey 2012:78). The present discussion on the development of aspectual prefixes in Czech argues that the general goal orientation of motion event constructions led to pragmatic inferencing and consequent reanalysis of path encoding prefixes as encoding a result state. Assuming that an abstract goal schema in motion event

constructions is highly entrenched in Czech, it is predictable that this schema played a significant role in the early stages of grammaticalization.

This study argues that entrenched, frequently occurring telic motion event constructions provided a conceptual link for a semantic shift to an aspectual meaning. All telic motion event constructions are assumed to have belonged to a semantic network of constructions with the same framing event strategy. That is, semantic components of complex motion events are hypothesized to have belonged to one core schema that consisted of figure, a path encoding prefix, a manner verb, a path encoding preposition, and ground. Spatial prefixes thus belonged to one major constructional schema of path encoding telic motion events. In a constructional network encompassing telic motion event expressions with path prefixes and prepositions, plausible links between literal contents and implicatures on the path prefixes may become more relevant than the original symbolic mapping between a spatial meaning and a prefix. That is, an abstract schematic perfective construction may affect the pairing of the prefixes' form and meaning and give rise to pragmatic inferencing or a "more plausible interpretation of the utterance concerned" (Heine 2002:84). Consequently, such constructional elements may yield uses in novel constructions and an [extended] productivity in "an array of different contexts" (Heine 2002:86). In this view, the prototype of all path telic motion event expressions allowed for the conception of a plausible link between the literal contents and the goal oriented nature of the construction. In particular, this thesis argues that goal oriented telic complex predicates yielded a resultative interpretation of the core schema, creating a likely inference between prefixes and perfective implicatures. Indeed, spatial

prefixes in these constructions came to be associated with telic predicate expressions and a frequently inferred result state that accompanied them.

2.4.2   Stages of Development of Aspectual Prefixes

The analysis presented in this section demonstrates that the synchronic layering of the aspectual system in Czech reflects distinct stages of grammaticalization and lexicalization. Furthermore, it argues that all prefixes function along a grammaticalization continuum and that their historical development progressed along the same path. As a result, most aspectual prefixes in Czech display different stages of development, which are represented by less grammaticalized lexical prefixes, more grammaticalized semantically generalized prefixes, and prefixed simplex predicates that are argued to have emerged from lexicalization processes in complex predicate constructions. Some Prefixed Perfective constructions reflect advanced lexicalization processes of frequent simplex predicates.

2.4.2.1   Telicity and Pragmatic Inference

The previous section established that historical studies on Slavic aspect settled on the conclusion that spatial meanings of prefixes in motion event constructions unidirectionally spread to new contexts in constructions, in which their meaning was interpreted as more general and abstract. Thus, it is put forth that constructional schemas with telic motion events were at the forefront of all grammaticalization processes. Although the notion of telicity has been argued to be "a lexical semantic property of predicates [which] indicates whether or not an event has an inherent endpoint or boundary" (Wagner 2006:52, cf. Krifka 1998:1, Filip 2004: 93), this thesis adopts Croft's

(2012:79) view of telicity, namely, that telicity is not an inherent semantic property of a predicate, rather "[it] is a property of a construal of an event." Telic events are understood as encoding information about an endpoint while atelic events are usually interpreted as not having an endpoint. In the case of motion event constructions, the segment profiled by a path prefix and a path preposition enhances the concept of endpoint/boundary of an event. The notion of boundary crossing and the role of telicity in path encoding in motion events has been explored in a number of studies that focus on the means by which languages express path in relation to Talmy's typology of lexicalization patterns (Slobin 2004, Filipovic 2007). Slobin (2004:7) argues that the telic conceptualization of a motion event that expresses boundary crossing affects the lexicalization patterns that languages use to encode path. The notions of change and boundary crossing are also explored in Filipovic (2007) who distinguishes motion events based on their spatio-temporal properties. Filipovic identifies three situation types in motion events (Filipovic 2007:43):

a) Boundary-crossing, when the change of location has occurred ('He ran into the building'),
b) Boundary-reaching, at the moment of the change of location ('He was running into the building when I saw him'),
c) Non-boundary-crossing, when change of location has not yet been completed (e.g. 'He ran across the field for ten minutes').

She confirms that these situation types are "habitually observed" by speakers of Serbo-Croatian and claims that they correspond to three major temporal features related to different aspects of change: change-occurred, moment-of-change, and no-change (Filipovic 2007:38). Her study demonstrates that Serbo-Croatian employs different lexicalization patterns to encode the conceptual difference between these situation types.

Her study provides evidence that path encoding in motion events is conceptually salient in Serbo-Croatian and situation types render different lexicalization patterns.

This thesis argues that the notion of telicity in motion event constructions expressing boundary crossing provided a conceptual link between path prefixes and the result state. It presents evidence that the temporal relation between boundary crossing and the result state of "change-occurred" provided conceptual grounds for pragmatic inferencing and consequent reanalysis of the semantic role of path prefixes. Examples in (3) and (4) demonstrate telic motion event constructions that express boundary crossing in Czech.

(3) V mžiku jsem byl venku ze dveří , **doběhl do obchodu** o dvoje dveře dál a
*In instant 1ˢᵗBE PAST outside from door, **to-run into store** by two doors away and*
zaplatil 29 centů za plechovku třešní.
paid 29 cents for can cherries.
I was out the door in an instance, ran to the store that was two doors away and paid 29 cents for a can of cherries.

(From *Nic se nestane náhodou*, 2002)

(4) Člověk pomalu ani nemohl **vyjít na chodbu** aby ho nezastavila,
*Man barely even NEG-could **out-go on hall**, so that 3ʳᵈ.ACC.SG NEG-stop*
a nenaříkala, že ji děti nenavštěvují, jak je sama a jak
and NEG-complain that 3ʳᵈ.ACC.SG children NEG-visit, how is.SG.PST alone and how
by je ráda někdy viděla, jak ráda by se někdy potěšila s vnoučaty.
would 3ʳᵈ.PL like sometime see, how like would REF sometimes rejoice with grandkids.

One could barely walk out into the hall, to [avoid] her complaining that her children don't visit her, how alone she is and how she would like to see them sometimes, how she would like to rejoice with her grandkids sometimes.

(From *Andělské vteřiny, 2005*)

Both examples in (3) and (4) present the general goal-over-source schema in motion event constructions in Czech. Moreover, they introduce telic motion event constructions expressing boundary crossing. This study hypothesizes that telic constructions, such as (3) and (4) functioned as prototypical telic motion event

constructions from which a core Prefixed Perfective schema was abstracted. The hypothesis postulates that constructions with etymologically related path prefixes and prepositions, as demonstrated in Example (3), presented ambiguous interpretations that further yielded pragmatic inferencing on path prefixes in telic motion event constructions.

Example (3) demonstrates the ambiguity in the pragmatic use of the prefixes *do-* 'to' in a motion construction *doběhl do obchodu* 'ran to the store', which highlights the boundary crossing by an etymologically related path prefix and a path preposition. Similarly, Example (4) presents a motion-event construction that expresses boundary crossing by a path prefix and a path preposition; however, the path particles in this sentence are not etymologically related. They encode different portions of path, thus yielding a more complex path expression. In particular, the prefix *vy-* 'out' in *vyjít* 'walk out' backgrounds the source of motion, while the preposition *na* 'on' foregrounds the ground argument *na chodbu* 'on/into'. Despite the variation in the encoding of path, both examples (3) and (4) demonstrate the general source-over-goal schema of motion event constructions in Czech.

2.4.2.2   *Path Prefixes and Prepositions in Double-Framing Constructions*

The linguistic strategy that is introduced when a prefix and preposition is used to encode information about path in a motion event construction is referred to as 'double-framing' (Croft et al. 2010:208). This section argues that a double-framing strategy in path encoding telic motion event constructions was at the onset of pragmatic inferencing in path prefixes. The term "double-framing" has been used to describe complex events that make use of two separate grammatical forms to encode the framing event (Croft

2010:208). That is, satellite-framed languages may be identified as double framing in constructions where path is expressed twice, i.e. in a form of an affix attached to the main predicate and in the form of a detached satellite (Croft 2010: 208). Examples in (3) and (4) above illustrate double-framing constructions in Czech, in which path is expressed in a prefix and a preposition. The present study uses the term 'double-framing' to describe constructions, such as (3) and (4), that use both a prefix and a preposition to encode path in Czech.

Double-framing constructions appear to be a likely factor involved in the pragmatic inferencing that lead to semantic reanalysis of spatial prefixes. This study suggests that the most prototypical member of a telic motion event schema was a construction that encoded goal as more salient than source. As documented by Shull (2003), there is a common goal orientation in motion event constructions in Czech. Shull (2003) finds that spatial prepositions and prefixes frequently occur in constructions that foreground the goal. This thesis hypothesizes that due to their high frequency in discourse, constructions encoding goals are central members of a general motion event schema, while less frequent source-oriented constructions occupy the periphery. Shull (2003) also finds that Czech motion event constructions make frequent use of prepositions to foreground the goal in reference to the ground. Non-lexicalized ground is frequently invoked by path prefixes in complex event constructions. This tendency is illustrated in the example in (4), which presents a motion event double-framing construction that foregrounds the goal *na* 'on' in reference to the ground *chodbu* 'hall'. The path prefix *vy-* 'out' encodes information about the source with no reference to ground. That is, the source prefix *vy-* encodes path in reference to the ground, which is

not lexicalized in the motion event expression *vyjít na chodbu* 'to walk out into the hall' in example (4). Czech motion event constructions that use source prefixes and goal prepositions as a double-framing strategy are common. Shull (2003:63) attests that "source prefixes combine more readily with goal prepositions than do goal prefixes with source prepositions." Her findings confirm that goal foregrounding is a preferred linguistic strategy in Czech motion event constructions.

Therefore, path prefixes are less crucial to the interpretation of path in a source-over-goal motion event schema that makes frequent use of prepositions to foreground the goal in reference to the ground. That is, prefixes either background the already established segment of the path, which is foregrounded by a preposition, as in example (3), or they background some other portion of the path, as in example (4). In either construction, the semantic role of a prefix in the general goal-oriented motion event schema is in the background, while the emphasis is put on the path that is foregrounded by the preposition and the ground argument. That is, the construction in (4) is clearly conceptualized as expressing the goal even though the prefix *vy-* 'out of' backgrounds the source.

The hypothesis is that the ambiguous nature of the pragmatic function of path prefixes in double-framing constructions, specifically the constructions in which the prefix and preposition were of the same etymological origin, was, in large, the reason for pragmatic inferencing. In the context of a goal-oriented motion event schema that included all other double-framing goal-oriented constructions, the symbolic pairings of prefixes and their path encoding meanings were gradually abstracted from the goal-oriented motion-event constructions and reanalyzed as collectively belonging to a more

schematic resultative construction. At this initial stage of development, the general resultative inference on the meaning of goal-oriented double-framing constructions gave rise to a novel interpretation of the semantic role of prefixes.

Specifically, every instantiation of a construction that encoded goal with an etymologically related prefix and preposition, such as *do-* 'to' and *do* 'into' in example (3), generated a new instance of a semantically ambiguous unit that instigated pragmatic inferencing between the literal meaning of the prefix and the result state. Such inferencing probably took place in other goal salient double-framing constructions and gradually spread to incorporate all double-framing constructions. In the context of a telic motion event schema encompassing a wide range of constructions, pragmatic inferencing gradually affected the entire network of motion event constructions.

2.4.2.3 *Process of Analogy*

Moving along a grammaticalization continuum, the original telic motion event schema was generalized to include other predicate types that were initially not compatible with path prefixes, simultaneously expanding the role of prefixes to take on a new grammatical function. This process is referred to as *analogy* in the literature on grammaticalization. Hopper and Traugott (1993:56-61) explain that "analogy refers to the attraction of extant forms to already existing constructions… Analogy essentially involves paradigmatic organization, change in surface collocations." That is, the process of analogy affects the spread of the rule, here the spread of the perfectivizing role of prefixes; however, it does not effect rule change. Hopper and Traugott (2003:40) illustrate the process of analogy on an example of the English derivative morpheme *hood*, which was originally associated with compounded phrases, such as childhood from *cild*

'child' + *had* 'person, condition, rank' and underwent processes of analogy in new contexts, such as *falsehood*, which illustrates the use of *-hood* in new environments that don't require the original association with a word referring to a person.

Similar analogical processes are argued to have taken place in the development of aspectual prefixes. The result of analogy during the processes of grammaticalization of aspectual prefixes resulted in a gradual increase of predicate types that became incorporated into the schematic network of motion event constructions and the extension of path prefixes to other spatial constructions. The outcome of these processes brought about a new network of non-motion constructions with spatial prefixes. Assuming that the prefixes underwent similar grammatical processes at different rates, it is likely that later stages of pragmatic inference and analogy complemented each other to a large extent in the process of grammaticalization.

The notion of analogical change in the distribution of spatial prefixes is not novel. Dickey (2012:78-79) states that the "transition from S^1 to S^2" goal schema perhaps initially only affected a class of telic verbs and later on extended the range of certain aspectual prefixes to combine with atelic activities. Specifically, he believes that the Russian prefix *po-* has been in the forefront of grammaticalization of Russian aspect and extended the original schema that initially included only telic verbs to incorporate the class of atelic activities. Such processes are hypothesized to have taken place as a result of analogical processes that extended the range of *po-* in use as a grammatical marker. It is plausible that *po-* was also in the forefront of analogical processes in Czech since the original spatial meaning SURFACE CONTACT is no longer productive in Czech. The

following examples (5-7) present distinct stages of analogical processes in the development of the aspectual prefix *za-* that are synchronically attested in Czech.

(5) Path-Encoding:

Než ale stihl   něco   podniknout, Palach přeběhl   vzdálenost
Before but have time PST something   undertake,   Palach across-run.PST distance
od   zdi   pod   Muzeem, přeskočil zábradlí a   **zaběhl   za**   právě
*from wall under   museum, over-jump railing   and **behind-run behind** just*
projíždějící tramvaj.
passing   train.
Before he was able to do anything, Palach ran the distance from the wall under the Museum, jumped over the railing and ran behind a passing train.
(From *Lidové noviny, 15.1.2009*)

(6) Space-Encoding:

Na předjetí se   musíte   pochopitelně pořádně připravit a   provést přejíždění
For passing REF must   obviously   properly prepare and execute passing
manévr   ideálně na   dlouhé rovince,   v kopci se   tím pádem můžete rovnou
maneuver ideally on   long   straight plane, in hill REF   thus   can   directly
zařadit   za   kamion a vyčkat vrcholu.
behind-take position behind truck *and wait   hilltop.*
To pass, you must be obviously properly prepared and ideally, execute the passing maneuver on a long straight plane, thus, [while driving up a hill] you can take a position behind a truck and wait till the hilltop.
(From *Auto.cz, 28.12.2009*)

(7) Metaphorical Space-Encoding:
Indie se   tak **zařadila** mezi   jedny z nejrychleji rostoucích trhů   na světě.
*India REF thus **take rank** between one of fastest   growing   markets on world.*
India thus became ranked one of the fastest growing markets in the world.
(From *Hospodářské noviny, 5.6. 2007*)

Examples (5-7) demonstrate the extended range of *concrete* synchronic constructions in which the original path prefix *za-* 'behind' is attested. The sentence in (5) demonstrates a double-framing motion event construction in which *za-* functions as a path prefix and the preposition *za* 'behind' foregrounds the goal argument. Example (6) is an instance of a double-framing construction with *za-/za* 'behind' as a spatial prefix and preposition. That is, the construction *zařadit za kamion* 'to take position behind a truck' does not imply movement through space, rather it uses the prefix and preposition to

orient the car in relation to the truck, thus yielding a spatial interpretation over dynamic path. Lastly, example (7) presents a construction that developed through metaphorical extension from a spatial meaning of the prefix *za-*. In (7), *Indie se zařadila* 'India belongs/is ranked', the complex predicate is metaphorically extended to non-spatial constructions. That is, India is metaphorically categorized as belonging to a list of 'the fastest growing markets in the world' and occupying a certain position on this list. Similarly to the car that is placed behind a truck on the road, India is metaphorically placed (literally ranked) behind a faster growing market on an imaginary list of countries.

As a result of an increased network of constructions with spatial (and metaphorically spatial) prepositions, the frequency of use of the Prefixed Perfective schema increased proportionally, yielding further processes of grammaticalization. In particular, increased frequency of prefixes underwent complete reanalysis to encode perfectivity along their original path encoding meaning. This stage is often characterized as the rise of 'obligatoriness' of a grammatical category (Lehmann 2002:6 citing Jakobson 1959:489). Bybee et al. (1994) explains that

> "once a gram [grammatical morpheme] or a class of grams has come to be used in all appropriate contexts, redundantly or not, the lack of a gram of that class in the appropriate context becomes meaningful. Thus if a past tense gram develops and comes to be used in both redundant and non-redundant situations, the cases where it does not appear will be interpreted as signaling meaning other than past. The tense category in that language will have become obligatory, with an overt gram for past and a zero marking for present." (1994:9).

When prefixes became gradually reanalyzed as markers of perfective aspect, they became obligatory for marking perfectivity on predicates. The Perfective schema that initially consisted of a narrow network of telic motion event constructions expanded its function to encompass all predicate constructions with aspectual prefixes, thus broadening the constructional schema in which the secondary function of prefixes became even more

abstract and relational. Prefixes, as members of a class of perfective 'grams,' now occurred in simple predicate constructions as markers of perfectivity. The construction in (8) presents synchronic evidence of such grammatical development.

(8) Zrovna jsem tvému strýci **zachránil** život.
    *Just   be   your   uncle **safe**   life.*
    I just saved your uncle's life.

                                   (From *Nástrahy zubařského křesla, 2001*)

The prefix *za-* in example (8) does not have an obvious spatial meaning. As opposed to (7), the metaphorical motivation for the complex predicate construction in (8) has been lost to a large extent. However, it is plausible that a relatively new non-spatial meaning of *za-* 'for/on behalf of' as in *Udělal to za něj* 'He did it *for* him' was the motivation for the complex predicate *zachránit* 'to save someone' which consists of the predicate *chránit* 'to protect' and the prefix *za-* 'for, on behalf of,' which yields the meaning 'to save someone', literally 'to protect someone on their behalf'.

Instances of constructions in which the meaning of prefixes is relatively ambiguous initiate semantic generalization in Czech Prefixed Perfective constructions. The following discussion focuses on the concept of semantic generalization as it pertains to the synchronic evidence of highly grammaticalized aspectual prefixes in Czech.

2.4.2.4 *Semantic Generalization*

The process of semantic generalization in aspectual prefixes is, by and large, a result of lexical frequency and entrenchment. The meaning of aspectual prefixes in frequent Prefixed Perfective constructions becomes semantically generalized and is subjected to grammaticalization processes. This process has also been referred to as

"semantic bleaching" (Bybee et al. 1994:6, Sweetser 1988:390) or "weakening of semantic content" (Hopper and Traugott 1993:96). Such processes are characteristic of highly entrenched schematic constructions, which become conventionalized. In the development of aspectual morphemes in Czech, spatial prefixes that became semantically generalized probably originate from very frequent Prefixed Perfective constructions, such as (8), or from constructions with predicates of similar spatial semantics.

Although most prefixes retained their original spatial meanings, the prefix *po-* is semantically generalized in modern Czech (also in Russian, see Dickey 2012). Dickey speculates that it is probable that the prefix *po-* in Russian "lost its spatial meaning while the preposition retained it. [He] suggest[s] that the reason was ultimately the subsumption of the spatial meaning in verbs of motion prefixes with *po-*, such as older *poida*[p] 'PO-go', which in Old Church Slavic in fact meant 'go along a surface.' Although Dickey (2005:37) claims that "in an individual Slavic language only one prefix tends to be 'semantically bleached' while a variety of others also functions as perfectivizers," the present analysis of the semantics of aspectual prefixes in Czech finds evidence that aspectual prefixes appear to function along a grammaticalization and lexicalization continuum. That is, grammaticalization processes are gradual and the semantics of prefixes in Czech exhibit different degrees of grammaticalization. This study assumes that the stages of development of aspectual prefixes do not represent rigid categories. The degree of grammaticalization is determined by the complex predicate in which the prefix occurs and the construal of the predicate in a construction. That being said, some prefixes occur in more grammaticalized constructions far more frequently than others.

The following example in (9) presents a highly grammaticalized complex predicate with the prefix *za-*.

(9) Ještě jsem neměl čas mu **zavolat**.
*Yet be NEG-have time him **call**.*
I haven't had time to call him.
(From *Pavučina lží, 2005*)

Example (9) shows a Prefixed Perfective construction with a highly grammaticalized predicate with *za-*. The meaning of *za-* is clearly aspectual with no direct reference or metaphorical relation to its original spatial meaning 'behind.' Moreover, the complex predicate *zavolat* is an aspectual pair to the imperfective simplex predicate *volat* 'to call,' which serves as evidence of semantic generalization of its original lexical content. The complex predicate *zavolat* in (9) presents an advanced stage of grammaticalization in the development of aspectual morphemes in Czech. Most prefixes in Czech have acquired this level of grammaticalization in certain constructions.

As will be demonstrated in the semantic analysis in Chapter 3, aspectual prefixes may be conceptualized along a grammaticalization and lexicalization continuum based on the construal of the complex predicate in which they occur. In other words, the relation between a prefix and a predicate may be interpreted as purely aspectual in one context, while in another context the relation may be lexicalized as much more concrete.

This trend posits a question whether aspectual prefixes could be, in fact, organized by their degree of development. This study argues that all aspectual prefixes developed along the same developmental path and reflect distinct stages of synchronic layering. The evidence of a path of development of aspectual prefixes is the subject of discussion in the semantic analyses in Chapter 3.

2.4.2.5 *Lexicalization Processes*

Highly frequent perfective complex predicates may be subject to lexicalization processes as a result of entrenchment in specific constructions. In particular, some perfective complex predicates in Czech appear to have lost their individuality and are no longer distinguishable from the main predicate. This study argues that lexicalization processes present important stages of the development of aspectual prefixes in Czech. Trousdale (2008:169) claims that "grammaticalization and lexicalization are both examples of types of constructional change, and indeed involve similar kinds of changes; what differentiates them is how the emergent construction functions in the construction – if it is now more schematic and procedural, there has been a process of grammaticalization; if it is now more substantive and contentful, there has been a process of lexicalization." This section demonstrates that new simplex forms of predicates are more contentful than the complex predicates from which they developed. Moreover, the evidence presented here suggests that early lexicalization processes are a precursor of more advanced lexicalization processes in simplex predicates. This study addresses various degrees of lexicalization in Prefixed Perfective constructions based on their semantic relations with base predicates. Examples (10) and (11) demonstrate two types of Prefixed Perfective constructions with the same verbal root. Example in (10) presents a construction with a simplex predicate that is hypothesized to have developed through lexicalization processes of a frequent and highly entrenched complex predicate. Examples (10-11) present constructions with prefixes of different stages of development.

(10) Myslím,   že mě ten ubožák   chtěl   opravdu **zabít**.
Think.1sg.PRST that me that poor fellow   want.3sg.PST really   kill.
I think that the poor fellow really wanted to kill me.

(From *Poštovní úřad, 1996*)

(11) Konečně ani   oni neví,   jak blizoučko je doba, kdy bude   k smrti
dobit.
*Afterall   even they NEG-know how close   is time,   when be.3SG.FUT to death **to-beat**.*
Afterall, not even they know how close the time is when he will be beaten to death.

(From *Kolem Mileny Jesenské, 1991*)

The construction in (10) presents an instantiation of a simplex perfective that developed through the process of lexicalization of the preposition *za-* and the predicate *bít* 'to hit, to beat'. Lexicalization processes of aspectual prefixes yield new substantive and contentful meanings of conventionalized lexical units. In this view, the simplex predicate *zabít* 'to kill' is a result of lexicalization. The construction in (10) contrasts (11) insofar as (11) is a complex predicate with a lexical prefix. In (11), the predicate is prefixed by a lexically productive morpheme *do-* 'to'. These two examples demonstrate that lexicalization processes are construal dependent. In other words, the process of lexicalization appears to affect complex predicates only in highly entrenched construals.

Synchronic constructions of simplex predicates suggest that advanced lexicalization processes correlate with frequent constructions. The lexicalization processes in simplex predicates have been compared to the development of preverbs in Germanic languages. Lehmann (2002:135) asserts that the last stage of the development of aspectual prefixes reflects the univerbation of lexicalization processes. According to Lehmann (2002:88), the "oldest layer of preverbs is constituted by such elements as *be-, er-, ver-, zer-* etc. These have only very vague meanings associated with them. [] These elements have no adverbial or prepositional counterparts, but are inseparably prefixed to their verbs. The meaning alterations of the verb stem produced by them are frequently

highly irregular, as in *verstehen* = understand." Similar lexicalization processes are observed in highly grammaticalized Prefixed Perfective constructions, e.g., example (12), in which the aspectual morpheme *za-* is inseparably prefixed to a verbal root, which is no longer lexically productive independently of the prefix.

(12) Pokoj se s ním **začal**   otáčet.
   *Room REF with him **begin.3sg.PST.PERF.** spin*
   The room began to spin with him.

(From *Blízký konec, 1993*)

Synchronic data analysis attests to the existence of simplex perfective predicates in which the verbal root is no longer lexically productive as an imperfective predicate without the prefix. This is transparent in (12), where *začal (*infinitive *začít)* 'to begin' is not decomposable into an aspectual morpheme and a verbal root. The meaning of *čít* has been lost in the process of lexicalization. Traces of the root can be found in other simplex predicates. Among the most frequent are simplex predicates, such as *počít* 'to conceive' or *načít* 'to start, to begin.'

Advanced stages of lexicalization, as described in this section, are not very frequent in the corpus and are generally characterized by very high token frequencies. High token frequencies of both types of simplex predicates may correlate with the formation of imperfective prefixed predicates, as shown in example (13).

(13) Ano, ale tebe   **zajímají**   jiné věci.
   *Yes but you.GEN **interest.3PL.PRST.IMPRF** other things.*
   Yes, but you are interested in other things.

(From *V pasti, 2002*)

High token frequencies and the semantics of simplex predicates may yield aspectual reanalysis. Synchronic data attests imperfective prefixed predicates as the last stage of lexicalization processes. Example (13) shows a construction with an imperfective prefixed predicate *zajímat se* 'to be interested in,' which is a very frequent predicate in

various constructions in Czech. The root *jímat* 'to overtake by feeling' is virtually non-nexistent in discourse outside of archaic idiomatic expressions that describe fears/negative feelings (e.g. *jímá mě hrůza* 'I am overtaken by horror'). The functional disappearance of the original root *jímat* resulted in a new contentful simplex predicate *zajímat se*. The lexicalization processes that lead to the aspectual reanalysis of prefixed imperfective predicates are hypothesized in relation to the semantic analysis of Prefixed Perfective constructions in Chapter 3.

2.5   Conclusion

This chapter established the distinct diachronic stages of the development of aspectual prefixes in Czech. Grammaticalization processes are identified in the framework of construction grammar and are based in discourse and language processing. The diachronic analysis of aspectual prefixes is founded in the concept of complex predicates, which reflect the tendency of languages to reconceptualize and to morphosyntactically integrate path and manner of motion. Such integration is a precursor of unidirectional grammaticalization processes in complex predicate constructions.

Specifically, this study argues that aspectual prefixes developed from a large schema of motion event constructions encompassing goal-oriented double framing constructions as the central members of the category. Through pragmatic inferencing, path encoding prefixes were reanalyzed as encoding the result state. Thus, instigating further processes of grammaticalization that resulted in analogy, i.e. extended the range of aspectual prefixes to function in a larger network of double-framing constructions encompassing non-motion predicate types. As a result, spatial prefixes became productive in a large array of constructions and with increased frequency underwent

complete reanalysis to encode perfectivity. Later stages of grammaticalization of aspectual prefixes are characteristic of semantic generalization. The development of aspectual prefixes also includes lexicalization processes.

The development of aspectual prefixes in Czech reflects the dynamic and constantly evolving nature of language processing. The constructional approach to the study of grammaticalization of aspectual prefixes demonstrates the distinct stages of development of Prefixed Perfective constructions by incorporating synchronic layering as a diagnostic of a diachronic development.

The following Chapter 3 explores the grammaticalization and lexicalization processes in relation to the semantics of prefixes in distinct stages of development. Aspectual prefixes in Prefixed Perfective predicates are semantically analyzed in terms of their semantic contribution to the meaning of the predicate and the semantic compositionality of the predicate. Prefixed Perfective predicates are grouped into types based their characteristic semantics. The developmental stages of aspectual prefixes are examined in relation to predicate types and their distribution in the Czech National Corpus.

3   Synchronic Analysis of Aspectual Prefixes

This chapter explores the relation between frequency, semantics and the degree of grammaticalization and lexicalization in Prefixed Perfective predicates in the synchronic distribution of aspectual prefixes. It provides evidence that Prefixed Perfective predicates form a dynamic system that represents different stages of grammaticalization and lexicalization. This chapter argues that aspectual prefixes advanced along the same developmental path. The semantic analysis of aspectual prefixes assumes a constructional framework and studies the synchronic layering of aspectual prefixes in relation to Prefixed Predicates, which are represented as semantically distinct predicate types. The semantic and distributional data presented in this chapter supports the grammaticalization and lexicalization processes hypothesized in Chapter 2. The findings presented in this chapter confirm that Czech aspectual prefixes develop along a grammaticalization and lexicalization continuum within particular Prefixed Predicate constructions. Furthermore, the results of the data analysis suggest that aspectual prefixes exhibit different levels of grammaticalization and lexicalization.

The in-depth semantic analysis of aspectual prefixes demonstrates the complexity of the aspectual system in Czech. It presents evidence that the synchronic layering of aspectual prefixes is best explained by the semantic properties of Prefixed Perfective predicates in which they occur. Semantic compositionality of Prefixed Perfective predicates is examined to show that aspectual prefixes function along a unidirectional path of grammaticalization and lexicalization. The path of development is described as a continuum and the distinct

stages along this continuum are mapped onto the grammaticalization and lexicalization processes that were hypothesized to have taken place in the development of Prefixed Perfective constructions in Chapter 2. This thesis argues that all semantic type categories in the analysis show variation on the grammaticalization and lexicalization continuum by the nature of the semantic relation between the aspectual prefix and the base verb. The present study makes a clear distinction between the path of grammaticalization and the path of lexicalization. It defines predicate types based on the prefix's semantics and the predicate's semantic compositionality. It maps complex predicates and simplex predicates on a grammaticalization and lexicalization continuum respectively.

This chapter first defines the distinct types of complex and simplex predicates based on their semantic properties. It proposes their degree of grammaticalization and lexicalization on semantic grounds. It proposes that the synchronic layering of aspectual prefixes in the corpus reflects distinct developmental stages that can be mapped onto the grammaticalization and lexicalization continuum illustrated in Figure 3.1.
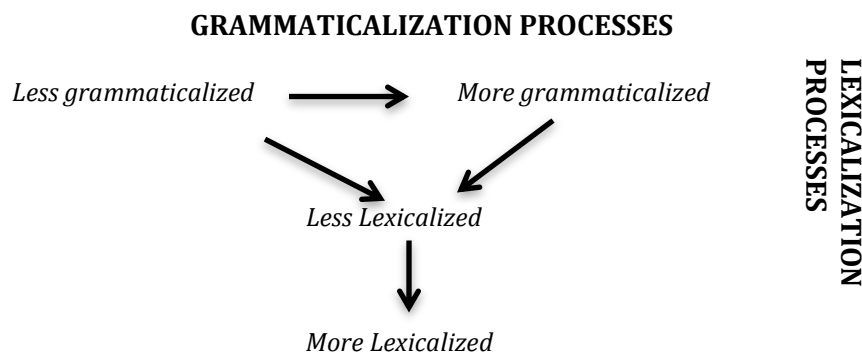
GRAMMATICALIZATION PROCESSES

Less grammaticalized ⟶ *More grammaticalized*

Less Lexicalized

More Lexicalized

LEXICALIZATION PROCESSES

3.1 Grammaticalization and Lexicalization Processes in the Development of Aspectual Prefixes

The processes of grammaticalization and lexicalization in Figure 3.1 illustrate the main assumptions from Chapter 2, i.e. lexicalization processes can take place at any stage of grammaticalization of a Prefixed Perfective predicate in predicates of high token frequencies that yield a high degree of entrenchment and a consequent semantic shift. As was suggested by the diachronic analysis in Chapter 2, both grammaticalization and lexicalization processes are unidirectional. Aspectual prefixes develop from less grammaticalized to more grammaticalized Prefixed Perfective predicates and may undergo processes of lexicalization in complex predicates of high token frequencies. As can be seen in Figure 3.1, lexicalization processes also follow a unidirectional path of development.

The present semantic analysis reveals that perfective predicates exhibit different distributional patterns along this developmental continuum, which serves as further evidence of the different stages of grammaticalization and lexicalization in discourse. The notion of a continuum is supported by the presence of different construals of prefixed predicates and their semantics that are sometimes ambiguous in Prefixed Perfective constructions.

This chapter is organized into two distinct sections. The first section 3.1 discusses the semantic analysis of four aspectual prefixes, which results in a categorization of Prefixed Perfectives into six distinct predicate types. Each type is described in detail in section 3.1.2.1. The semantic analysis in this section establishes theoretical grounds for the study of distributional patterns of aspectual prefixes. Section 3.2 discusses the method for distributional analyses. Section 3.3

focuses on the distributional patterns of individual prefixes with predicate types and their representations in the corpus. Section 3.4 presents the overall distribution of predicate types in the data sample and examines the implications of distributional patterns as pertaining to the semantics of predicate types and the overall path of grammaticalization and lexicalization in the development of aspectual prefixes. Section 3.5 lays out the evidence from semantic and distributional analyses and establishes the path of development of aspectual prefixes in Czech.

3.1   Semantic Analysis

This section approaches Czech aspectual prefixes as belonging to a complex semantic network that exhibits different layers of grammaticalization and lexicalization. It views the aspectual system as consisting of synchronic layers that correspond to different stages of development. Although a majority of semantic analyses of Slavic prefixes have focused on specific aspectual prefixes and their use in discourse, the present analysis introduces a different approach to the study of aspect. It approaches Czech aspectual prefixes as belonging to a complex network of Prefixed Perfective predicates that are organized around semantic prototypes, which reflect distinct stages of development.

3.1.1 Introduction to Semantic Analysis of Grammatical Aspect in Slavic Languages

Many studies on grammatical aspect in Slavic languages have focused on the meaning of aspectual prefixes. The meaning of verbal prefixes has been approached from comparative as well as language-specific perspectives. Some comparative studies on grammatical aspect include Dickey's (2005, 2012) semantic studies on perfectivizing prefixes and the grammaticalization of aspect, Filip's (2003) study on prefixes and the delimitation of events in Slavic languages, Gehrke's (2003) study on aspectual affixes in Russian and Czech, among others. Most studies on language-specific semantics of grammatical aspect focus on aspectual prefixes as markers of perfectivity. Janda (1985, 2007) explores the meaning of verbal prefixes in Russian and proposes a model of aspectual clusters, i.e. groups of verbs that are related to single lexical items (Janda 2007:607). Other semantic studies on grammatical aspect focus on the semantics of specific prefixes (Flier 1985, Russal 1985, Dickey and Hutcheson 2003, Dickey 2007, Braginsky 2008, LeBlanc 2010).

One of the newest contributions to the semantics of Russian prefixes is Janda et al. (2013). Janda et al. (2013:9) strongly argue against the notion of semantically empty prefixes in Russian. They assert that the meaning of prefixes makes a contribution to the meaning of simplex verbs even if they appear to be semantically empty. Their hypothesis states that the meaning of prefixes may be obscured if it overlaps with the meaning of a simplex verb. They claim that the polysemy of aspectual prefixes is best explained by organizing data into radial categories.

The present study on Czech aspectual prefixes neither attempts to make any conclusions about the semantic links between clusters of prefixes, nor does it attempt to map their distribution as pertaining to radial categories. It looks solely at the degree of lexical contribution of prefixes to simplex verbs based on specific semantic criteria discussed below in section 3.1.2. The present semantic analysis of Czech aspectual prefixes is a study on grammatical aspect and the distribution of lexical and grammatical properties of aspectual prefixes in Prefixed Perfective predicates. It provides evidence of grammaticalization and lexicalization processes in the development of aspectual prefixes in Czech.

3.1.2   Semantic Analysis of Aspectual Prefixes in Czech

The present discussion on the semantic properties of aspectual prefixes draws from an extensive study of four aspectual prefixes in Czech: *za-*, *na-*, *po-*, and *do-*. These prefixes were selected because they have high token frequencies and appear to be in different stages of development (as attested by the data collected from the Czech National Corpus). They occur in a variety of Prefixed Perfective predicates and their semantic range varies from concrete to highly grammaticalized predicate constructions and encompasses lexicalized simplex predicates.

The scope of the semantic analysis is limited to highly frequent prefixed predicates in the corpus. This study analyzes the fifty most frequently occurring predicates for each prefix from the Czech National Corpus (CNC). A list of perfective predicates was created for each aspectual prefix in order to examine the semantic relation between prefixes and predicates (Appendix A presents all perfective

predicates used for the semantic analysis). Ensuring consistency in the data selection was crucial for the study of grammaticalization and lexicalization patterns in aspectual prefixes. Frequently occurring predicates were selected as representatives of the most entrenched items in each semantic category of predicate types. This study chose only the most frequent predicates in the corpus, because a random sample of predicates would not necessarily guarantee representation of all predicate types for the semantic analysis, unless a much larger data sample was generated. Creating a data sample of the most frequent predicates for each prefix helps guarantee that all semantic categories are represented.

In this section, I argue that there is a clear correlation between the semantics of predicates and their degree of grammaticalization and lexicalization. Section 3.1.2.1 describes the semantic types of Prefixed Perfectives in Czech. The classification of Prefixed Perfectives is based on the semantic relation between aspectual prefixes and the simplex predicates that form them. Section 3.1.2.2 establishes the methods for accurate predicate type classification and discusses some of the challenges posed by semantic categorization of categories that are not rigid. Section 3.1.2.3 argues that semantic categories of perfective predicates are directly related to the grammaticalization and lexicalization processes discussed in Chapter 2. Moreover, it argues that the distribution of aspectual prefixes in the corpus functions along a general path of development with lexicalized simplex predicates occupying the final stages of the continuum.

Section 3.2 introduces the method and data selection for distributional analyses. Section 3.3 presents findings from an extensive analysis on the

distribution of predicate types with individual prefixes in the Czech National Corpus. The overall distributional patterns of predicate types in the corpus are discussed in section 3.4. Evidence from semantic and distributional analyses of prefixes and predicate types is used to hypothesize the path of development of aspectual prefixes in section 3.5. The path of development of aspectual prefixes suggests that both grammaticalization and lexicalization processes lead to the synchronic layering of aspectual prefixes in Czech.

3.1.2.1   *Perfective Predicate Types in Czech*

The semantic classification of predicate types distinguishes between complex predicates and simplex predicates in Prefixed Perfective constructions. This division identifies different degrees of semantic compositionality in grammaticalized (complex) and lexicalized (simplex) predicates. This study presents evidence that predicates can be grouped into two basic semantic types based on their degrees of compositionality. As Waugh (1994) explains:

> When the semantic divergence between words with common roots, morphemes, phonesthemes goes far enough, terms like lexicalization or lost motivation are used (see Bauer 1983:42-61) and examples like *understand* are given: that is, *understand* is said to be lexicalized and homonymy is claimed between *under*, *stand* and *understand*. But the problem is that much lexicalization is only partial: *crazy*, *professor*, *glamor* have some relation to the meaning of their parts, they are at least partially compositional and thus partially lexicalized and partially motivated; but they themselves exhibit different degrees and types of compositionality. [] As we go across the words in the lexicon, we find a synchronic and diachronic continuum of semantic compositionality going from full compositionality to much compositionality to less and less compositionality to no compositionality. (1994:64)

Here, I present further evidence that the semantics of complex predicates are compositional, i.e. the relations between the parts that form them yield a predictable

meaning; while, I argue that simplex predicates are noncompositional. The notion of compositionality is essential because it presents two semantically distinct predicate constructions for analysis. Moreover, compositionality of predicate types reflects the continuum that is characteristic of grammaticalization and lexicalization processes. The following analysis incorporates semantic compositionality as an important indicator of predicate type classification and the particular stage of the predicate's development. The implications of different degrees of compositionality in predicate types are further explored in the phonological analysis of aspectual prefixes in Chapter 4, which confirms that compositionality of Prefixed Perfective predicates yields distinct patterns of lexical storage in complex predicates and simplex predicates.

The Prefixed Perfectives analyzed in this study are classified as belonging to either complex predicate types or simplex predicate types. Janda's discussion of the types of perfectives in Russian (Janda 2007, Janda et al. 2013) was influential in developing my methodology and in guiding my data collection for the present semantic analysis. Each predicate type has three distinct members, which exhibit different semantic properties; therefore, they are analyzed separately. The following sections describe the semantic properties of aspectual prefixes for each predicate type.

3.1.2.1.1 Complex Predicate Types

Complex predicates are classified into three types based on the semantic relation between a prefix and a simplex predicate. Complex predicate types are

categorized as Specialized Perfectives, Natural Perfectives, and Complex Act Perfectives.[1] There is a derivational relationship between the aspectual prefix and the simplex predicate from which the complex predicate is derived. Aspectual prefixes in Specialized Perfectives add the most lexical content, while Natural Perfectives have no transparent lexical content and appear to be inflectional morphemes encoding perfectivity. Complex Act predicates comprise a relatively small group of complex predicates since only a limited number of prefixes encode a delimitative time boundary on simplex predicates; thus, being derivational in their own kind. The following paragraphs discuss the predicate types in more detail and provide examples to demonstrate the degree of semantic compositionality based on the semantic relations between prefixes and simplex predicates; as follows:

Specialized Perfectives (SPs) are complex predicates in which an aspectual prefix adds meaning to the simplex predicate to which it is attached. The newly derived perfective complex predicate preserves the 'original' simplex predicate's meaning, at least in part if not in full. In other words, the prefix adds a lexical meaning that can be identified as belonging to a cluster of meanings that are based around a prototype. Janda et al. (2013) compare the extent of meaning variation for each Russian prefix in terms of radial categories. Although the meaning of a prefix may not always be transparent; nonetheless, the meanings of complex predicates remain related to the meaning of the 'original' simplex predicate. Some examples of Specialized Perfectives that demonstrate this prefix-predicate relationship are: *dojít*

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[1] The terms Specialized Perfectives, Natural Perfectives, and Complex Act Perfectives are borrowed from Janda et al. (2007).

'to walk to' from *jít* 'to go/to walk', *poslechnout* 'to listen' from *slyšet* 'to hear', *naznačit* 'to indicate, to suggest' from *značit* 'to mark, to signal.'

Natural Perfectives (NPs) are complex predicates in which aspectual prefixes appear to have inflectional properties: they do not add any lexical meaning to simplex predicates other than perfectivity. Such prefixes are frequently identified in the literature as "semantically empty" (Deo 2012:163). Alternatively, it is argued that their non-transparent lexical semantics are a result of a meaning overlap with a simplex predicate (Janda et al. 2013:9). My study considers the lexical contribution of the prefix minimal (whether it is due a semantic overlap or as a result of semantic generalization of the prefix due to semantic overlap). Both positions would be consistent with my hypothesis. For this reason, conclusions about emptiness versus overlap are not within the scope of this study. Claims about emptiness are currently inconclusive assumptions; however, my claim that aspectual prefixes in Natural Perfectives are semantically generalized is plausible. Examples of Natural Perfectives are: *naučit* 'to learn, to teach' from *učit* 'to learn, to teach' and *podívat* 'to watch, to look' from *dívat* 'to watch'

Complex Act Perfectives (CAPs) are complex predicates in which an aspectual prefix adds no lexical meaning *per se* but encodes a time boundary onto the simplex predicate. That is, it adds the meaning of completion and usually encodes the duration 'for a while' or delimits an event (Flier 1985, Dickey and Hutcheson 2003, Filip 2003, Dickey 2007). Only the prefix *po-* and *za-* in my study of four aspectual prefixes derive Complex Act Perfectives. Examples of Complex Act Perfectives are: *pomyslet* 'to think (for a while with an end point),' *zasmát* 'to laugh

(for a short period of time). There is a limited number of prefixes that can function in Complex Act Perfective constructions. They are restricted to aspectual prefixes that frequently occur in highly grammaticalized constructions.

3.1.2.1.2   Simplex Predicate Types

Simplex predicates are grouped together based on their semantic properties that suggest diachronic development involving lexicalization processes. Semantic properties of simplex predicate types indicate that they exhibit different degrees of compositionality along a continuum from less compositional to noncompositional. That is, their semantics are not completely derivable or predictable from the constituents that form them. Simplex predicates in Czech exhibit different degrees of internal constituency and semantic compositionality. This study classifies simplex predicates into three types based on their degree of lexicalization and semantic compositionality.

New Prefixed Perfectives (NPPs) are simplex predicates in which aspectual prefixes substantially change the meaning of the original simplex predicate. The prefix and simplex predicate are entrenched as a single lexical unit and form a new simplex predicate. The use of the original simplex predicate is not limited to the Prefixed Predicate construction. It may function as an imperfective in other constructions, or may occur in Prefixed Predicate Constructions with other aspectual prefixes. That is, the imperfective simplex predicate may derive Specialized Perfectives in constructions with other aspectual prefixes. Some examples of NPPs are: *zaměřit* 'to concentrate' from *měřit* 'to measure, to gauge',

povědět 'to tell' from *vědět* 'to know,' *napadnout* 'to occur (in mind), to attack (in battle)' from *padnout* 'to fall.'

Perfectives Without Verbal Roots (PWVRs) are simplex predicates that are not associated with any imperfective simplex predicate. Although their form clearly developed from Prefixed Predicate constructions through lexicalization processes, the verbal root has lost its independent lexical status. If verbal roots of PWVRs are attested in the lexicon, they have very low frequencies, as they are usually restricted to archaic/idiomatic expressions in the corpus. Similar findings of such predicates are attested in Russian. Braginsky (2008:8) finds that the prefix *za-* derives perfective predicates "from presumably imperfective base verbs that do not have an autonomous lexical meaning of their own." Moreover, he claims that the prefix *za-* "serves as a word-formation tool, capable of introducing new verbal predicate into the lexicon" (Braginsky 2008:8). Generally, Czech PWVRs include simplex predicates that are conceptually basic and are thus among the most frequent lexical items in the corpus. Examples of PWVRs are: *zapomenout* 'to forget,' *zavřít* 'to close, to shut (the door), and *'nabídnout* 'to offer.'

Prefixed Imperfectives (PIs) are imperfective simplex predicates. Predicates of this type have low type frequencies but high token frequencies in the corpus. The present analysis accounts for their status in the lexicon and suggests their development. PIs have a lot in common with NPPs and PWVRs insofar as they often occur in prefixed simplex predicate constructions. The only transparent difference that sets them apart is their imperfective aspectual nature. PIs frequently encode concepts that are undirected activities, or states. As was suggested in the diachronic

analysis in Chapter 2, lexicalization processes of complex predicates may be a plausible explanation for the emergence of PIs. That is, assuming that complex predicates lexicalize into simplex predicates (NPPs and PWVRs) that come to denote states, or activities, the most plausible hypothesis would be that such predicates become semantically reanalyzed as imperfective. Many of the imperfectives that were analyzed in this study have the imperfective suffix *–at/-ovat*. It remains unclear how the present PIs came to be lexicalized to incorporate the imperfective suffix. Given the evidence of lexicalization patterns in NPPs and PWVRs, the present analysis suggests that the imperfective suffix on PIs is a result of aspectual reanalysis. Some examples of PIs from the Czech National Corpus are: *počítat* 'to count,' *poslouchat* 'to listen, to obey' and *považovat* 'to consider.'

This section explained the semantic properties of aspectual prefixes in complex predicates and simplex predicates. Based on their semantics, complex and simplex predicates were classified into three distinct types that reflect their degree of compositionality. Complex predicates are semantically compositional, while simplex predicates are noncompositional and develop as a result of lexicalization processes in complex predicates of high token frequencies. The following section discusses other semantic and morphosyntactic strategies that are useful in a semantic classification of predicate types in Czech.

3.1.2.2   *Classification of Predicates into Types*

The classification of predicate types is grounded in semantic analyses. In order to correctly establish the classification of ambiguous predicate constructions,

this study defines other semantic and morphosyntactic criteria for each predicate type. This section explains the two strategies that were used to identify the predicate types of the most common construals of perfective predicates: participant role assignment and imperfective derivation. The last part of this section discusses the challenges posed by semantic categorization and the polysemy of prefixes in prefixed predicates.

3.1.2.2.1   Participant Role Assignment

The semantic properties of Specialized Perfectives and Natural Perfectives do not always yield a clear type classification. The semantic analysis of predicate types dealt with this concern by establishing a basic construction that was prototypical of the imperfective simplex predicate partner of the complex predicate construal analyzed. Knowing that Natural Perfectives do not modify the meaning of complex predicates, the constructional test positively identified Natural Perfectives if the constructional units remained in the same semantic relation to each other in the perfective construal. Specifically, the focus was on the distribution of participant roles. Examples (12a-c) below demonstrate that different types of complex predicates yield distinct participant distributions in constructions:

(12a)   Imperfective Simplex Predicate Construction
Obce   rozhodně nechtějí **škodit přírodě**.
Municipalities   definitely NEG-want harm   nature.DAT.
Municipalities definitely don't want to harm nature.

(From *Mladá Fronta DNES*, 15.2.2005)

(12b)   Natural Perfective Construction
Obce   rozhodně nechtějí **uškodit přírodě**.
Municipalities   definitely NEG-want harm   nature.DAT.
Municipalities definitely don't want to harm nature.

(12c) Specialized Perfective Construction
Obce   rozdhodně nechtějí   **poškodit přírodu**.
 Municipalities definitely   NEG-want harm   nature.ACC.
Municipalities definitely don't want to harm nature.

The constructional analysis in (12a-c) demonstrates that the Natural Perfective construal is semantically compatible with the imperfective simplex predicate construction. The participant role of *nature,* as the benefactor, is grammatically marked with a dative suffix *–ě*, and thus remains semantically acceptable in the construction with a Natural Perfective (12b). However, a slight difference in the meaning of a construction with a Specialized Perfective in (12c), which is otherwise difficult to identify (hence the need for constructional analysis), yields a distinct case marking (accusative) on the argument. Although the English translation cannot account for the case markings and therefore does not reveal the difference in meaning, the change is transparent in Czech by the assigned case marking on *nature*. These examples demonstrate that the ambiguous nature of the semantic contribution of prefixes can be, in some cases, resolved by constructional analyses.

Although some constructions may be semantically compatible with multiple predicate type construals, the semantic criteria in this study demand that the meaning of the construction as a whole remains the same. Any difference in the meaning of a construction is evidently an instantiation of a predicate type other than Natural Perfective.

Constructional analyses were incorporated into the classification of predicate types where there was an instance of significant semantic ambiguity. Frequently,

this was an issue that emerged with Specialized and Natural Perfectives of similar token frequencies in the corpus and was clearly related to their degree of entrenchment. In less ambiguous cases where the constructional method was not necessary, the analysis used morphosyntactic criteria in the form of imperfective derivation to support the semantic analysis.

3.1.2.2.2 Deriving Imperfectives

The method of deriving imperfectives can assist in a correct classification of predicate types since morphosyntactic strategies for deriving imperfectives differ for different predicate types. Predicate types can be arranged into three distinct groups based on their imperfective derivational strategy. Some prefixed perfectives derive imperfectives through suffixation, while other prefixed perfectives form aspectual pairs with their imperfective simplex predicates. Lastly, some predicate types are not semantically compatible with an imperfective construal, i.e. they do not derive imperfectives.

A common distinction that has been identified in the literature on Slavic aspect distinguishes Natural Perfectives from other predicate types because they form aspectual pairs (de Swart 2012:765) with their imperfective simplex predicate counterparts. Galambos (2007:79) refers to the imperfective simplex predicates as "primary (morphologically basic) imperfective forms" of Natural Perfectives. Although the notion of 'aspectual pairs' per se is not widely accepted for prefixes in Slavic studies (cf. Forsyth 1972:499 for a discussion on "true lexical pairs" formed by suffixation), it is clear that the investigation of 'true' aspectual pairs has been

addressed more as an issue of terminology in terms of a grammatical category of aspectual prefixes rather than in relation to their semantic properties. The present study distinguishes Natural Perfectives from other perfective types on the basis of their aspectual relation with the imperfective simplex base predicate. An example of an 'aspectual pair' is demonstrated in (12a-b) above. The semantic properties of Natural Perfectives and their aspectual relation to imperfective simplex predicates indicate that aspectual prefixes in Natural Perfectives are semantically generalized.

Predicate types that are semantically different from the imperfective simplex predicate that forms them derive their imperfectives by suffixation. Unlike Natural Perfectives, these prefixed predicates cannot form imperfectives with the simplex base predicate because the semantic contribution of the prefix results in a new lexical meaning. This group includes Specialized Perfectives, New Prefixed Perfectives, and Perfectives Without Verbal Roots. Imperfective predicates derived by suffixation are frequently referred to as "secondary imperfectives" (Galambos 2007:81) in the Slavic literature. Examples (13a-c) show the derivation of secondary imperfective forms from a Specialized Perfective (13a), New Prefixed Perfective (13b), and Perfective Without Verbal Root (13c).

13(a) do-sáh-**nout** => do-sah-**ovat**
     to-touch   to – touch
     to reach (P)   to reach (IMP)

13(b) doporuc-**it** => doporuc-**ovat**
     to recommend   to recommend
     to recommend (P) to recommend (IMP)

13(c) zavř**ít** => zav-**írat**
     to close   to close
     to close (P)   to close (IMP)

The semantics of the Specialized Perfective *dosáhnout* in (13a) are compositional. The prefix *do-* adds lexical meaning to the simplex base verb 'to touch' that results in a new predicate meaning 'to reach'. Considering the meaning change due to prefixation, the simplex base verb cannot function as the imperfective for the Specialized Perfective. Thus, imperfectives for Specialized Perfectives are derived through suffixation. Both simplex predicates in 13(b-c) are semantically noncompositional. Although the New Prefixed Perfective in 13(b) has an identifiable base verb, the imperfective is derived by suffixation because the New Prefixed Perfective is entrenched as a single lexical unit. The Perfective Without Verbal Root in 13(c) derives the imperfective by suffixation due to its degree of entrenchment and because it lacks a verbal root.

The last group of predicates includes types that are not compatible with imperfective construal. Specifically, Prefixed Imperfectives lack imperfective derivation since their construal is already imperfective. Similarly, the semantics of Complex Act Predicates yield construals that are usually not used in imperfective constructions (cf. Janda et al. 2013:4).

This section demonstrates that complex and simplex predicates can be grouped into three major types based on the morphosyntactic strategies they use to deriving imperfectives. The method of deriving imperfectives is useful in distinguishing between predicate types that are expected to display distinct derivational patterns (e.g. distinguishing between Natural Perfective and Specialized Perfectives or Complex Act Predicates and Specialized Perfectives). The

following section discusses some of the challenges posed to semantic classification in a complex aspectual system.

3.1.2.2.3 Overcoming Challenges to Semantic Classification

Semantically based classification of aspectual prefixes poses many challenges to a dynamic system that exhibits immense semantic variation in discourse. As was discussed in Chapter 2, the synchronic distribution of aspectual prefixes in Czech reflects a complex historical development that results in various synchronic stages of grammaticalization and lexicalization. As a result, aspectual prefixes in Czech function along a continuum that reflects different stages of grammaticalization and lexicalization processes. Prefixes have various semantics that exhibit different levels of development in different types of predicate constructions. The variety of construals poses a core challenge to the semantic classification. Examples (14-17) below demonstrate the meaning-form pairing for different predicate construals:

(14) Jak   by   ses asi **za-chovala**   na jejím místě?
       *How   would REF some **behave.3SG.PST** in her   place*
       How would you behave if you were her?

<div align="right">(From Poslední Útočiště, 2005)</div>

(15) A   tuto tradici si   chtějí   **zachovat**.
       *And this tradition REF want.1PL.PRST **preserve**.*
       And they want to preserve this tradition.

<div align="right">(From *Mladá Fronta Dnes, 6.1. 2009*)</div>

(16) Ty   potom **na-točily**   profesionální nahrávku, kterou posuzovala porota.
       *They then   **film.3pl.PST** professional recording,   which judge.3pl.PST panel.*
       Then they filmed a professional recording, which was judged by a panel.

<div align="right">(From *Týdeník Rozhlas, č. 26/2005*)</div>

(17) Rozsvítil   jsem vnitřní světlo v autě a   **na-točil** zpětné zrcátko,
       *Switch on.1st.PST be.PST inside   light   in car and **turned** rearview mirror,*
       abych   v něm viděl   obličej.
       in order to in it   see.1sg.PST. face
       I switched the inside light on in the car and turned the rearview mirror to see a face in it.

<div align="right">(From Dálkové ovládání, 1999)</div>

The examples in (14-17) demonstrate the complexity of the meaning to form pairing in Prefixed Perfective constructions. As seen in examples (14) and (15), two distinct predicates may share the same form, but have different construals, and thus represent two separate predicate types. In (14), *zachovat* is a Natural Perfective of *chovat* 'to behave', while in (15), *zachovat* is entrenched in the lexicon as a New Prefixed Perfective that means 'to preserve.' This variation implies that the predicate *zachovat* has two distinct aspectual construals that must be accounted for by semantic analyses. Similarly, examples (16) and (17) demonstrate two predicate types of *natočit* 'to tape/to turn.' The predicate in (16) is a New Prefixed Perfective with the meaning 'to tape' while the Specialized Perfective in (17) is clearly derived from the simplex predicate *točit* 'to turn, to twist.'

Examples (14-17) demonstrate the polysemous nature of the aspectual system that reflects different stages of the synchronic layering of aspectual prefixes in Czech. In order to semantically classify predicates based on their most frequent construal, the semantic analysis reconciled the distinct meanings of predicates that share the same form by carefully examining 20-40 different constructions in the corpus. The most frequent meaning was coded as the default predicate type. The less frequent meaning was also coded if a predicate had multiple meanings in the corpus; however, only the primary default construal was used for the distributional analysis of aspectual prefixes and predicate types in section 3.1.3.

The semantic analysis in this chapter suggests that Prefixed Perfective constructions can be categorized into predicate types based on the semantic properties of aspectual prefixes and the compositionality of prefixed predicates. It

presents evidence that predicates can be divided into two main semantic types based on their degree of compositionality. Higher degrees of compositionality are characteristic of constructions with complex predicates of varying degrees of grammaticalization, whereas lower degrees of compositionality (and frequently noncompositionality) in simplex predicates correspond to advanced lexicalization processes in complex predicates. Stages of grammaticalization and lexicalization that are characteristic of predicate types in complex and simplex predicates are explored in a distributional analysis of aspectual prefixes and predicate types in the corpus in section 3.1.3.

3.1.3   Synchronic Distribution of Aspectual Prefixes in the Corpus

A semantic analysis of the synchronic layering of aspectual prefixes in predicates establishes grounds for distributional analyses of Prefixed Perfective predicates in the corpus. Since grammaticalization and lexicalization processes have been argued to take place within specific constructions, this study attempts to capture the development of aspectual prefixes in terms of their relation to predicate types and their distribution in the corpus. It hypothesizes that predicate types have distinct distributional patterns that reflect their stages of development in relation to grammaticalization and lexicalization processes.

This study proposes that token frequencies of predicates correspond to the expected usage of lexical items in different stages of development. That is, the distribution of predicate types is predicted to reflect patterns of synchronic layering. Therefore, simplex predicates, which are hypothesized to have undergone lexicalization processes, are expected to demonstrate higher token frequencies in

the corpus that reflect their higher degree of entrenchment in comparison to complex predicates. Since the processes of lexicalization in constructions usually affect lexical items of high token frequencies, as opposed to type frequencies (Trousdale 2008:163, from Lipka 2002), this study proposes that simplex predicate types will have overall higher token frequencies and lower type frequencies than complex predicate types. Thus, the overall type and token frequency distribution of simplex predicates in the data sample is anticipated to reveal their higher degree of lexicalization. This study argues that lexicalization processes are characteristic of higher token frequencies and lower type frequencies of simplex predicates, while grammaticalization processes are characteristic of lower token frequencies but higher type frequencies.

Distinct stages of grammaticalization in complex predicate constructions are also expected to show certain distributional patterns in the data sample. Assuming unidirectional processes of grammaticalization and the semantic evidence presented in this chapter, concrete lexical meanings of aspectual prefixes in complex predicates are predicted to show lower degrees of grammaticalization than semantically generalized prefixes that appear to have inflectional properties. This study hypothesizes that less grammaticalized predicates have lower token frequencies in the corpus than more grammaticalized predicates. Therefore, the hypothesis about the distributional patterns in complex predicate constructions predicts that Specialized Perfectives and Complex Act Predicates have lower token frequencies than Natural Perfectives.

The following section 3.2 discusses the method and data selection for the distributional analysis of predicate types in the corpus. Section 3.3 discusses the synchronic layering of predicate types individually for each prefix and hypothesizes the degree of grammaticalization and lexicalization in aspectual prefixes. Section 3.4 proposes a path of development of Prefixed Perfective predicates based on the semantics of predicate types and their synchronic distribution in the corpus.

3.2   Data Selection and Methodology

This thesis is based on an extensive corpus study. In the following paragraphs, I explain the selection of tokens from the Czech National Corpus and their use in the study and how the analysis dealt with the dynamic nature of the aspectual system in Czech. Section 3.2.1 introduces the method of token selection and discusses coding strategies that account for the semantic variation of predicate types in the corpus. Section 3.2.2 introduces the methodology and provides a general discussion of the grammaticalization and lexicalization patterns that are studied in the distributional analysis of aspectual prefixes and predicate types.

3.2.1   Token Selection and the Use of Corpus

The present study approaches the issue of semantic classification from a usage-based perspective. That is, tokens are classified in terms of their most frequent predicate type construals. Although the present semantic analysis acknowledges the existence of multiple predicate type construals, it is outside of the scope of this study to analyze in detail all the possible construals in the corpus. The

goal of this study is to analyze tokens for recurring semantic patterns of Prefixed Predicates in order to understand grammaticalization and lexicalization processes. In order to identify a predicate's most frequent construal, a random selection of 20-40 instantiations of each token in the Czech National Corpus was assessed on semantic and morphosyntactic grounds as discussed in section 3.1.2.2 (see Appendix A for all tokens and their semantic classifications). Tokens for each prefix were analyzed separately in the order of their overall frequency in the corpus. The raw frequency number that was obtained for each token includes all possible construals of a predicate. Although the frequency does not reflect the exact frequency of the most frequent construal type, it satisfies the requirement that only the most frequent predicates in the corpus are used in this study.

This thesis assumes that type and token frequencies of predicates display distributional patterns that correspond to the semantic categorization of predicate types and reflect distinct stages of grammaticalization and lexicalization processes. It predicts that complex predicates have lower token frequencies but higher type frequencies considering they are hypothesized to occupy the grammaticalization continuum, while simplex predicates are predicted to show higher token frequencies but lower type frequencies, which are indicative of lexicalization processes. In other words, high token frequencies are expected to be characteristic of simplex predicates since they indicate higher levels of entrenchment and thus, provide a plausible hypothesis for the meaning shift in lexicalized simplex predicate types.

Studying the fifty most frequently occurring prefixed predicates for each aspectual prefix yields a high number of polysemous predicates in the data sample. As would be expected based on the assumption that more grammatical forms yield more use, in the large majority of cases, the most frequent construals in discourse were lexicalized simplex predicate types (PPT, PWVR, IP). If a predicate had both a Natural Perfective construal and a Specialized Perfective construal, the former was significantly more frequent in the corpus. The following analysis of type frequency distributions demonstrates the grammaticalization patterns of prefixes.

3.2.2   Methodology and Frequency of Data in Corpus

The distributional analysis in section 3.3 aims to analyze the frequency patterns of aspectual prefixes and their relation to predicate types in the corpus in order to identify: 1) the overall distribution of predicate types and their hypothesized degree of grammaticalization and lexicalization, 2) the degree and type of development of aspectual prefixes based on their distributional patterns in predicate types, 3) to hypothesize a general path of grammaticalization with respect to the semantically defined predicate types, and 4) to map aspectual prefixes onto the path of development that includes both grammaticalization and lexicalization processes.

In order to establish the degree of grammaticalization and lexicalization of aspectual prefixes, the distributional type frequencies and token frequencies were examined for each aspectual prefix in a predicate type. The predicate type frequencies and the characteristic token frequencies of predicates analyzed

indicated similar patterns of distributions. The distributional analysis takes into account the distributional patterns of predicates in the corpus and introduces a developmental continuum, mapping each predicate type onto the continuum based on the semantic properties of predicates identified in section 3.2 and the distributional properties found in section 3.3. The characteristic relation of prefixes to predicate types suggests that aspectual prefixes exhibit different degrees of development. The results of the data analysis of frequency distributions for aspectual prefixes and predicate types are discussed in section 3.3.

3.3   Distribution of Predicate Types in Aspectual Prefixes

This section discusses the distribution of predicate types in the data sample. It hypothesizes the relation between frequency, semantics, and the degree of grammaticalization and lexicalization in the synchronic layering of predicate types with aspectual prefixes. This section on the synchronic distribution of predicate types discusses the token frequencies of predicates based on their predicate type classification. The analysis of distributional patterns incorporates all tokens used for the semantic analysis in section 3.2. The number of tokens for each predicate type is shown in Figure 3.2.

Predicate Type	Number of Tokens
Prefixed Imperfective	14
Perfective Without Verbal Root	11
Natural Perfective	41
New Prefixed Perfective	68
Specialized Perfectives	53
Complex Act Predicates	10
TOTAL	200

Figure 3.2 Number of Tokens for Each Predicate Type

Figure 3.2 demonstrates the distribution of predicate types in the data sample. The number of tokens varies as it reflects the semantic classification of most frequent predicates in the corpus. It is transparent that New Prefixed Perfectives are by far the most frequent predicate type in the data sample. Specialized Perfectives and Natural Perfectives also make up a large portion of the data sample. The distributional analysis discussed in the subsequent sections of this chapter demonstrates that the distribution of predicate types with individual aspectual prefixes varies. It is argued that this variation reflects the distinct stages of grammaticalization and lexicalization of aspectual prefixes.

Section 3.3.1 presents the distribution of token frequencies for the entire data sample and discusses the implications of the semantic classification of tokens in respect to the grammaticalization and lexicalization processes that are hypothesized to represent predicate types. Section 3.3.2 analyzes each aspectual prefix separately as a distinct unit exhibiting different stages of development. It discusses the distributional patterns of predicate types associated with each prefix. Section 3.4 introduces a general path of development of aspectual prefixes based on their distributional patterns with predicate types. This thesis argues that the path of development forms a continuum, which encompasses, in a unified way, the semantic variation presented by each prefix. The discussion in section 3.4 supports the semantic analysis presented in section 3.2 with qualitative data that provides further evidence of synchronic layering of aspectual prefixes. It illustrates the correlation between frequency and predicate type distribution as pertaining to the

grammaticalization and lexicalization stages in the development of aspectual prefixes.

3.3.1   Distribution of Token Frequencies

The distribution of token frequencies of predicates contributes to our understanding of grammaticalization and lexicalization processes in relation to predicate types. Semantically defined types of complex and simplex predicates consist of predicates of different token frequencies. The distributional analysis of token frequencies demonstrates that predicate types are associated with different token frequencies in the corpus. Section 3.3.1.1 presents the median values of token frequencies to show that simplex predicates of higher degrees of lexicalization display higher token frequencies than complex predicate types. This study argues that high token frequencies of more lexicalized types correspond to highly entrenched meanings that yield frequent usage in a variety of perfective constructions. Lower frequencies, on the other hand, are characteristic of complex predicate types, which demonstrate lower degrees of entrenchment. The less grammaticalized predicate types, such as Specialized Perfectives and Complex Act Perfectives, have the lowest token frequencies that are often indicative of forms that have high content-specificity and have a limited range of use in constructions. This description is often associated with less grammaticalized forms. The following discussion presents quantitative data that supports the semantic findings that predicate types reflect distinct stages of grammaticalization and lexicalization of aspectual prefixes.

3.3.1.1 *Token Frequencies in Predicate Types*

This section looks at the distribution of predicate types in the corpus as belonging to semantic networks, which reflect different developmental stages of aspectual prefixes. The clear distributional patterns of the token frequencies in predicate types provide evidence of synchronic layering of aspectual prefixes in Prefixed Perfective predicates.

Median values of token frequencies were collected for each predicate type in order to determine the distributional patterns of token frequencies of predicates in the data sample. The present analysis assumes that distributional patterns of token frequencies are affirmative of synchronic layering and present evidence for a unidirectional path of development of aspectual prefixes. The following graph in Figure 3.3 presents the median values for token frequencies for each predicate type.
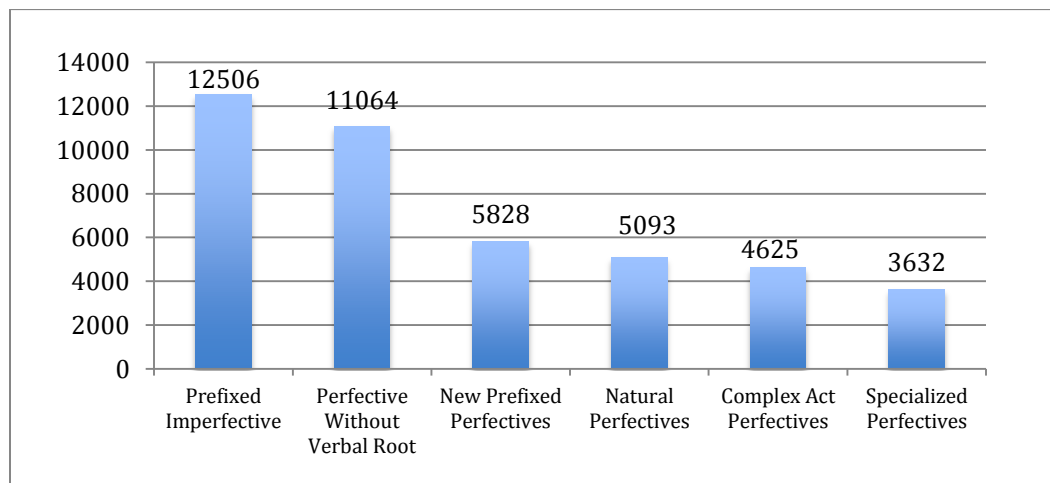
Figure 3.3 Median Values of Token Frequencies of Predicate Types

The median values of token frequencies presented on the graph in Figure 3.3 suggest that there are general trends in the distribution of token frequencies that correspond to predicate types and their distinct stages of grammaticalization and lexicalization. The most obvious patterns that are essential to the present hypothesis are revealed in the distinct token frequencies of predicate types in complex predicates and simplex predicates. The graph in (3.3) suggests that simplex predicates have higher token frequencies than complex predicates. A one tail t-test indicates that token frequencies of simplex and complex predicate categories are significantly different from each other ($p<0.05$).

Token frequencies of predicate types in Figure 3.3 suggest that predicate types within simplex and complex predicate categories show distinct token frequencies. Specifically, the distribution of token frequencies in simplex predicates shows that Prefixed Imperfectives and Perfectives Without Verbal Roots have significantly higher token frequencies than New Prefixed Perfectives in the complex predicate category ($p<0.05$). The distribution of token frequencies in complex predicates shows that lower token frequencies are characteristic of Specialized Perfectives and Complex Act Perfectives, while higher token frequencies correspond to Natural Perfectives ($p<0.05$).

This study hypothesizes that higher token frequencies reflect a higher degree of lexicalization in simplex predicates and a higher degree of grammaticalization in complex predicates. High token frequencies of Prefixed Imperfectives and Perfectives Without Verbal Root reflect their high degree of entrenchment and contrast with less lexicalized New Prefixed Perfectives. As would be expected of

more grammaticalized forms, Natural Perfectives demonstrate higher token frequencies than Specialized Perfectives and Complex Act Perfectives. The overall patterns of token frequencies reflect distinct stages of lexicalization and grammaticalization in simplex and complex predicates respectively.

Semantic and distributional analyses of Prefixed Perfective predicates and their token frequencies show that predicate types reveal patterns of the synchronic layering of aspectual prefixes in Czech. Both analyses confirm that predicate types can be identified based on the stage of development of aspectual prefixes. The following analysis of predicate type frequencies with each of the four aspectual prefixes presents a platform for introducing a developmental path of aspectual prefixes. It provides evidence that aspectual prefixes exhibit different patterns of distribution in predicate types. This thesis hypothesizes the distinct stages of development of each aspectual prefix based on their distribution in predicate types and introduces a general path of development of all aspectual prefixes by incorporating both grammaticalization and lexicalization processes.

3.3.2   Distribution of Type Frequencies with Aspectual Prefixes

This section discusses the patterns of distribution of predicate types with aspectual prefixes *za-*, *po-*, *na-*, and *do-*. The patterns of distribution are discussed in relation to grammaticalization and lexicalization processes in predicate types. This section argues that type frequencies of predicates with aspectual prefixes reveal distinct stages of development. The following sections (3.3.2.1-4) analyze the distributional patterns of aspectual prefixes in predicate types.

3.3.2.1 Type Frequencies with the Prefix ZA-

This section focuses on the distribution of predicate types with the prefix *za-* in the Czech National Corpus. The prefix *za-* is one of the most productive aspectual prefixes in Czech. Its distribution in all predicate types provides an invaluable contribution to the analysis of the grammaticalization and lexicalization continuum of aspectual prefixes. The semantic analysis of the prefix *za-* demonstrates that it occurs in simplex as well as complex predicates, and that it reveals characteristics of synchronic layering. Its semantic productivity in perfective predicate types reflects different stages of grammaticalization and lexicalization. Figure 3.4 shows the frequency of predicates types with *za-* in the corpus.
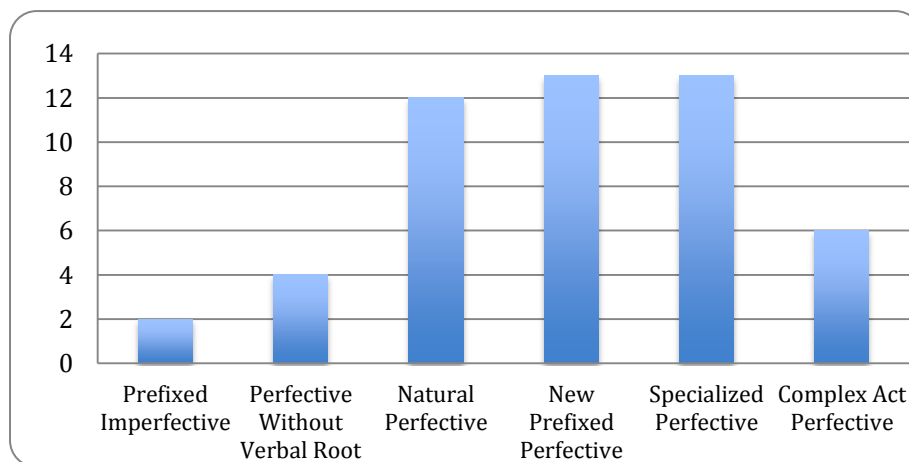
Figure 3.4 Type Frequencies of Predicates with *ZA-*

The semantic analysis of predicates with *za-* demonstrates that highly lexicalized types of simplex predicates have lower type frequencies in the data sample. As can be seen in Figure 3.4, Prefixed Imperfectives and Perfectives Without Verbal Roots have significantly lower type frequencies than other predicate type

categories. That is, New Prefixed Perfectives and all types of complex predicates are more frequent in the corpus.

The frequency of predicate types with *za-* in the corpus correlates with the varying degrees of grammaticalization and lexicalization in predicate types. Considering that only a small number of perfective predicates undergo more advanced lexicalization processes, Prefixed Imperfectives and Perfectives Without Verbal Roots have lower type frequencies in the data sample in comparison to New Prefixed Perfectives. Although New Prefixed Perfectives are hypothesized to have undergone lexicalization processes, they display distinct distributional patterns in the lexicon. As opposed to PIs and PWVRs, they are less lexicalized, and thus have a higher type frequency in the data. Their type frequency is as high as the type frequencies of Natural Perfectives and Specialized Perfectives. However, as was presented in section 3.3.1, their token frequencies are significantly higher, which serves as evidence of lexicalization processes in simplex predicates.

The relatively high frequency of Complex Act Predicates with the prefix *za-* is associated with the prefix's semantics of ingression (Dickey and Hutcheson 2003:23). The distributional analyses attests only two aspectual prefixes that are productive in the formation of Complex Act Predicates. The prefix *za-* has ingressive semantics that derive Complex Act Predicates. The relatively high type frequency of Complex Act Predicates in the data sample suggests that many ingressive predicates are highly entrenched in the lexicon.

3.3.2.2 Type Frequencies with the Prefix PO-

Predicates with *po-* show significantly higher token frequencies than predicates with any other prefix in the data sample (see Appendix A for all predicates' token frequencies). This finding predicts that distributional patterns of predicate types with *po-* will reflect higher degrees of grammaticalization and lexicalization. The distribution of predicate types with *po-* is displayed in Figure 3.5 below:
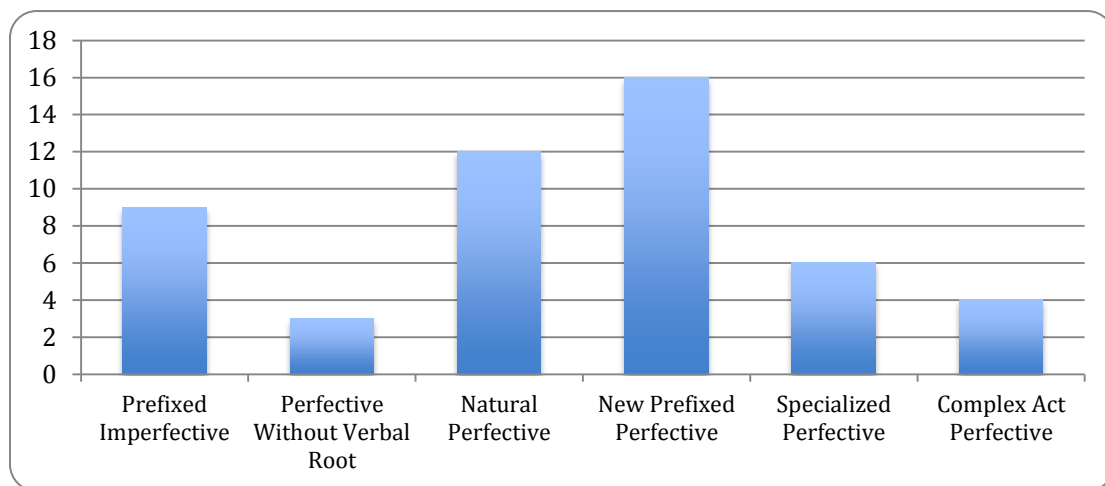
Figure 3.5 Type Frequencies of Predicates with *PO-*

The overall high degree of grammaticalization of *po-* is reflected in its infrequent occurrence in Specialized Perfectives. Moreover, the semantics of *po-* in Specialized Perfectives show only non-spatial references, providing more evidence of its high degree of grammaticalization. Additionally, *po-* is frequently associated with Prefixed Imperfectives, which confirms its overall orientation toward higher ranges of the lexicalization continuum.

The distributional patterns of predicate types with *po-* reflect high degrees of grammaticalization and lexicalization. The large number of Prefixed Imperfectives demonstrates that *po-* occurs in highly lexicalized predicates. As can be seen in Figure 3.5, simplex predicates with *po-* comprise more than half of the entire data sample with 37 predicates, which provides stable grounds to the claim that *po-* occupies a higher range of the lexicalization continuum. The small number of Specialized Perfectives in the data sample confirms that *po-* also occupies a higher range of the grammaticalization continuum. The relatively high predicate type frequency of Natural Perfectives and New Prefixed Predicates with *po-* confirms the general orientation of the prefix toward higher range of the grammaticalization and lexicalization continuum.

Similarly to *za-*, the prefix *po-* is semantically productive in Complex Act Perfectives. As opposed to *za-*, the semantics of *po-* yield the formation of delimitative predicates (Dickey and Hutcheson 2003:24). Although Czech uses the delimitative prefixes *po-* in various predicate constructions, their representation in the data is limited because of their relatively low token frequencies in discourse.

3.3.2.3   *Type Frequencies with the Prefix NA-*

The distributional patterns of predicate types demonstrate lower degrees of grammaticalization associated with predicates with *na-*. In particular, the aspectual productivity of *na-* appears to be more limited than of *za-* and *po-*. Although the semantic analysis provides evidence that *na-* occurs in both simplex and complex predicate types, in the data sample *na-* in Prefixed Imperfectives and Complex Act

Perfectives is not attested. This evidence suggests that *na-* occupies a different spectrum on the lexicalization continuum. The Figure 3.6 below demonstrates the distribution of predicate types with *na-* in the data sample.
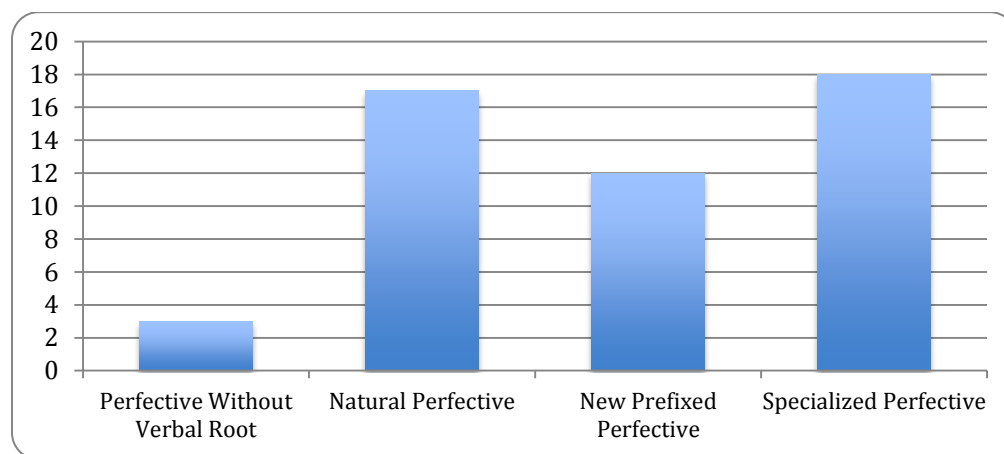
Figure 3.6 Type Frequencies of Predicates with *NA-*

The absence of Prefixed Imperfectives in the data sample suggests that *na-* has different patterns of synchronic layering from *za-* and *po-*. This variation is assumed to be the result of *na-* predicates being in a different stage in the lexicalization process. Since Prefixed Imperfectives are hypothesized to have originated during the last stages of lexicalization, their absence in the distribution of predicate types with *na-* suggests that the prefix is less lexicalized than *za-* and *po-*. The absence of Complex Act Predicates is not given any major implications since only a limited number of prefixes yield the formation of Complex Act Predicates in Czech.

The synchronic layering of predicate types with prefix *na-* in Figure 3.6 shows a different pattern than is observed in predicate types with *za-* and *po-*. The

data sample encounters only three Perfectives Without Verbal Roots, which are attested to be the most lexicalized predicates for *na-*. The type frequency of Natural Perfectives and Specialized Perfectives is nearly the same, which is expected for a prefix that occupies the middle range of the aspectual continuum.

3.3.2.4   Type Frequencies with the Prefix DO-

Predicate types with *do-* show distinct patterns of distribution along the grammaticalization continuum. Similar to predicate types with *na-*, predicate types with *do-* have generally low token frequencies. However, the distributional pattern of predicates with *do-* reflects a different stage of grammaticalization. In particular, the data sample does not attest any Natural Perfectives with the prefix *do-*. Section 3.5 discusses the implications of this finding in relation to the developmental path of aspectual prefixes. This section focuses on the distributional patterns of the predicate types with *do-* given in Figure 3.7.
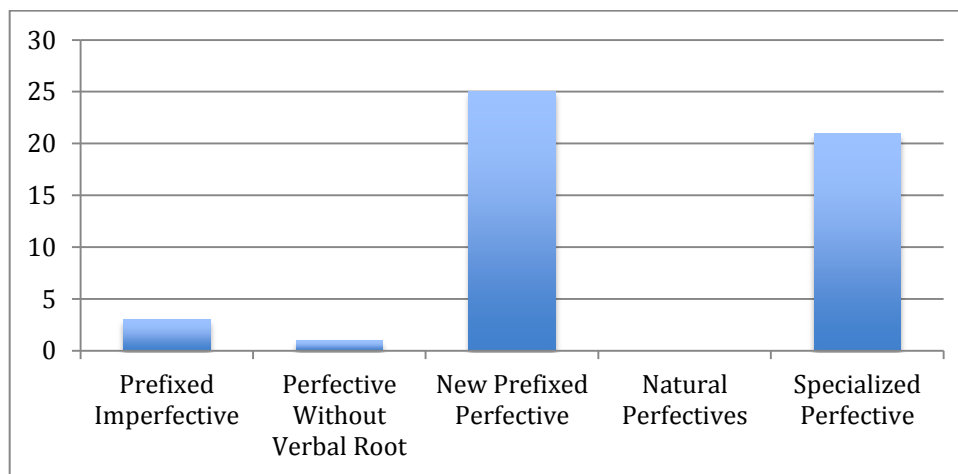
Figure 3.7 Type Frequencies of Predicate Types with *Do-*

Figure 3.7 presents the frequency of predicate types in the data. The overwhelming number of Specialized Perfectives and New Prefixed Predicates presents a new pattern of distribution that is not found with the other three aspectual prefixes in this study. The absence of Natural Perfectives and a high type frequency of New Prefixed Perfectives suggest that lexicalization processes are dominant in the distribution of perfective predicates with *do-*. Moreover, the presence of all types of simplex predicates confirms that lexicalization processes are not dependent on grammaticalization processes. Indeed, the aspectual prefix *do-* displays a lower stage of grammaticalization than *po-* as it does not occur in Natural Perfectives. Although *do-* is the least grammaticalized prefix in the data sample, the token frequencies reflect the same patterns of distribution across predicate types.

The prefix *do-* displays low degree of grammaticalization in complex predicates; however, it exhibits high degree of lexicalization since it occurs in a large number of simplex predicates. The most plausible explanation for the attested distribution is that lexicalization patterns are not related to any specific complex predicate type (i.e. Natural Perfectives, Specialized Perfectives, or Complex Act Perfectives). Instead, they are related to high token frequencies in the corpus. Thus, high token frequencies of all complex predicates can yield lexicalization processes. Assuming that lexicalization and grammaticalization processes represent independent unidirectional paths of development, the following sections discuss each mechanism independently. This thesis argues that the path of development of aspectual prefixes includes a grammaticalization and lexicalization continuum.

3.4   The Grammaticalization and Lexicalization Continuum

The following sections present the grammaticalization and lexicalization continua in the development of aspectual prefixes. Complex and simplex predicate types are mapped onto the grammaticalization and lexicalization continuum based on the proposed developmental stages that the semantic types represent.

3.4.1   The Grammaticalization Continuum in Complex Predicates

The semantics and distributional patterns of complex predicate types indicate that aspectual prefixes in Natural Perfectives are more grammaticalized than Specialized Perfectives and Complex Act Perfectives. Section 3.3 presents evidence that Natural Perfectives consist of predicates with high token frequencies as opposed to Specialized Perfectives and Complex Act Perfectives, which consist of predicates with low token frequencies. The variation in token frequencies and the semantics of aspectual prefixes in complex predicate types suggest that grammaticalization processes are gradual. Although this thesis employs semantic categorization to study the major stages on the path of development of aspectual prefixes, it argues that grammaticalization processes in aspectual prefixes form a continuum.

The grammaticalization continuum permeates the aspectual system in Czech. It is reflected in the varying token frequencies of complex predicates in the corpus, as well as the semantics of predicates that do not neatly fit into the semantic categories defined in section 3.1.2. The analysis in this chapter encountered numerous complex predicates that appear to have gradient degrees of

grammaticalization when compared to each other. Specifically, aspectual prefixes in 'less grammaticalized' Natural Perfectives display more transparent lexical origins than is found in 'more grammaticalized' Natural Perfectives. Example (18) illustrates a Natural Perfective with a prefix that has lexical properties.

(18)   Stavbu   plánuje   město dokončit v říjnu   letošního roku a **zaplatí** za
       construction plan.3sg.PRESENT city   to finish in October this   year   and pay   for
       ni zhruba 70 milionů korun.
       It   roughly 70 million crowns.
       The city is planning to finish the construction in October of this year and pay for it
       roughly 70 million crowns.

                                                              (From *Deník Bohemia, 25.8.2009*)

The Natural Perfective in (18) is clearly derived from the aspectual prefix *za-* and the simplex predicate *platit* 'to pay'. Although the prefix *za-* does not seem to add any lexical properties besides its grammatical function, its original meaning 'for' is transparent in the formation of the Natural Perfective. The notion that one 'pays for' something clearly follows the grammaticalization processes that lead to the development of a Natural Perfective. Although *zaplatit* 'to pay' is a Natural Perfective due to the degree of entrenchment of the predicate construction and its frequency in the lexicon, the example in (18) demonstrates the gradient nature of lexical properties in the semantics of aspectual prefixes.

This thesis argues that all semantic type categories in the analysis show variation in the semantic contribution of the prefix to the complex predicate. This variation reflects the continuum of gradual processes of grammaticalization that are constantly adapting to emerging constructional exemplars. The proposed aspectual continuum for complex predicates is illustrated in Figure 3.8.

Less grammaticalized   More grammaticalized

Specialized Perfective   Natural Perfectives

Complex Act Perfectives
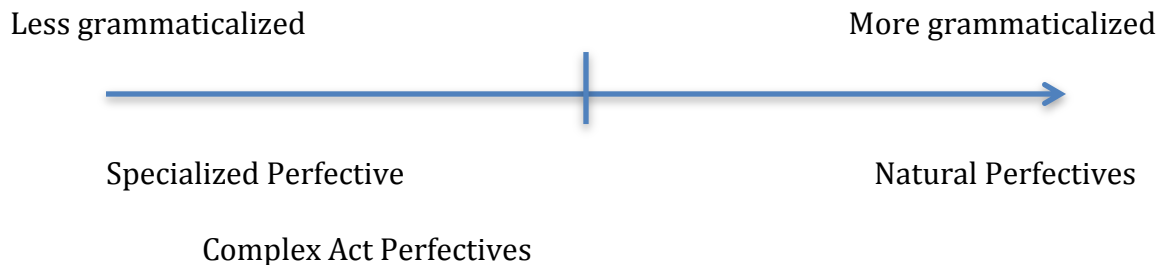
Figure 3.8 Grammaticalization Continuum in Complex Predicates

Figure 3.8 illustrates the unidirectional path of grammaticalization of aspectual prefixes in complex predicates. The variation in token frequencies and the semantics of predicates suggests that the grammaticalization continuum is not comprised of neatly defined categories. Rather, it presents networks of predicates that exhibit different degrees of grammaticalization, with highly frequent Natural Perfectives on one end of the continuum and Specialized Perfectives with concrete lexical prefixes on the other end of the continuum. The continuum that is presented in this thesis probably comprises a network of more grammaticalized Specialized Perfectives in the corpus due to their high frequencies. Specialized Perfectives with low token frequencies, which are not represented in the data sample, probably occupy the lowest ends of the grammaticalization continuum.

The token frequencies of Complex Act Perfectives suggest that they occupy a similar spectrum of the aspectual continuum as Specialized Perfectives. This finding is not unexpected since the semantics of aspectual prefixes in Complex Act Perfectives add delimitative content to the meanings of complex predicates and are thus semantically more complex than the aspectual prefixes in Natural Perfectives.

The frequency of use of Complex Act Perfectives is considerably lower than that of Natural Perfectives, which is reflected by the small number of predicates in this category and their low token frequencies. All of the patterns of distribution of Complex Act Perfectives suggest that they are less grammaticalized than Natural Perfectives.

3.4.2   The Lexicalization Continuum in Simplex Predicates

The distributional patterns of simplex predicates indicate that Prefixed Imperfectives and Perfectives Without Verbal Roots are more lexicalized than New Prefixed Perfectives. The overall high token frequencies of Prefixed Imperfectives and Perfectives Without Verbal Roots in Figure 3.3 present evidence of their advanced stages of lexicalization. The distributional patterns and semantics of simplex predicates indicate that lexicalization processes are also gradual and present a continuum in the development of aspectual prefixes, as presented in Figure 3.9.

Less lexicalized   More lexicalized

New Prefixed Perfectives → Perfectives Without Verbal Root → Prefixed Imperfectives
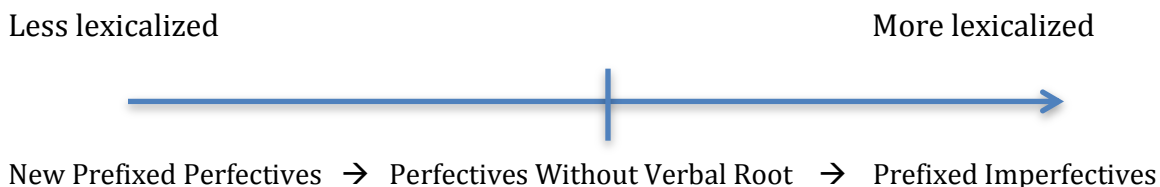
Figure 3.9 Lexicalization Continuum in Simplex Predicates

The semantic and distributional properties of simplex predicate types suggest that lexicalization processes are unidirectional, as was shown for

grammaticalization processes in complex predicates. The unidirectional path of lexicalization processes is illustrated in Figure 3.9. The lexicalization processes that are apparent from the semantic and distributional analyses suggest that New Prefixed Perfectives present lower stages of lexicalization as opposed to Prefixed Imperfectives and Perfectives Without Verbal Roots, which display more advanced stages of lexicalization. Although more lexicalized predicate types of simplex predicates appear to have similar distributional properties, the default imperfective semantics of Prefixed Imperfectives suggest that they undergo additional derivational processes.

The semantic and distributional properties of predicate types indicate that Czech aspectual prefixes develop along a grammaticalization and lexicalization continuum. Specifically, the semantics of predicate types correlate with their distributional patterns in the data sample, which provides evidence for a general path of grammaticalization and lexicalization in the development of aspectual prefixes in Czech. The following section 3.5 discusses the path of grammaticalization and lexicalization of aspectual prefixes in relation to the semantic and distributional properties described in this chapter.

3.5   Path of Development of Aspectual Prefixes

The semantic and distributional data laid out in this chapter contribute to the understanding of grammaticalization and lexicalization processes in the development of aspectual prefixes in Czech. The data confirms two main arguments that are hypothesized in this study: 1) aspectual prefixes develop along a

grammaticalization and lexicalization continuum and 2) individual aspectual prefixes occupy different ranges of this continuum. The following discussion will present the path of development of aspectual prefixes that incorporates both grammaticalization and lexicalization processes.

The semantic analysis in section 3.3 identifies all prefixed predicate types that are attested in the data sample from the Czech National Corpus. It presents the aspectual system from a semantic perspective that relates to the distinct semantic properties of predicates with aspectual prefixes and suggests that semantic categorization of this type is essential for understanding the different lexical contributions of prefixes in perfective constructions. It provides a necessary comparison for the different degrees of lexical content observed in aspectual prefixes in perfective constructions and helps distinguish prefixed predicates based on their levels of compositionality. It provides the necessary semantic grounds for the distributional analysis of individual aspectual prefixes in relation to their occurrence in predicate types in the corpus. The analyses in this chapter yield conclusions about the overall distribution of aspectual prefixes and their association with specific stages of grammaticalization and lexicalization.

The distributional analysis in section 3.4 finds that individual aspectual prefixes exhibit distinct patterns of development in the corpus. Although the path of development of prefixes is clearly composed of the same grammaticalization and lexicalization processes, different aspectual prefixes reflect different stages of development. Thus, aspectual prefixes are argued to occupy different ranges of the grammaticalization and lexicalization continuum. Distributional analyses of each

aspectual prefix in the data provide important contributions to the understanding of the overarching path of their development. Figure 3.10 illustrates the hypothesized path of development, incorporating both grammaticalization and lexicalization processes that form this continuum. Grammaticalization processes are illustrated on a horizontal level while lexicalization processes are displayed vertically.

GRAMMATICALIZATION PROCESSES
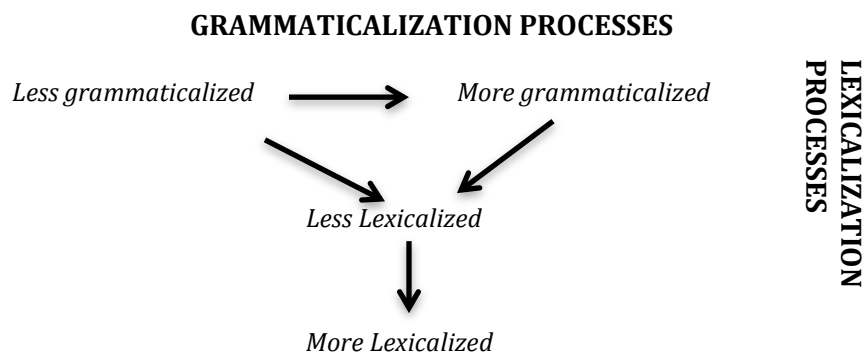
Figure 3.10 Processes of Grammaticalization and Lexicalization

The distribution of simplex predicates in the data sample suggests that lexicalization processes are reflected in high token frequencies of complex predicates and occur in predicates of high token frequencies independent of their degree of grammaticalization. Although high token frequencies are characteristic of more grammaticalized complex predicates, this thesis argues that lexicalization processes are not dependent on the degree of grammaticalization of predicates but on high token frequencies of predicates in the corpus. Figure 3.10 illustrates this point by drawing unidirectional arrows from both 'end' of the grammaticalization continuum (i.e. *less grammaticalized* and *more grammaticalized*) to the less lexicalized end of the lexicalization continuum. The directions of arrows symbolize

the unidirectional processes in grammaticalization and lexicalization. Less lexicalized predicates may undergo advanced lexicalization processes. The development of aspectual prefixes in Prefixed Perfective predicates can be mapped onto the grammaticalization and lexicalization processes laid out in Figure 3.10. The relation between predicate types and their distinct stages of grammaticalization and lexicalization that represent the developmental path of aspectual prefixes can be mapped onto the unidirectional processes, as illustrated in Figure 3.11.
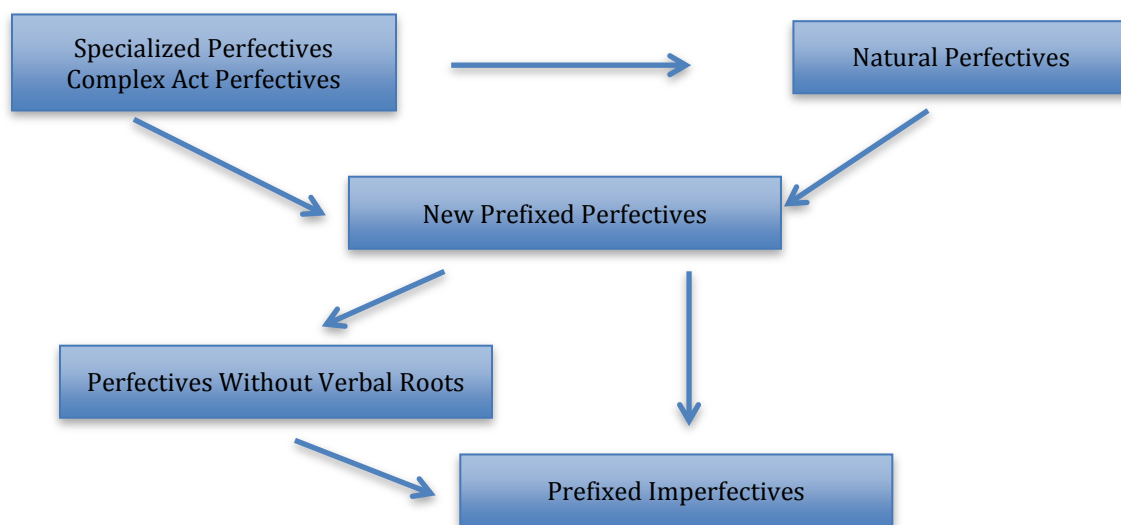
Figure 3.11 Path of Development of Aspectual Prefixes in Prefixed Predicate Constructions

The path of development of aspectual prefixes is transparent from the semantics and distributional patterns of token and type frequencies of predicate types in the corpus. The graph in Figure 3.11 demonstrates the unidirectional path of grammaticalization that has two distinct stages that contain less grammaticalized complex predicates, i.e. Specialized Perfectives and Complex Act Perfectives, on one end of the spectrum and more grammaticalized complex predicates, i.e. Natural

Perfectives, on the other end of the spectrum. High token frequencies of complex predicates provide grounds to lexicalization processes, which first lead to the formation of New Prefixed Perfectives and may advance to Perfectives Without Verbal Roots or Prefixed Imperfectives. Lexicalization processes in Figure 3.11 illustrate that Prefixed Imperfectives can be formed from New Prefixed Perfectives or Perfectives Without Verbal Roots. Although most Prefixed Imperfectives in the data sample have limited reference to the base verb from which they originally developed, some have compositional transparency, similar to New Prefixed Perfectives. Thus, the present analysis argues that Prefixed Imperfectives undergo advanced lexicalization processes in simplex predicates, i.e. New Prefixed Perfectives or Perfectives Without Verbal Root, of high token frequencies. Both unidirectional arrows originating from New Prefixed Perfectives and Perfectives Without Verbal Root present possible lexicalization processes that involve semantic reanalysis that lead to the derivation of Prefixed Imperfectives. Low type frequencies of predicate types that are associated with the highest stages of lexicalization attest to the relatively rare occurrence of such processes in the lexicon.

3.5.1   Mapping Aspectual Prefixes onto the Path of Development

This section illustrates the path of development of each aspectual prefix in this study based on the distributional data of predicate types presented in section 3.3. The data suggests that aspectual prefixes have developed along the same path; however, they reflect different stages of development. As presented in section 3.3.2

above, the distributional patterns of predicate types in aspectual prefixes suggest that they occupy different portions of the grammaticalization and lexicalization continuum.
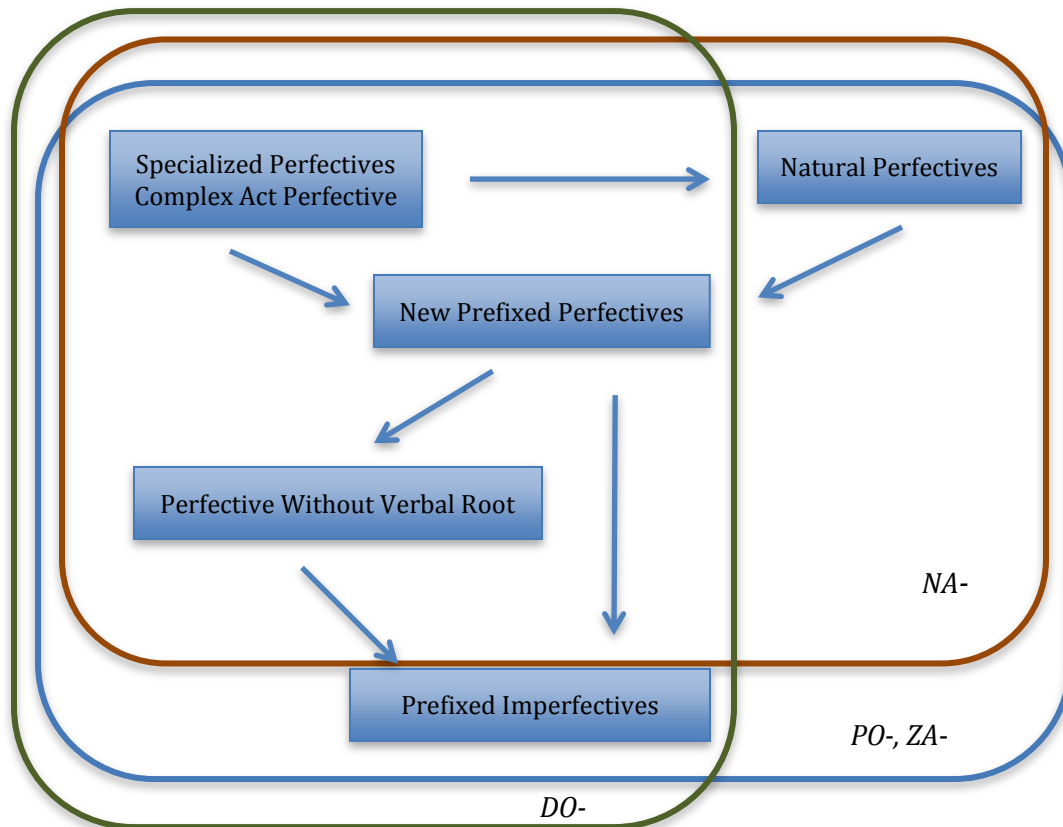
Figure 3.12 Mapping the Distribution of Aspectual Prefixes onto the Path of Development

Figure 3.12 illustrates the different stages of development that each aspectual prefix occupies on the path. It demonstrates that more developed aspectual prefixes occupy all spectrums of the grammaticalization and lexicalization continuum, while less developed prefixes either display a lower degree of lexicalization or a lower degree of grammaticalization. Specifically, *na-* and *do-* are

less developed than *po-* and *za-*. *Na-* exhibits a lower degree of development because it does not favor the formation of Prefixed Imperfectives, which indicates a lower degree of lexicalization. *Do-* also exhibits a lower degree of development but presents different patterns of distribution than *na-*. It does not form Natural Perfectives, which indicates a lower degree of grammaticalization.

The map of prefix distributions on the path of development presents evidence that prefixes develop along a continuum of grammaticalization and lexicalization processes. It confirms that there is a general path of development of aspectual prefixes that relates to their lexical and grammatical properties, instantiated by specific predicate types. Predicate types exhibit semantic properties characteristic of different stages of development.

3.6 Conclusion

This chapter discusses the semantic and distributional properties of aspectual prefixes in Czech. It confirms that aspectual prefixes form a dynamic system, which comprises different stages of grammaticalization and lexicalization. The semantic and distributional analyses of synchronic layering of aspectual prefixes confirm the assumption that prefixes developed along a unidirectional path.

The semantic analysis explores the semantics of aspectual prefixes in a constructional framework, defining distinct semantic categories of aspectual prefixes based on Prefixed Perfective predicates that are attested in the Czech National Corpus. The semantic categorization of Prefixed Perfectives yields six distinct predicate types in the data sample. The semantics of predicate types reflect

different synchronic stages of grammaticalization and lexicalization of aspectual prefixes.

The distributional analysis of aspectual prefixes is based on the semantic analyses of predicate types. It demonstrates that aspectual prefixes display different distributional patterns in the corpus. Specifically, aspectual prefixes exhibit different degrees of grammaticalization and lexicalization in predicate types. The distributional patterns for all predicate types in the corpus reveal a complex network of Prefixed Perfectives that reflects distinct stages of grammaticalization and lexicalization of aspectual prefixes. It provides evidence that predicate types have distinct patterns of distribution. That is, although each prefix demonstrates slightly different patterns of representation, the collective analysis of predicate types in the corpus demonstrates that semantic categories are uniform in their distribution. The findings present evidence of synchronic layering in grammaticalization and lexicalization processes of aspectual prefixes.

The semantic and distributional properties of aspectual prefixes in predicate types suggest that Czech aspectual prefixes develop along a grammaticalization and lexicalization path, which forms a continuum. This study suggests that there is a common path of development in aspectual prefixes and that individual prefixes reflect different stages of development. The study of the semantics of aspectual prefixes and their distributions in the corpus provides evidence that grammaticalization and lexicalization processes are unidirectional.

The next Chapter (4) presents additional evidence in support of the diachronic and semantic conclusions about the development of aspectual prefixes in

Czech. It examines the phonological properties of aspectual prefixes in relation to the semantic categories identified in this chapter and confirms the distinct degrees of grammaticalization and lexicalization in the development of aspectual prefixes in Czech by phonological hypothesis and analysis. The results in Chapter 4 support the findings of Chapter 3 by confirming different patterns in vowel durations in Prefixed Predicates that reflect distinct mental representations of aspectual prefixes in perfective predicate types.

4   Phonological Analysis

This section investigates the relation between the semantic and phonological pole in language processing. It presents evidence that the semantics of perfective predicate types (as discussed in section 3.1) correlate with phonological variation of vowel properties in aspectual prefixes. The phonological analysis presented here employs a usage-based approach to language processing (Bybee 1999, 2003, Tomasello 2000, Schiller and Meyer 2011) and directly relates language production to mental processes involved in lexical storage. In particular, this study draws inspiration from exemplar-based models in linguistics (Kirchner 1999, Gahl and Yu 2006, Wedel 2006, Kirchner et al. 2010, Pierrehumbert 2001, 2002) and the role of variant frequency in language processing (Hay 2001, Bell et al. 2009, Connine et al. 2008). The main goal of the present phonological analysis is to reveal the intimate connection between cognitive processes, semantic categorization of predicate types, and the systematic organization of speakers' experience of linguistic constructions. Phonological properties of vowels in aspectual prefixes are examined on the basis of predicate types to which they belong. This analysis yielded phonological data that confirms that the grammaticalization and lexicalization continua described in Chapter 3 are not arbitrary; on the contrary, predicate types reflect distinct mental representations based on their stages of development.

The following sections provide theoretical background for the main hypothesis that predicts distinct phonological patterns in vowel exemplars in aspectual prefixes. Section 4.1 introduces a usage-based approach to phonology. Section 4.1.1 discusses the concept of exemplars in language processing with a particular concentration on

phonology. The role of frequency and morphological decomposition of lexical items is introduced in section 4.1.2.

4.1   Usage-Based Approach to Phonology

The analysis in this section is based in a usage-based model that views language processing as grounded in actual communicative events. From this perspective, "the linguistic skills that a person possesses at any given point in time – in the form of a 'structured inventory of symbolic units' – result from her accumulated experience with language across the totality of usage events in her life" (Tomasello 2000:61-62). A usage-based approach to phonology explores the interaction between phonological systems (consisting of psychological categories) and phonological categories (emerging from variable speech tokens) (Silverman 2011:369). The present study investigates the patterning of phonological categories of vowels in aspectual prefixes and their relation to predicate types. Moreover, it seeks to explain language as a dynamic system that develops from constant use and complex mental processes that accommodate usage variation by complex generalization processes (Pierrehumbert 2001:139).

The widespread nature of generalization in language processing is a cornerstone of all usage-based models. Generalization in phonology has led functional linguists to develop exemplar-based models that rest upon the hypothesis that speakers store rich mental representations of their linguistic experiences and process them as belonging to more generalized categories.

4.1.1 Exemplar-Based Models

Exemplar-based models account for the dynamic nature of linguistic variation by linking cognitive processes to language use. Bybee (2006:711) proposes that "the general cognitive capabilities of the human brain […] allow it to categorize and sort for identity, similarity, and difference, [and] go to work on the language events a person encounters, categorizing and entering in memory these experiences." Thus, approaching language use as revolving around our experiences of language events can provide understanding of the structure of our phonological knowledge. Pierrehumbert (2001:143) believes that "exemplar theory provides us with a way to formalize the detailed phonetic knowledge that native speakers have about the categories of their language." Along the same lines, Johnson (2007:26) argues: "the exemplar-based approach is concerned […] with the cognitive grounding of phonological knowledge." Exemplar theory views our knowledge of phonological categories as constantly evolving and updating around exemplars. In other words, mental representations of categories that consist of detailed phonological knowledge are constantly developing in the human brain. The notion of phonological knowledge being driven by our understanding of language categories is essential to the present hypothesis on the phonological patterning of aspectual prefixes in Czech.

A detailed knowledge of a phonological category is a result of rich storage of tokens that are encountered in discourse. This thesis adopts a key assumption that exemplars are stored as belonging to a large cloud that represents the generalization of remembered tokens of a category. Pierrehumbert (2001:3) asserts that "these memories [of remembered tokens] are organized in a cognitive map, so that memories of highly similar instances are close to each other and memories of dissimilar instances are far

apart." In this view, exemplars of tokens are stored and mapped as belonging to clouds of phonological categories in the mental lexicon. In other words, "the phonological representation of lexical items consists of a cohort of exemplars of previously perceived realizations of that item, with all phonetic details present" (Kirchner 1999:2 from Johnson 1997). As a result, phonological categories are a "highly redundant, slowly updating set of many phonetically detailed exemplars of that category" (Wedel 2006:253). Furthermore, phonological categories are not static; rather, they are dynamic systems that correspond to our linguistic experiences. Applied to the present study of aspectual prefixes, the knowledge of phonetic properties of aspectual prefixes is predicted to be highly dynamic; however, it should demonstrate that generalization processes negotiate the richness of our experience and generate exemplar clouds of vowel categories in aspectual prefixes that reflect different degrees of grammaticalization and lexicalization.

The nature of token variation in language discourse leads to constant alterations of the exemplar cloud of a phonological category. Gahl and Yu (2006:214) confirm that "as the perceptual memories associated with a category accumulate and are incrementally updated, the distribution of these forms may shift." Shifts in distribution may happen as a result of grammaticalization processes (Bybee 2001: 58). Bybee (2001:58) explains that "the direct representation provided by phonetic categorization allows for gradual phonetic change in categories, as well as in particular lexical units." Such gradual changes are expected to take place in grammaticalization and lexicalization processes.

The concept of variation in exemplars is an essential assumption that guides the hypothesis of phonological variation of vowels in aspectual prefixes. The hypothesis is

that vowels in aspectual prefixes exhibit different phonological properties depending on their association with a predicate type. That is, assuming that exemplar clouds are built around our experience of specific tokens, each predicate type is represented by a different set of prefixed predicates. Thus, exemplar clouds of vowels in aspectual prefixes are predicted to show the distinct mental representations in predicate types as a result of grammaticalization and lexicalization processes. Considering that grammaticalization and lexicalization processes are a result of semantic changes, the intimate relation between language processing and lexical storage is expected to be transparent in the phonological structure of aspectual prefixes. The phonological structure in grammatical and lexical units is explored by Bybee (2001:58) who finds that phonological processes are tightly connected to high lexical frequency and consequent grammaticalization processes. The present study on aspectual prefixes in Czech takes into account grammaticalization and lexicalization processes and postulates a connection between vowel durations in aspectual prefixes and specific predicate types.

The present analysis assumes that exemplars of sounds are not stored independently of lexical items. That is, mental representations of exemplars include phonetic properties of lexical items rather than phonological categories of sounds alone. The overarching pattern of exemplar variation of vowels in aspectual prefixes is therefore a result of the semantic properties inherent to the mental storage of simplex and complex predicates. Individual lexical items and their relation to predicate types can reveal distinct exemplar characteristics of mental representations related to the aspectual continuum as a whole.

Studying vowel durations in aspectual prefixes can provide confirming evidence of different stages of grammaticalization and lexicalization processes. Exemplar variation of vowels serves as an indicator of distinct lexical storage strategies and language processing. In particular, usage-based approaches to language processing attest that frequency plays an important role in the entrenchment of lexical items and their retrieval from mental lexicon (Hay 2001:1044). Thus, the present analysis takes into account the role of frequency as well as the role of semantic transparency in morphological decomposition as major factors in the entrenchment of lexical items.

4.1.2   The Role of Frequency

The role of frequency in language processing has been explored from various angles in functional linguistics. Bybee (2001) focuses on frequency effects in grammaticalization processes while Hay (2001) studies the role of frequency as related to decomposition of morphologically complex words. Similarly, Connine et al. (2008) look at frequency effects in word recognition and retrieval and lexical processing. Other studies focus on pattern-entrenchment in phonologization as a frequency effect (Kirchner et al. 2010) and the role of frequency on duration of content and function words (Bell et al. 2009). According to the aforementioned studies, frequency plays a central role in lexical storage. The present study draws inspiration from frequency effects on grammaticalization, lexical entrenchment, and the role of decomposition in word recognition and retrieval.

In light of the predictions about grammaticalization of forms in languages, the fact that high token frequency is usually accompanied by phonological reduction is significant for drawing conclusions about vowel durations in aspectual prefixes. Bybee

(2001:11) explains that "if sound changes are the result of phonetic processes that apply in real time as words are used, then those words that are used more often have more opportunity to be affected by phonetic processes." The predominant tendency of more grammaticalized forms to be phonetically reduced is thus primarily a matter of frequency (Bybee and Hopper 2001). Based on grammaticalization studies that attest phonological reduction in highly grammaticalized forms (Bybee and Thompson 1997, Bybee 2005), I predict that the vowel properties in aspectual prefixes will be phonologically more reduced in highly grammaticalized predicates. However, since the grammaticalization continuum of aspectual prefixes encompasses simplex predicates that have been lexicalized, it is important that the present analysis also takes into account lexical entrenchment and the effect of frequency on decomposition of words as a major effect in the mental representation of exemplars of aspectual prefixes.

The role of frequency is tightly correlated with semantic transparency and lexical entrenchment (Hay 2001:1043). Hay (2001:1043) states that "the belief that semantic transparency and the frequency of the derived form are linked is so widely held that it is sometimes stated as fact." Although higher frequency does correlate with lower semantic transparency, this study takes into account a more fine grained approach to understanding the role of frequency in lexical entrenchment.

In her study on English homophones, Gahl (2008) looks at the notion of frequency inheritance of homophones in order to identify the effect of a high-frequency lemma on a homophonous low-frequency lemma. Her findings indicate that homophones are not affected by frequency inheritance. That is, homophone pairs in her study do not inherit lemma frequencies and their word durations are distinct. Her study demonstrates

that more frequent homophones are significantly shorter in duration than their low-frequency homophonous pairs. She explains her findings in a view of an exemplar-based model (Gahl 2008:491):

> "Compared to low-frequency words, high-frequency words are more likely to shorten due to a range of factors: high-frequency words are accessed faster, tend to be more predictable in discourse, elicit weaker articulatory effort, may benefit from articulatory routinization, and so on." (2008:491)

Understanding the role of frequency in mental representations of lemmas and its effect on exemplar variation adds depth to the study of synchronic layering of aspectual prefixes. It puts emphasis on a plausible variation in exemplar clouds in predicates that reflect different developmental stages. In other words, the results of Gahl's (2008) study strongly suggest that a phonological analysis must readily account for independent mental representations of homophonous pairs. Her findings provide a basis for the assumption that vowels in aspectual prefixes may belong to distinct exemplar clouds if homophonous predicates exhibit different degrees of grammaticalization or lexicalization. This hypothesis is crucial in the selection of tokens for the acoustic analysis of data. If homophones are not affected by frequency inheritance, their tokens are likely stored in the mental lexicon as unique lexical items. This study responds to this issue by carefully selecting tokens based on their meaning in a given construction.

4.1.2.1 *Compositionality of Lexical Items*

The significance of semantic compositionality of predicate types in relation to lexicalization and grammaticalization processes was described in Chapter 3. The phonological analysis in this chapter is also based in the concept of compositionality of lexical items. It hypothesizes that phonological properties of vowels in aspectual prefixes

have distinct representations based on the predicate's degree of compositionality and semantic transparency. Hay's (2001) study on frequency and lexical entrenchment investigates the effects of lexical frequency on morphological decomposition (Hay 2001). Hay's (2001) study shows that language users' access of lexical items depends in part on the semantic transparency of their composition, which is dependent on the relative frequency of derived forms. Her study looks at two ways that determine the access of an affixed word and how it affects its mental representation. She asserts that "accessing [a word] via the decomposed route reinforces its status as an affixed word made up of multiple parts, [while] accessing it via the direct route reinforces its status as an independent entity." Hay (2001) claims that:

> "Words that tend to be accessed via the decomposed route [...] remain tightly constrained by the characteristics and meaning of the base word, and to remain robustly semantically transparent. Words that tend to be accessed via the direct route have the potential to become liberated and to take on characteristics wholly independent of the base word. Such words are prone to semantic drift and may display low levels of semantic transparency." (2001:1046)

The type of access route is predicted to be a major determinant of the vowel properties in aspectual prefixes. The hypothesis is that predicates that are accessed via the decomposed route will exhibit different vowel properties than predicates that are accessed via the direct route. Simplex predicate types that have undergone lexicalization processes are predicted to favor a direct access route, while complex predicates are expected to show characteristics of a decomposed access route (as suggested from the semantic analysis in Chapter 3).

Additionally, Hay's (2001) study suggests that relative frequency of a complex word with respect to the base word is a major predictor of the access route. That is, complex words are perceived as compositional if the base words are more frequent than

the derived complex words. Assuming that there is a link between the frequency of a base word and the compositionality of a complex word, the present analysis selects only Prefixed Perfective predicates that are less frequent than their simplex predicate bases[2].

The phonetic analysis in this chapter presents evidence that phonological exemplars of vowels in aspectual prefixes reflect different degrees of semantic compositionality based on the predicate types in which they occur. An exemplar-based approach is used to investigate the patterning of vowel durations as a result of cognitive processes that systematically categorize phonological knowledge based on experience. It predicts that vowel exemplars of aspectual prefixes exhibit similarities based on their semantic predicate-type categorization. Therefore, semantically distinct stages of grammaticalization must represent distinct routes of mental access and favor diverse mental representations. The following section 4.2 discusses the exemplar-based model in the processing of aspectual prefixes. Section 4.3 lays out the methods and data collection for phonological analyses of aspectual prefixes. Section 4.4 presents the statistical results and section 4.5 provides discussion on the results and the implication of phonological patterning on the grammaticalization continuum laid out in Chapter 3.

4.2 The Exemplar-Based Model in Aspectual Prefix Processing

This section discusses the underlying assumptions about vowel durations in relation to predicate types. The hypothesis about phonological properties of vowels in aspectual prefixes approaches variation from a usage-based perspective. It assumes that

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[2] Due to a lack of tokens in the corpus, the phonetic analysis also used a small number of Prefixed Perfective predicates that were of slightly higher token frequencies than their bases. As shown in Appendix B, the difference in token frequencies is fairly insignificant, thus posing no issue to the phonetic analysis of vowel durations in this study.

exemplars of sounds reflect a constant interaction of frequency of forms, the degree of word entrenchment and its compositional origins. The following subsections present the distinct exemplar prototypes that are predicted to correlate with distinct strategies for lexical access of perfective predicate types.

4.2.1   Simplex Predicate Types

The semantic analysis in Chapter 3 identifies three distinct types of simplex predicates: New Prefixed Perfectives (NPP), Perfectives Without Verbal Roots (PWVR) and Prefixed Imperfectives (IP). Semantically, they are grouped together on the basis of their degree of entrenchment as new lexical items. That is, the aspectual prefix and the base verb form a new simplex predicate. Although some simplex predicates have more transparent morphological origins than others, this thesis argues that their level of entrenchment as lexical items has suppressed their compositional structure. The PWVR type demonstrates that the high degree of entrenchment in simplex predicate types results in "direct-access route" which, in the case of PWVR, leads to the loss of the base verb's independent lexical status and results in complete disappearance of the base verb. As Hay (2001:1046) suggests, such words are more prone to semantic drift as they become liberated from the base word, displaying low levels of semantic transparency.

Although the level of semantic transparency is largely dependent on the individual predicate, this thesis argues that all simplex predicate types are accessed as noncompositional lexical items in the lexicon. Simplex predicates are projected to favor direct-access route in lexical storage and retrieval rather than the decompositional route, which is dominant in complex predicate types. Therefore, the phonological analysis of vowel durations treats all simplex predicates as belonging to one noncompositional type.

The vowel durations of aspectual prefixes in simplex predicates are predicted to correlate with their overall high frequencies in corpus and contrast with the vowel durations in complex predicates, which are inherently compositional.

4.2.2   Complex Predicate Types

Complex predicate types consist of aspectual prefixes that reflect different stages of grammaticalization. Although they are all semantically transparent and morphologically decompositional, this study proposes that exemplars of vowels of aspectual prefixes have distinct durations depending on the predicate-type categorization.

The derivational nature and transparent lexical content of aspectual prefixes in Specialized Perfectives are expected to be reflected in the exemplar of the predicate-type category. The present hypothesis predicts an exemplar with longer vowel durations in Specialized Perfectives than the simplex predicate exemplar as a result of the overall lower frequency of Specialized Perfectives in corpus (due to their semantic specificity and low levels of grammaticalization) and the compositional structure of predicates that belong to this category. This study hypothesizes that the transparent semantic compositionality of Specialized Perfectives yields different patterns of lexical storage and retrieval that result in exemplars containing vowels of longer durations than simplex predicates.

In contrast, aspectual prefixes in Natural Perfectives are expected to reflect higher stages of grammaticalization with shorter vowel durations. As highly grammaticalized forms, aspectual morphemes in Natural Perfectives should exhibit shorter vowel durations in their exemplars in comparison to Specialized Perfectives and simplex predicates. As predicted by studies on grammaticalization, the high frequency and

grammatical content are accompanied by phonological reduction. Therefore, the vowel exemplars of prefixes in this category will be the shortest of all predicate types.

The compositional nature of complex predicates brings a valuable insight into the study of grammaticalization of aspectual prefixes. Since they are compositional in nature, any significant variation in vowel durations between complex predicate types yields an affirmative conclusion about distinct mental processes in accessing these forms. That is, if vowel exemplar clouds are not uniform in predicate types, the results support the hypothesis that speakers employ different strategies of lexical access as a result of distinct mental representations of aspectual prefixes. Therefore, any exemplar variation is indicative of distinct lexical storage and language processing of aspectual prefixes in relation to grammaticalization and lexicalization processes.

4.3   Data Collection and Method

The data for this study was collected through the Korpus DIALOG 1.1 that consists of audiovisual recordings of public television shows. The corpus consists of 932,373 words from 150 shows.[3] Considering the relatively limited size of the corpus, the analysis selected only predicates that had multiple tokens represented in the corpus. All tokens originated from the fifty most frequent predicates that were analyzed in the semantic section of this study in Chapter 3. The phonological analysis consisted of a narrow selection of tokens from each predicate type category with a total of 200 tokens

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[3] The data was collected from a newly launched Test DIALOG version of the corpus as the old version of Korpus DIALOG doesn't include wav files of tokens. The Test DIALOG version is not publicly available yet, however, it may be accessed upon registration at http://ujc.dialogy.cz/search/index12-5.html.

and 38 predicates.[4] The goal was to generate a comparable number of tokens for each predicate type. Due to the lack of a sufficient data sample, the Complex Act Perfective type was removed from the analysis. The analysis thus included tokens from all perfective types except for Complex Act Perfectives. The following Figure 4.1 lists the number of tokens that were coded for each predicate type.

Predicate Type	Prefix					
		za-	*po-*	*na-*	*do-*	TOTAL
Complex Predicates	Specialized Perfective	19	3	15	7	44
	Natural Perfectives	14	18	9	0	41
Simplex Predicates	New Prefixed Perfectives	8	15	10	9	42
	Perfectives Without Verbal Roots	13	14	7	7	41
	Prefixed Imperfectives	8	24	0	0	32

Figure 4.1 Number of Tokens for Predicate Types

The table in 4.1 shows that more grammaticalized prefixes (i.e. *za-* and *po-)*, have higher representation in the data sample. Considering the distributional patterns of predicate types in the semantic analysis in Chapter 3, simplex predicate types that exhibit advanced degrees of lexicalization are relatively scarce in the discourse. Despite their relatively overall high token frequencies (in respect to the overall token frequencies that are characteristic of predicates with a particular aspectual prefix), there is less variation of such predicate types in the corpus. Therefore, higher degree of lexicalization of a predicate type has a significant effect on the limited availability of tokens that belong to these predicate types. Including this limitation, technical issues with many sound files, and the constraint of the initial sound of the base verb that had to be accounted for,

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[4] See Appendix B for the list of tokens.

resulted in no tokens for Prefixed Imperfectives with the aspectual prefix *do-*. In addition, *do-* and *na-* occupy different stages on the developmental stage. Specifically, *do-* has no highly grammaticalized Natural Perfectives in the data sample and *na-* lacks evidence of highly lexicalized predicate types, such as Prefixed Imperfectives. The overall low numbers of tokens for predicates with *do-* are mostly a result of *do-* being less frequent in the corpus and therefore less likely to offer multiple tokens per predicate, which was one of the requirements for selection. The aspectual prefix *po-* has a small number of Specialized Perfectives due to the prefix occupying higher grammaticalization stages in comparison to other prefixes in this study, as was discussed in Chapter 3.

The analysis aimed to collect a comparable number of tokens for each predicate type, including the larger category of simplex predicates. Although simplex predicates are grouped together for the phonological analysis due to their hypothesized mental representations as new lexical items, this study attempts to provide an even token representation of each predicate type within this category.

The tokens representative of complex predicate types (i.e. Specialized Perfectives and Natural Perfectives) were selected based on their relative frequencies with respect to the simplex predicate from which they are derived. Considering that tokens of derived words with higher frequencies than their base words tend to be accessed as noncompositional (Hay 2001), the phonological analyses used tokens that were of lower (or near) frequency than their simplex imperfective partner predicates, thus accounting for the factor of compositionality and consistency in data selection.

All tokens were analyzed in the software Praat (Boersma and Weenink 2012) that provides acoustic analyses of speech. Tokens in which the base verb began with an

approximant or vowel were not analyzed due to the difficulty of segmenting these sounds. All tokens that were mispronounced, interrupted by or overlapped with other sounds were not analyzed. Vowel duration was measured in the aspectual prefix of each token. Measurements were made to the nearest millisecond.

Coding of data took into account random effects, such as particular word forms of tokens and speakers who produced them. Since Czech predicates may take on different forms depending on tense, person assignment, and number, the analyses coded for the number of syllables in each token as an independent variable. The other independent variables of interest included token, prefix, and predicate construal.

4.3.1   Challenges in Data Collection

Data collection encountered minor technical challenges related to poor audio quality and a significant number of empty files that provided no audio recordings. This was especially challenging when collecting tokens for the category of Specialized Perfectives. Specialized Perfectives are overall much less frequent than other predicate types (see Chapter 3), which resulted in many tokens having to be discarded due to limited possibilities of substitution by other tokens of the same predicate.

Another challenge in data collection was related to multiple construals of a single predicate. Frequently, a predicate that was identified as having two construals in the semantic analysis in Chapter 3, ended up being predominantly used in the more grammaticalized construal in spoken discourse. That is, although a predicate appears to be more frequently used as a Specialized Perfective, the limited data in Korpus DIALOG 1.1 did not consistently capture this frequency pattern and included examples of the more grammaticalized construals instead. This posed a problem in finding tokens of

Specialized Perfective predicates since their discourse frequencies are lower, and thus, there are fewer possibilities for substitution by an alternative token.

As a result of these challenges in data collection, Specialized Perfectives are represented by more variation in predicates and a smaller number of tokens per predicate. Nonetheless, the overall number of tokens is the same as for Natural Perfectives. The simplex predicate category has more tokens total because it represents three distinct predicate types: NPP, PWVR, and IP.

4.4   Results and Discussion

The analyses of vowel durations demonstrate that durations of vowel exemplars positively linked to predicate types and their levels of grammaticalization. The results are first discussed in terms of exemplar distributions based on vowel durations and are later supported by statistical data. For a full list of vowel durations and independent variables, please consult Appendix B.

4.4.1   Exemplars of Vowels in Aspectual Prefixes

The results of vowel durations are consistent with the hypothesis that speakers have distinct mental representations of aspectual prefixes corresponding to the stages of grammaticalization of predicate types. The following figure 4.2 shows the distribution of vowel durations in Specialized Perfectives, Natural Perfectives, and Simplex Predicates. The distributional patterns are based on the percentage value of tokens in each predicate type that occurs in the particular durational range. Looking at percentage values offers a clearer view of the distributional patterns in a sample of data that does not have an even number of tokens across semantic categories. That is, this study analyzed substantially

more tokens for simplex predicates in order to account for all the semantic predicate types that exhibit different degrees of lexicalization.
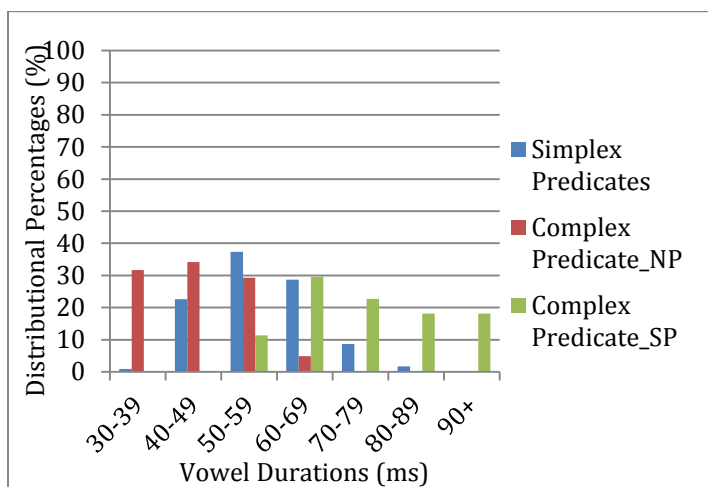
Figure 4.2 Exemplars of Vowel Durations in Aspectual Prefixes

The chart in Figure 4.2 reflects the distributional patterns in relation to durational ranges of vowels in milliseconds. The vertical axis indicates the percentage of tokens that occur in a particular vowel duration range for each predicate type on the horizontal axis. The graph in Figure 4.2 demonstrates that vowel durations in aspectual prefixes exhibit different durational patterns depending on the semantic categorization of the predicate in which they occur.

Specifically, the duration of simplex predicate types are mostly in the range between approximately 40 to 70 milliseconds, with a mean value of 57.3 milliseconds and standard deviation 9.8 milliseconds, while Specialized Perfectives are much longer in durations occupying the range between 60 and 90 milliseconds, with a mean value of 74.9 milliseconds and standard deviation 13.2 milliseconds. Natural Perfectives show shorter vowel duration exemplars mostly ranging from 34 to 60 milliseconds, with a mean value of 46.4 milliseconds and standard deviation 9.1 milliseconds.

4.4.2   Statistical Results

In order to statistically evaluate the predictability of predicate types on vowel durations, logistic regression with a continuous response was run in Rbrul (Johnson 2013) for predicate types, comparing two predicate types at a time. The statistical software Rburl was chosen because it offers statistical modeling that takes into account multiple factors on linguistic variables. Specifically, this program suited the analysis in this thesis because it evaluates the effects of multiple internal (linguistic) and external (social) factors on vowel durations in predicate types.

The statistical analysis determined that vowel duration in predicate types be examined as a dependent continuous response variable in all predicate type analysis. Independent variables included: predicate, prefix, predicate type, number of syllables, and speaker. Only the number of syllables was a continuous predictor, with the rest of independent variables coded as categorical. Speaker variation and individual word forms for each token were considered as random effects. The modeling was run as a step-up/step-down procedure, searching for a matching model for step-up and step-down analysis if predicate construal was a statistically significant predictor of vowel durations.

The following paragraphs demonstrate that predicate type is a significant factor in determining the vowel durations in aspectual prefixes. Figure 4.3 shows the best model for a statistical analysis determining the significance of vowel durations between Specialized Perfectives and Natural Perfectives.

Best step-down model with: Predicate [random] and Speaker
        [random] and Construal.Type (2.95e-07)

$Construal.type factor	coef	tokens	mean
Complex Predicate_SP	13.903	44	74.932

Complex Predicate_NP   -13.903   41   46.439

Figure 4.3 Rbrul's best model for the durations of vowels in aspectual prefixes in Complex Predicate_SP (Specialized Perfectives) and Complex Predicate_NP (Natural Perfectives). Step-down model and step-up model match in Rbrul.

Figure 4.3 shows the best model using predicate type factor, including the coefficients, number of tokens, and the mean values of value durations for each predicate type (step-down and step-up models match). It indicates that predicate type is a significant predictor of vowel duration in aspectual prefixes in Specialized and Natural Perfectives. As can be seen in Figure 4.2 the best model indicates that vowel exemplars in Specialized Perfectives have significantly lower durations than exemplars in Natural Perfectives with a probability value $p<0.001$. The effect of predicate type is also significant in the statistical analysis of vowel durations in Specialized Perfectives and Simplex Predicates.

Figure 4.4 shows the best model with construal type factor (step-down and step-up models match) for vowel durations of these predicate types.

BEST STEP-DOWN MODEL IS WITH Predicate [random] and Speaker [random] and Construal.Type (7.17e-06)

$Construal.Type factor	coef	tokens	mean
Complex Predicate_SP	8.331	44	74.932
Simplex Predicate	-8.331	115	57.339

Figure 4.4 Rbrul's best model for the durations of vowels in aspectual prefixes in Complex Predicate_SP (Specialized Perfectives) and Simplex Predicates. Step-down model and step-up model match in Rbrul.

Although the coefficient values are lower than the values from the statistical analysis of Specialized and Natural Perfectives, statistical computations confirm that predicate type

is a significant predictor (*p*<0.001) of vowel durations in aspectual prefixes in Specialized Predicates and Simplex Predicates. The vowel durations in Natural Perfectives and simplex predicates also proved to be significantly different.

Figure 4.5 shows the best model for vowel durations in Natural Perfectives and Simplex Predicates.

BEST STEP-DOWN MODEL IS WITH Predicate [random] and Speaker [random] and Construal.Type (1.13e-05) + Prefix (0.0013)

$Prefix factor	coef	tokens	mean
do	5.976	16	66.125
za	0.741	42	56.381
na	-1.002	26	54.462
po	-5.716	72	50.778

$Construal.Type factor	coef	tokens	mean
Simplex Predicate	5.069	115	57.339
Complex Predicate_NP	-5.069	41	46.439

Figure 4.5 Rbrul's best model for the durations of vowels in aspectual prefixes in Complex Predicate_NP (Natural Perfectives) and Simplex Predicates. Step-down model and step-up model match in Rbrul.

Statistical analysis shown in Figure 4.5 demonstrates that predicate type was a significant predictor of vowel durations (p<0.001) in the Rbrul analysis of vowel durations in Natural Perfective and Simplex Predicates. The linear regression found that prefix identity was also a significant predictor of vowel durations in the statistical analysis of Natural Perfectives and Complex Predicates. A major reason for Rbrul analysis to predict prefix identity as a significant predictor of vowel durations has to do with the high lexicalization stage of the prefix *do-* (as discussed in Chapter 3). Due to the prefix's low degree of grammaticalization, the analysis could not include any tokens of Natural Perfectives with the prefix *do-*. Thus, the mean values of vowel durations in the prefix

do- are statistically much higher than the rest of the prefixes, as it only reflects vowel durations of tokens from Specialized Perfectives and Simplex Predicates. The finding that there are differences among individual prefixes does not invalidate the finding of significant differences among different predicate types. The following discussion focuses on this result as it is the most relevant to understanding the processes of grammaticalization and lexicalization in these forms.

4.5   Discussion

The exemplar distributions of perfective predicate types suggest that aspectual prefixes are not stored independently of their predicate construal. On the contrary, the systematic variation of vowel durations in aspectual prefixes confirms that predicate types have distinct mental representations in the mental lexicon and systematically correspond to different stages of grammaticalization and lexicalization. In particular, the intermediate distribution of vowel durations of simplex predicates confirms that lexicalization processes result in direct-route access. These results further support the semantic evidence of noncompositionality of simplex predicates in advanced stages of lexicalization as discussed in Chapter 3.

The distribution of vowel durations in Natural Perfectives reflects the compositional nature of lexical storage of predicates with inflectional morphemes. As highly grammaticalized grams, aspectual prefixes are phonologically reduced due to their grammatical function and high frequency in corpus. Vowel exemplars of Natural Perfective contrast with longer vowel durations of derivational morphemes in Specialized Perfectives. Both lower corpus frequency and the semantic transparency of the lexical contribution of aspectual prefixes result in longer vowel durations and distinct mental

representations of Specialized Perfectives. This means that vowel duration can be used as a significant factor for identifying developmental stages of aspectual prefixes.

The phonetic analysis in this chapter supports the hypothesis of a developmental continuum of aspectual prefixes and their distinct semantic characteristics in different grammaticalization and lexicalization stages. The usage-based analysis of phonological categories of vowels in aspectual prefixes is consistent with the notion that different stages of grammaticalization and lexicalization yield different mental representations of aspectual prefixes, which are clearly reflected in the durations of vowel exemplars.

The results of phonological analyses indicate that frequency of form is not the main factor in determining vowel durations in tokens. The overall frequencies of simplex predicate types in the corpus are higher than frequencies of Natural Perfectives, which might seem to suggest that the simplex types should have shorter vowels. However, vowel durations are longer for simplex predicates because they are accessed as noncompositional lexical items in the lexicon via a direct-access route. In contrast, aspectual prefixes of less frequent Natural Perfective predicates are phonologically reduced as they are accessed via the compositional route as grammatical morphemes. They are the shortest in duration because they are not semantically transparent and add no lexical content to complex perfectives. This finding contrasts with vowels in Specialized Perfectives, which are the longest in duration.

4.6 Conclusion

This chapter investigates the relation between perfective predicate types and vowel durations in order to determine independent mental representations of aspectual prefixes as pertaining to different stages of the grammaticalization continuum. The

analysis incorporates a usage-based model in order to make predictions about the patterns in vowel durations in aspectual prefixes and their relation to different stages of grammaticalization. It explores the exemplar-based approach to the study of mental processing and lexical storage of aspectual prefixes and its relation to distinct predicate types. The main hypothesis of exemplar variation in the phonological structure of vowels in aspectual prefixes predicts effects of frequency in the entrenchment of lexical items and the role of decomposition and semantic transparency in language processing.

An acoustic analysis was conducted in Praat that provided the evidence for a phonological analysis of different semantic categories in predicates. Vowel durations in aspectual prefixes were analyzed in simplex predicates, Natural Perfectives, and Specialized Perfectives. The statistical relation between vowel durations and predicate types was evaluated in Rbrul. Results confirm that exemplars of vowel durations yield distinct mental representations based on predicate types and show direct correlations to the distinct stages of the grammaticalization continuum.

5   Conclusion

This thesis is concerned with the development of aspectual prefixes in Czech. It investigates the synchronic layering of Prefixed Perfective predicates and the role of grammaticalization and lexicalization processes in the development of Czech perfectivizing prefixes. The analyses are based in a constructional framework and draw from the notion that grammar emerges from discourse (Bybee 2006:711). This thesis consists of two distinct semantic analyses of Czech aspectual prefixes: diachronic and synchronic. In addition, it presents a phonological analysis of vowel durations in aspectual prefixes. The phonological analysis supports the findings from the semantic analysis and concurs that distinct mental processes are involved in the mental storage of aspectual prefixes due to their varying semantic properties in predicate types. Section 5.1 presents the main findings of the semantic and phonological chapters. Section 5.2 provides a brief discussion of the implications of grammaticalization and lexicalization processes in Czech and offers suggestions for further research concerning aspect in Slavic languages.

5.1   Summary of findings

The semantic analysis of synchronic layering of Prefixed Perfective predicates provides evidence about the diachronic development of aspectual prefixes. Chapter 2 hypothesizes that pragmatic inferencing and semantic reanalysis were at the onset of the development of prefixes as markers of perfectivity in telic motion event complex predicate constructions. Specifically, this study argues that aspectual prefixes developed from a telic motion event schema, which encompassed

a variety of goal oriented motion event constructions. It argues that the frequent salience of goal in Czech motion event constructions led to pragmatic inferencing. Consequently, path-encoding prefixes were semantically reanalyzed as encoding a result state. The evidence in Chapter 2 suggests that telic double-framing constructions with etymologically related prefixes and prepositions provided semantically ambiguous interpretations that enhanced the plausible link between prefixes and the result state and spread to other double-framing motion event constructions.

This thesis argues that the symbolic pairings of prefixes and their path encoding meanings were gradually abstracted from all telic motion event constructions and were collectively reanalyzed as belonging to a more schematic resultative construction. Prefixes underwent analogical processes and expanded their range of use to include other constructions in the schematic network of Prefixed Perfective constructions. During the later stages of grammaticalization and analogical leveling, aspectual prefixes became obligatory as markers of perfectivity in the grammar. This study presumes that later stages of pragmatic inferencing and analogy complemented each other to a large extent in the process of grammaticalization.

The diachronic analysis in Chapter 2 provides evidence that advanced stages of grammaticalization of aspectual prefixes included processes of semantic generalization as a result of lexical frequency and entrenchment. Aspectual prefixes become semantically generalized in highly entrenched schematic constructions. Synchronic data attests different stages of synchronic layering of aspectual prefixes

in Czech and presents evidence that highly grammaticalized construals of predicates coexist with less grammaticalized construals in the contemporary use of Czech.

This thesis identifies lexicalization processes that parallel later stages of grammaticalization. The synchronic layering of Prefixed Perfectives presents evidence that highly frequent complex predicates undergo lexicalization processes as a result of entrenchment in specific constructions. In other words, highly frequent complex predicates may become simplex predicates through lexicalization processes. The semantic evidence from synchronic constructions suggests that lexicalization of complex predicates is a precursor of more advanced lexicalization processes in simplex predicates.

The diachronic analysis presents a theory that postulates a gradual development of aspectual prefixes based on the semantics of prefixed predicates synchronically attested in Czech. Each stage of the development represents a semantically distinct type of predicate construction that is characteristic of the semantic relation between an aspectual prefix and a base predicate. Predicate types are analyzed as reflecting different degrees of grammaticalization or lexicalization and identified as complex predicates or simplex predicates respectively.

Chapter 3 explores the semantic properties of most frequent prefixed predicates with four aspectual prefixes: *za-*, *na-*, *po-*, and *do-*. The semantic classification consists of six predicate types, which are used to identify the distributional properties of different developmental stages of aspectual prefixes in the corpus. This chapter presents a path of development of aspectual prefixes and argues that aspectual prefixes can be mapped onto this path based on the

grammaticalization and lexicalization processes that are hypothesized to have taken place in prefixed predicates. This thesis presents evidence that aspectual prefixes reflect different stages of development as more grammaticalized or more lexicalized. The semantic classification is supported by distributional data of predicate types with aspectual prefixes in the corpus as well as the phonological analysis of vowel durations in aspectual prefixes in predicate types.

Chapter 4 investigates acoustic properties of vowels in aspectual prefixes to provide evidence of distinct mental representations of predicates in the lexicon. It employs a usage-based approach to phonology and analyzes vowel durations as belonging to exemplar clouds, which are characteristic of different mental processes in the lexical storage of predicates that reveal different stages of grammaticalization and lexicalization. The phonological analysis in Chapter 4 supports the findings from the semantic analysis, suggesting that speakers of Czech have distinct mental representations of vowels in aspectual prefixes based on their predicate type categorization. Specifically, the phonological analysis identifies that there are significant patterns in vowel durations related to predicate types defined in Chapter 3.

This study hypothesizes that the results of the phonological analysis reveal speakers distinct mental storage of prefixed predicates based on their semantic compositionality. This thesis argues that distinct exemplar clouds of vowels suggest that aspectual prefixes are processed based on the predicate's compositionality. The phonological analysis looked at the vowel durations in complex predicates and simplex predicates. Complex predicates were further divided into Specialized and

Natural Perfectives. Simplex predicates were analyzed as a uniform category due to their proposed noncompositional mental storage. The phonological analysis of vowel durations identify that the derivational nature and the transparent lexical content of aspectual prefixes in Specialized Perfectives result in their longest vowel durations, while vowels in Natural Perfectives are the shortest as a result of their high degree of grammaticalization, which is accompanied by phonological reduction. Simplex predicates show vowel durations that are characteristic of lexical items that are stored in the mental lexicon as semantically noncompositional, i.e., longer than vowels in grammaticalized prefixes but shorter than vowels in prefixes with transparent lexical content. The results of the phonological analysis of vowel durations in aspectual prefixes confirm that distinct mental representations and lexical storage of predicate types is directly related to the grammaticalization and lexicalization processes hypothesized in Chapter 3.

5.2   Challenges and Ideas for Further Research

The main goal of the present study was to provide a better understanding of the synchronic layering of aspectual prefixes in Czech. Although the scope of this study is rather limited, as it takes into account only four aspectual prefixes in fifty most frequent construals, the positive results offer a promising ground for further research. The implications from the distributional and phonological studies suggest that a more comprehensive study of Czech aspectual prefixes could yield similar results about the grammaticalization and lexicalization processes in the development of all aspectual prefixes in Czech.

Although this study was originally set out to identify the grammaticalization path of aspectual prefixes in Czech, the semantic variation of prefixed predicates in the corpus resulted in a more complex hypothesis of the path of development of aspectual prefixes. The presence of simplex predicates with aspectual prefixes was a convincing evidence of lexicalization processes that appear to be as frequent as grammaticalization processes and are thus a crucial evidence that supports the complex nature of synchronic layering of aspectual prefixes. The high frequency of simplex predicates in comparison to complex predicates provided more persuasive evidence of lexicalization processes in Prefixed Predicates. Thus, the thesis ended up putting a lot of emphasis on semantic compositionality in order to reinforce the distinction between complex and simplex predicates, which has not been established or agreed upon in studies on Slavic aspect.

Taking a constructional perspective to studying the development of aspectual prefixes in Czech clarifies that the meaning of aspectual prefixes is largely dependent on the construction, in which it occurs. This study attempted to negotiate the variety of construals of prefixed predicates, while offering a plausible hypothesis about the general patterns of development. This approached presented a challenge since studying the most frequently occurring predicates with highly grammaticalized and lexicalized aspectual prefixes supplied a large number of construals and meanings often associated with a single prefixed predicate. The semantic analysis dealt with this challenge by coding for the two most frequent construals and used only the most frequent construal for the distributional analysis. This was very time consuming considering that 40-50 different constructions had to

be analyzed for each predicate. In addition, the analysis couldn't guarantee that the random sample of constructions pulled from the corpus provided a true sample of the actual distribution of predicates' construals in the corpus. Despite this challenge, the semantic analysis was indicative of distributional patterns that would be expected to take place during grammaticalization and lexicalization processes in aspectual prefixes in Czech.

The phonological analysis dealt with the issue of a variety of construals by carefully selecting only constructions without ambiguous predicate construals. Indeed, while trying to account for the most transparent construal for the acoustic analysis, some tokens had to be discarded. The small size of the corpus and technical limitations of the sound files created a significant challenge in trying to collect data for the phonological analysis. Although many tokens had to be discarded and some categories ended up being represented more fully in terms of token variation, the results indicate strong tendencies of vowel durations to correspond with predicate type classifications.

The data collected and analyzed in this thesis indicate that constructional analysis of aspectual prefixes yields distinct semantic predicate types that are indicative of different degrees of grammaticalization and lexicalization. In order to provide more evidence, it would be interesting to explore vowel durations in homophones that belong to different predicate type categories. Such a study would provide more support to the claims that predicate types have distinct mental representations in the lexicon. In other words, studying homophonous construals could provide substantial evidence about the distinct mental processes that take

place in the storage of prefixed predicates as a result of grammaticalization and lexicalization processes.

This thesis explores a new dimension of the aspectual system in Czech by offering an analysis in a constructional framework and analyzing the synchronic layering of aspectual prefixes in terms of diachronic processes. The semantic analysis provides evidence of the semantics of aspectual prefixes as characteristic of their stages of development. It links their semantic properties to a general path of development and hypothesizes grammaticalization and lexicalization processes in relation to this path. Studying aspectual prefixes in other Slavic language in a constructional framework could yield valuable understanding into the distinct developmental trends in other aspectual systems that have likely developed as a result of similar grammaticalization and lexicalization processes.

Appendices

Appendix A. Semantic Analysis of Prefixes
Appendix B. Data for Phonological Analysis
Appendix C. English Translation for Default Predicate Construals

Appendix A. Semantic Analysis of Prefixes

Data Analysis for the Prefix ZA-

#	Token Freq	Token	Most Frequent Construal	ENG Translation	Other Construals	Base Pred.	BP Freq.	Imperf. Partner	Imperf Created By
1	100497	začít	Perfective w/o Verbal Root	to begin		None	N/A	začínat	Suffix
2	22389	zastavit	Natural Perfective	to stop	Specialized Perfective	stavit	4499	simplex pred.	Simplex Pred.
3	17820	zapomenout	Perfective w/o Verbal Root	to forget		None	N/A	zapomínat	Suffix
4	15845	zajímat	Prefixed Imperfective	to be interested in		jímat	14	none	none
5	15023	zaplatit	Natural Perfective	to pay		platit	30275	simplex pred.	Simplex Pred.
6	13569	zavolat	Natural Perfective	to call		volat	11847	simplex pred.	Simplex Pred.
7	12563	zabít	New Prefixed Perfective	to kill		bít	2322	zabíjet	Suffix
8	12412	zajistit	Natural Perfective	to secure, to insure	New Prefixed Perfective	jistit	175	simplex pred.	Simplex Pred.
9	11473	zabývat	Prefixed Imperfective	to deal with, to address		být	4,010,619	none	none
10	11064	zavřít	Perfective w/o Verbal Root	to close		None	N/A	zavírat	Suffix
11	10488	založit	New Prefixed Perfective	to establish	Specialized Perfective	ležet	22914	zakládat	suppletion
12	9103	zahájit	New Prefixed Perfective	to initiate		hájit	2762	zahajovat	Suffix
13	8393	zachránit	Specialized Perfective	to safe, to rescue		chránit	7819	zachraňovat	Suffix
14	8088	zachovat	Natural Perfective	to behave	New Prefixed Perfective	chovat	10621	simplex pred.	Simplex Pred.
15	7380	zažít	Specialized Perfective	to live through		žít	39794	zažívat	Suffix
16	7209	zasáhnout	New Prefixed Perfective	to hit, to strike		sahat	5657	zasahovat	Suffix
17	7170	zaznamenat	New Prefixed Perfective	to note		znamenat	37351	zaznamenávat	Suffix
18	7081	zavést	New Prefixed Perfective	to establish, to introduce	Natural Perfective	vést	41582	zavádět	suffix
19	7044	zamířit	Natural Perfective	to head to	Specialized Perfective	mířit	6330	simplex pred.	Simplex Pred.
20	6868	zabránit	Specialized Perfective	to prevent		bránit	11961	zabraňovat	Suffix
21	6598	zajít	Natural Perfective	to go, to visit	Specialized Perfective	jít	156425	simplex pred.	Simplex Pred.
22	6524	zahrát	Natural Perfective	to play		hrát	49566	simplex pred.	Simplex Pred.
23	6424	zaujmout	New Prefixed Perfective	to captivate, to engage	Specialized Perfective	ujmout	3480	zaujímat	Suffix
24	6079	zahlédnout	Complex Act Perfective	to glimpse, to catch sight		hledět	7744	none	none
25	5796	zaměřit	New Prefixed Perfective	to focus		měřit	5099	zaměřovat	Suffix
26	5663	zasloužit	Specialized Perfective	to deserve		sloužit	14803	zasluhovat	Suffix
27	5655	zařadit	Specialized Perfective	to place, to incorporate		řadit	2374	simplex pred.	zařazovat
28	5561	zasmát	Complex Act Perfective	to laugh (shortly)		smát	9517	none	none

29	5464 zachytit	Specialized Perfective	to catch		chytit	7018 zachycovat	Suffix
30	5083 zaslechnout	Complex Act Perfective	to hear, to overhear		slyšet	34556 none	none
31	5040 zavrtět	Natural Perfective	to shake		vrtět	1149 simplex pred.	Simplex Pred.
32	4808 zakázat	New Prefixed Perfective	to prohibit		kázat	885 zakazovat	Suffix
33	4767 zařídit	New Prefixed Perfective	to arrange		řídit	11891 zařizovat	Suffix
34	4419 zarazit	New Prefixed Perfective	to astonish, to stop astoi	Specialized Perfective	razit	807 zarážet	Suffix
35	4219 zapsat	Specialized Perfective	to write down		psát	26404 zapisovat	Suffifx
36	4168 zašeptat	Complex Act Perfective	to whisper (shortly)		šeptat	2255 none	none
37	4152 zadívat	Complex Act Perfective	to look, to gaze		dívat	22695 none	none
38	4134 zapojit	New Prefixed Perfective	to get involved, to engag	Specialized Perfective	pojit	644 zapojovat	Suffix
39	3807 zabrat	New Prefixed Perfective	to engross, to absorb	Specialized Perfective	brát	22387 zabírat	Suffix
40	3768 zaznít	Specialized Perfective	to sound, to voice		znít	13675 zaznívat	Suffix
41	3676 zadržet	Specialized Perfective	to stop, to detain		držet	25027 zadržovat	suffix
42	3311 zahynout	Natural Perfective	to die, to pass away		hynout	325 simplex pred.	Simplex Pred.
43	3143 zapálit	Specialized Perfective	to lit, to set on fire		pálit	2759 zapalovat	Suffix
44	3064 zatknout	Perfective w/o Verbal Root	to arrest		tknout	14 zatýkat	Suffix
45	2943 zajet	Specialized Perfective	to drive by		jet	28305 zajíždět	Suffix
46	2905 zastřelit	Natural Perfective	to shoot		střelit	8908 simplex pred.	Simplex Pred.
47	2666 zamilovat	Specialized Perfective	to fall in love		milovat	3252 none	none
48	2661 zamyslet	Specialized Perfective	to reflect		myslet	83835 zamýšlet	Suffix
49	2621 zaútočit	Natural Perfective	to attak		útočit	1918 simplex pred.	Simplex Pred.
50	2517 zamumlat	Complex Act Perfective	to mumble		mumlat	967 simplex pred.	Simplex Pred.

Data Analysis for the Prefix PO-

#	Token Freq	Token	Most Frequent Construal	ENG Translation	Other Construals	Base Pred.	BP Freq.	Imperf. Partner	Imperf Created By
1	38329	potřebovat	Prefixed Imperfective	to need		none	N/A	none	N/A
2	30971	podívat	Natural Perfective	to watch, to look		dívat	22695	same as simplex	Simplex Pred.
3	30237	pomoci	New Prefixed Perfective	to help		moci	409213	pomáhat	suffix
4	27860	pokračovat	Prefixed Imperfective	to continue		kráčet	4448	none	N/A
5	26516	podařit	Natural Perfective	to succeed		dařit	8800	same as simplex	Simplex Pred.
6	25311	považovat	Prefixed Imperfective	to consider		vážit	4956	none	N/A
7	22198	postavit	Natural Perfective	to build	New Prefixed Perfec	stavit	4499	same as simplex	Simplex Pred.
8	19115	poznat	New Prefixed Perfective	to recognize		znát	41458	poznávat	suffix
9	17796	použít	Specialized Perfective	to use		užívat	7898	používat	suffix
10	17418	poslat	Perfective w/o Verbal Root	to send		none	N/A	posílat	suffix
11	16900	počítat	Prefixed Imperfective	to count		none	N/A	none	none
12	16390	pochopit	Natural Perfective	to understand		chopit	1184	chápat	Match
13	14409	potvrdit	New Prefixed Perfective	to confirm		tvrdit	25308	potvrzovat	suffix
14	13807	podat	New Prefixed Perfective	to give, to hand		dávat	28063	podávat	suffix
15	13608	pokusit	Perfective w/o Verbal Root	to try		none	N/A	pokoušet	suffix
16	12644	pohybovat	Prefixed Imperfective	to move		hýbat	2199	pohybovat	suffix
17	12436	položit	New Prefixed Perfective	to put, to lay down		ležet	22914	pokládat	suppletion
18	12369	pozorovat	Prefixed Imperfective	to watch, to observe		none	N/A	none	none
19	12037	požádat	Natural Perfective	to ask		žádat	10225	same as simplex	Simplex Pred.
20	11100	poslouchat	Prefixed Imperfective	to listen		slyšet	34556	same as simplex	Simplex Pred.
21	10424	poznamenat	New Prefixed Perfective	to remark		znamenat	37351	poznamenávat	suffix
22	10016	počkat	Natural Perfective	to wait		čekat	51404	same as simplex	Simplex Pred.
23	9707	pomyslet	Complex Act Perfective	to think, to contemplate		myslet	83835	none	none
24	9699	povídat	Prefixed Imperfective	to talk, to chat		vídat	1731	none	none
25	9363	poskytnout	New Prefixed Perfective	to provide		skýtat	1048	poskytovat	suffix
26	9179	popsat	New Prefixed Perfective	to describe	Specialized Perfectiv	psát	26404	popisovat	suffix
27	9106	pocházet	Prefixed Imperfective	to come from		chodit	27692	none	none
28	8662	potkat	Perfective w/o Verbal Root	to meet		none	N/A	potkávat	suffix

29	8474	povést	New Prefixed Perfective	to manage, to su	Specialized Perfectiv	vést	41582	none	none
30	8401	posadit	Specialized Perfective	to sit down		sedět	28898	posazovat	suffix
31	8374	pohlédnout	Complex Act Perfective	to look		hledět	7744	pohlížet	suffix
32	6474	pozvat	Natural Perfective	to invite		zvát	3454	same as simplex	Simplex Pred.
33	6413	povědět	New Prefixed Perfective	to tell		vědět	152232	povídat	suffix
34	6341	poradit	Natural Perfective	to advise	New Prefixed Perfec	radit	3999	same as simplex	Simplex Pred.
35	5894	postarat	Natural Perfective	to take care		starat	7900	same as simplex	Simplex Pred.
36	5861	porazit	New Prefixed Perfective	to defeat	Specialized Perfectiv	razit	807	porážet	suffix
37	5590	podotknout	New Prefixed Perfective	to note, to remark		dotýkat	3709	podotýkat	suffix
38	5202	pořídit	New Prefixed Perfective	to get, to acquire by buying		řídit	11891	pořizovat	suffix
39	4702	pohnout	Natural Perfective	to move		hnout	2157	same as simplex	Simplex Pred.
40	4603	potěšit	Natural Perfective	to please		těšit	13181	same as simplex	Simplex Pred.
41	4082	pokrčit	Complex Act Perfective	to shrug		krčit	1371	none	none
42	4074	pocítit	Complex Act Perfective	to feel	Natural Perfective	cítit	36082	none	none
43	4013	povolit	New Prefixed Perfective	to permit, to allow		volit	5757	povolovat	suffix
44	3885	políbit	Natural Perfective	to kiss		líbat	2322	same as simplex	Simplex Pred.
45	3871	posílit	Specialized Perfective	to strenghten		sílit	999	posilovat	suffix
46	3724	poškodit	Specialized Perfective	to damage		škodit	1535	poškozovat	suffix
47	3699	ponechat	Specialized Perfective	to keep		nechat	50984	ponechávat	suffix
48	3676	posunout	Specialized Perfective	to move, to shift		sunout	669	posouvat	suffix
49	3627	popadnout	New Prefixed Perfective	to grab		padat	6371	popadávat	suffix
50	3498	postoupit	New Prefixed Perfective	to advance	Specialized Perfectiv	stoupat	5794	postupovat	suffix

Data Analysis for the Prefix NA-

#	Token Freq	Token	Most Frequent Construal	ENG Translation	Other Construals	Base Pred.	BP Freq.	Imperf. Partner	Imperf Created By
1	57553	najít	New Prefixed Perfective	to find		jít	156425	nacházet	suffix
2	22634	napsat	Natural Perfective	to write		psát	26404	same as simplex	Simplex Pred.
3	17904	napadnout	New Prefixed Perfective	to occur (mentally)	Specialized Perfecti	padat	6371	napadat	suffix
4	13958	nabídnout	Perfective w/o Verbal Root	to offer		none	N/A	nabízet	suppletion
5	11646	naučit	Natural Perfective	to teach, to learn		učit	11136	same as simplex	Simplex Pred.
6	10117	nalézt	New Prefixed Perfective	to find	Specialized Perfecti	lézt	2741	nalézat	suffix
7	9886	navštívit	Perfective w/o Verbal Root	to visit		none	N/A	navštěvovat	suffix
8	9238	narodit	Natural Perfective	to be born		rodit	2742	same as simplex	Simplex Pred.
9	9072	nastat	New Prefixed Perfective	to occur		stát	191257	nastávat	suffix
10	8818	nastoupit	Specialized Perfective	to start, to join	Specialized Perfecti	stoupat	5794	nastupovat	suffix
11	8248	nahradit	New Prefixed Perfective	to replace		hradit	1770	nahrazovat	suffix
12	8158	navrhnout	New Prefixed Perfective	to suggest, to design		vrhat	1957	navrhovat	suffix
13	7842	narazit	Specialized Perfective	to come across, to encou	Specialized Perfecti	razit	807	narážet	suffix
14	5093	naplnit	Natural Perfective	to fill, to fullfill		plnit	5809	naplňovat	suffix
15	5084	natáhnout	Specialized Perfective	to extand, to reach		táhnout	6903	natahovat	sufix
16	4642	naznačit	Specialized Perfective	to indicate		značit	961	naznačovat	suffix
17	4310	nasadit	Specialized Perfective	to put on		sedět	28898	nasazovat	suffix
18	4183	natočit	Specialized Perfective	to film	Natural Perfective	točit	4672	natáčet	suffix
19	4077	nazvat	Specialized Perfective	to call, to term		zvát	3454	nazývat	suffix
20	3633	naklonit	Specialized Perfective	to lean	Natural Perfective	klonit	284	naklánět	suffix
21	3632	navázat	Specialized Perfective	to establish		vázat	2892	navazovat	suffix
22	3491	nařídit	Specialized Perfective	to order, to command	Specialized Perfecti	řídit	11891	nařizovat	suffix
23	2930	nastavit	New Prefixed Perfective	to set, to set up	Specialized Perfecti	stavit	4499	nastavovat	suffix
24	2765	nadechnout	Specialized Perfective	to breath in		dýchat	4221	nadechovat	suffix
25	2677	napít	Natural Perfective	to drink		pít	7732	same as simplex	Simplex Pred.
26	2669	namítnout	Perfective w/o Verbal Root	to object		none	N/A	namítat	suffix
27	2660	nalít	Natural Perfective	to pour		lít	1510	nalévat	suffix
28	2500	nabýt	New Prefixed Perfective	to become, to acquire		být	4,010,619	nabývat	suffix

29	2342	nahlédnout	Specialized Perfective	to look into, to peer into		hledět	7744	nahlížet	suffix
30	2110	naložit	New Prefixed Perfective	to load	Specialized Perfecti	ležit	22914	nakládat	suffix
31	2022	nakoupit	Natural Perfective	to buy		kupovat	16811	same as simplex	Simplex Pred.
32	1996	narušit	Specialized Perfective	to discrupt		rušit	3294	narušovat	suffix
33	1995	nabrat	Specialized Perfective	to gather, to scoop up	New Prefixed Predi	brát	22387	nabírat	suffix
34	1935	naplánovat	Natural Perfective	to plan		plánovat	7032	same as simplex	Simplex Pred.
35	1882	najmout	New Prefixed Perfective	to hire		jímat	133	najímat	suffix
36	1846	napravit	New Prefixed Perfective	to rectify		pravit	6177	napravovat	suffix
37	1838	namířit	Natural Perfective	to head	Specialized Perfecti	mířit	6330	same as simplex	Simplex Pred.
38	1638	nakrájet	Natural Perfective	to cut		krájet	484	same as simplex	Simplex Pred.
39	1509	najíst (se)	Natural Perfective	to eat		jíst	7674	same as simplex	Simplex Pred.
40	1399	nastartovat	Natural Perfective	to start	Specialized Perfecti	startovat	2225	same as simplex	Simplex Pred.
41	1353	namalovat	Natural Perfective	to paint, to draw		malovat	2353	same as simplex	Simplex Pred.
42	1253	narovnat	Natural Perfective	to stand up straight		rovnat	1581	same as simplex	Simplex Pred.
43	1242	nadělat	Specialized Perfective	to make		dělat	70710	nadělávat	suffix
44	1240	nahrát	Specialized Perfective	to record	New Prefixed Predi	hrát	26146	nahrávat	suffix
45	1236	naskočit	Specialized Perfective	to pop up		skočit (skák;	4404	naskakovat	suffix
46	1198	nasednout	Specialized Perfective	to board, to get in		sedat	6380	nasedat	suffix
47	1194	nastěhovat	Natural Perfective	to move, to relocate		stěhovat	2039	same as simplex	Simplex Pred.
48	1188	nakreslit	Natural Perfective	to draw		kreslit	1530	same as simplex	Simplex Pred.
49	1104	nakazit	New Prefixed Perfective	to get infected		kazit	1149	nakazovat	suffix
50	1077	naštvat	Natural Perfective	to upset, to make upset		štvát	1072	same as simplex	Simplex Pred.

Data Analysis for the Prefix DO-

#	Token Freq	Token	Most Frequent Construal	ENG Translation	Other Construals	Base Pred.	BP Freq.	Imperf. Partner	Imperf Created By
1	89255	dostat	New Prefixed Perfective	to get, to receive		stát	191257	dostávat	suffix
2	51557	dokázat	New Prefixed Perfective	to be able to, can	Specialized Perfective	kázat	885	none	none
3	37989	dojít	New Prefixed Perfective	to occur, to come to	Specialized Perfective	jít	156425	docházet	suppletion
4	26101	dodat	New Prefixed Perfective	to add	Specialized Perfective	dát	64175	dodávat	suffix
5	18768	dosáhnout	Specialized Perfective	to reach		sahat	3085	dosahovat	suffix
6	16025	doufat	Prefixed Imperfective	to hope		none	N/A	none	none
7	13711	dovolit	New Prefixed Perfective	to permit, to allow		volit	5757	dovolovat	sufix
8	12444	dozvědět	Specialized Perfective	to come to know, to learn		zvědět	141	dozvídat	suffix
9	10331	dovést	New Prefixed Perfective	to be able to, can	Specialized Perfective	vést	23124	dovádět	suffix
10	9765	dopadnout	New Prefixed Perfective	to turn out	Specialized Perfective	padat	6371	dopadávat	suffix
11	9346	domnívat	Prefixed Imperfective	to suppose, to think		none	N/A	none	none
12	9321	dorazit	New Prefixed Perfective	to arrive	Specialized Perfective	razit	807	dorážet	suffix
13	8721	doplnit	Specialized Perfective	to add, to supplement	Specialized Perfective	plnit	5896	doplňovat	suffix
14	7830	dotknout	New Prefixed Perfective	to touch		týkat	48	dotýkat	suffix
15	6936	dočkat	Specialized Perfective	to wait		čekat	27133	dočkávat	suffix
16	6865	dokončit	Specialized Perfective	to finish		končit	10933	dokončovat	suffix
17	6656	dohodnout	Perfective w/o Verbal Root	to agree		none	N/A	dohodovat	suffix
18	5160	dospět	Specialized Perfective	to come to		spět	542	dospívat	suffix
19	4266	domluvit	New Prefixed Perfective	to agree	Natural Perfective	mluvit	46901	domlouvat	suffix
20	3875	dopustit	New Prefixed Perfective	to allow	Specialized Perfective	pustit	15092	dopouštět	suffix
21	3847	doporučit	New Prefixed Perfective	to recommend		poroučet	544	doporučovat	suffix
22	3266	dojet	Specialized Perfective	to arrive, to reach (by driving)		jet	28305	dojíždět	suppletion
23	2990	donutit	Specialized Perfective	to force		nutit	6633	donucovat	suffix
24	2983	dostavit	New Prefixed Perfective	to appear, to show up	Specialized Perfective	stavit	4499	dostavovat	suffix
25	2465	dovědět	Specialized Perfective	to learn, to get to know		vědět	152232	dovídat	suffix
26	2381	dopřát	New Prefixed Perfective	to enjoy, to indulge	Specialized Perfective	přát	16608	dopřávat	suffix
27	2003	dodržet	New Prefixed Perfective	to abide		držet	25027	dodržovat	suffix
28	1946	doprovodit	Specialized Perfective	to accompany		provázet	3778	doprovázet	suffix

29	1937	donést	Specialized Perfective	to bring	nést	12660	donášet suffix
30	1872	dotáhnout	Specialized Perfective	to follow through	táhnout	6903	dotahovat suffix
31	1788	dopravit	New Prefixed Perfective	to transport	pravit	6177	dopravovat suffix
32	1614	dočíst	Specialized Perfective	to reading	číst	17700	dočítat suffix
33	1567	doložit	New Prefixed Perfective	to evidence, to document	ležet	22914	dokládat suffix
34	1314	dobýt	New Prefixed Perfective	to conquer	být	2486089	dobývat suffix
35	1301	dovézt	Specialized Perfective	to take/bring by driving	vézt	2418	dovážet suffix
36	1258	doplatit	New Prefixed Perfective	to suffer, to pay (the price c Specialized Perfectiv	platit	30275	doplácet suffix
37	1233	dohlédnout	New Prefixed Perfective	to ensure, to oversee Specialized Perfectiv	hledět	7744	dohlížet suffix
38	1222	dožít	Specialized Perfective	to live (to an old age)	žít	39794	dožívat suffix
39	1222	dohnat	Specialized Perfective	to make up (for), to catch	hnát	3422	dohánět suffix
40	1179	doběhnout	Specialized Perfective	to run	běhat	2691	dobíhat suffix
41	1150	dohadovat	Prefixed Imperfective	to argue	hádat	3097	none none
42	1142	docílit	Specialized Perfective	to achieve, to attain	cílit	140	docilovat suffix
43	1073	doručit	New Prefixed Perfective	to deliver	ručit	658	doručovat suffix
44	983	dochovat	New Prefixed Perfective	to preserve	chovat	13472	dochovávat suffix
45	868	dolehnout	New Prefixed Perfective	to reach (by sound)	lehat	166	doléhal suffix
46	721	dojmout	New Prefixed Perfective	to move, to touch (emotionally)	jmout	472	dojímat suffix
47	720	doznat	New Prefixed Perfective	to admit	znát	41458	doznávat suffix
48	711	dohrát	Specialized Perfective	to finish playing	hrát	49566	dohrávat suffix
49	701	dostihnout	Specialized Perfective	to catch up	stíhat	2046	dostihovat suffix
50	656	doslechnout	Specialized Perfective	to hear about	slyšet	34556	dosléchat suffix

Appendix B. Data for Phonological Analysis

Imperfective Predicates

Token	ENG Translation	Word form	Prefix	Construal	# of syl	Vowel Duration	Speaker	Gender
zabývat	to deal with, to address	zabývat	za	IP	3	42	Jaroslav Palas	M
zabývat	to deal with, to address	zabývat	za	IP	3	57	Jiri Paroubek	M
zabývat	to deal with, to address	zabýval	za	IP	3	50	Ladislav Jalk	M
zabývat	to deal with, to address	zabývá	za	IP	3	68	Lubomír Zaorálek	M
zabývat	to deal with, to address	zabývám	za	IP	3	58	Pavel Pafko	M
zabývat	to deal with, to address	zabývají	za	IP	4	85	Václav Havel	M
zabývat	to deal with, to address	zabývat	za	IP	3	50	Václav Moravec	M
zabývat	to deal with, to address	zabývala	po	IP	4	57	Vladimir Zeman	M
potřebovat	to need	potřebovala	po	IP	5	37	Stanislav Gross	M
potřebovat	to need	potřebovalo	po	IP	5	61	Václav Moravec	M
potřebovat	to need	potřebovat	po	IP	4	65	Marie Benešová	F
potřebovat	to need	potřebuje	po	IP	4	50	Jiří Paroubek	M
potřebovat	to need	potřebujeme	po	IP	5	59	Jiří Paroubek	M
potřebovat	to need	potřebují	po	IP	4	44	Petr Bratský	M
považovat	to consider	považoval	po	IP	4	82	Daniela Filipoiva	F
považovat	to consider	považují	po	IP	4	58	Mirka Čejková	F
považovat	to consider	považoval	po	IP	4	49	Jiří Paroubek	M
považovat	to consider	považovat	po	IP	4	60	Václav Havel	M
považovat	to consider	považuje	po	IP	4	49	Zdeněk Škromach	M
považovat	to consider	považujeme	po	IP	5	68	Vlastimil Tlustý	M
pokračovat	to continue	pokračovat	po	IP	4	48	Miroslav Grenebíček	M
pokračovat	to continue	pokračoval	po	IP	4	51	Jana Bobošíková	F
pokračovat	to continue	pokračovat	po	IP	4	44	Jiří Paroubek	M
pokračovat	to continue	pokračovali	po	IP	5	52	Miroslav Topolánek	M
pokračovat	to continue	pokračovat	po	IP	4	51	Petr Nečas	M
pokračovat	to continue	pokračovat	po	IP	4	41	Vlasimír Tlustý	M
pokračovat	to continue	pokračuje	po	IP	4	46	Stanislav Gross	M
povídat	to talk, to chat	povídali	po	IP	4	68	Jan Rejžek	M

povídat	to talk, to chat	povídat	po	IP	3	62	Marie Rottrová	F
povídat	to talk, to chat	povídat	po	IP	3	65	Marek Eben	M
povídat	to talk, to chat	povídá	po	IP	3	59	Vladimír Komárek	M
povídat	to talk, to chat	povídám	po	IP	3	55	Bohumil Klepl	M

Perfectives Without Verbal Roots

Token	ENG Translation	Word form	Prefix	Construal	# of syl	Vowel Duration	Speaker	Gender
začít	to begin	začla	za	PWVR	2	65	Karel Hvízdala	M
začít	to begin	začla	za	PWVR	2	68	Václav Klaus	M
začít	to begin	začli	za	PWVR	2	64	Jana Bobošíková	F
začít	to begin	začli	za	PWVR	2	57	Jana Perglerová	F
začít	to begin	začli	za	PWVR	2	58	Václav Havel	M
začít	to begin	začlo	za	PWVR	2	62	Přemysl Sobotka	M
zapomenout	to forget	zapomene	za	PWVR	4	61	Pavla Topolánková	F
zapomenout	to forget	zapomenout	za	PWVR	4	65	Stanislav Gross	M
zapomenout	to forget	zapomněl	za	PWVR	3	43	Martin Veselovský	M
zapomenout	to forget	zapomněli	za	PWVR	4	60	Jana Bobošíková	F
zapomenout	to forget	zapomněli	za	PWVR	4	68	Josef Zieleniec	M
zapomenout	to forget	zapomněli	za	PWVR	4	69	Marie Součková	F
zapomenout	to forget	zapomněli	za	PWVR	4	44	Michal Kocáb	M
nabídnout	to offer	nabídneme	na	PWVR	4	55	Stanislav Gross	M
nabídnout	to offer	nabídneme	na	PWVR	4	50	Václav Moravec	M
nabídnout	to offer	nabídnout	na	PWVR	3	65	Jana Bobošíková	F
nabídnout	to offer	nabídnout	na	PWVR	3	67	Jiří Paroubek	M
nabídnout	to offer	nabídnout	na	PWVR	3	62	Miroslav Kalousek	M
nabídnout	to offer	nabídnout	na	PWVR	3	60	Vladimír Špidla	M
nabídnout	to offer	nabídnut	na	PWVR	3	54	Jaroslav Palas	M
potkat	to meet	potkaj	po	PWVR	2	50	Aňa Geislerová	F
potkat	to meet	potkal	po	PWVR	2	55	Jitka Kupčová	F
potkat	to meet	potkal	po	PWVR	2	51	Miroslav Topolánek	M
potkat	to meet	potkal	po	PWVR	2	42	Václav Vlk	M
potkat	to meet	potkala	po	PWVR	3	48	Václav Moravec	M
potkat	to meet	potkali	po	PWVR	3	58	Radil Uzel	M
potkat	to meet	potkalo	po	PWVR	3	48	Jan Kraus	M
potkat	to meet	potkáme	po	PWVR	3	49	Miroslav Kalousek	M
poslat	to send	poslal	po	PWVR	2	41	Ladislav Jakl	M
poslat	to send	poslal	po	PWVR	2	48	Václav Moravec	M
poslat	to send	poslala	po	PWVR	3	65	Václav Klaus	M
poslat	to send	poslali	po	PWVR	3	50	Jan Zahradil	M
poslat	to send	pošle	po	PWVR	2	44	Ivan Langer	M
poslat	to send	pošle	po	PWVR	2	58	Jana Bobošíková	F
dohodnout	to agree	dohodla	do	PWVR	3	77	Petr Mareš	M

dohodnout	to agree	dohodli	do	PWVR	3	72	Pavla Topolánková	F
dohodnout	to agree	dohodli	do	PWVR	3	70	Petr Pithart	M
dohodnout	to agree	dohodli	do	PWVR	3	77	Václav Klaus	M
dohodnout	to agree	dohodly	do	PWVR	3	65	Václav Havel	M
dohodnout	to agree	dohodly	do	PWVR	3	65	Václav Moravec	M
dohodnout	to agree	dohodneme	do	PWVR	4	76	Josef Zieleniec	M

New Prefixed Perfectives

Token	ENG Translation	Word form	Prefix	Construal	# of syl	Vowel Duration	Speaker	Gender
zabít	to kill	zabije	za	NPP	3	70	Bob Fliedr	M
zabít	to kill	zabil	za	NPP	2	53	Dan Drápal	M
zabít	to kill	zabil	za	NPP	2	60	Miroslava Němcová	F
zabít	to kill	zabita	za	NPP	3	57	Radim Uzel	M
zabít	to kill	zabito	za	NPP	3	64	Zdena Prokopová	F
zahájit	to begin	zahájeno	za	NPP	4	67	Marie Součková	F
zahájit	to begin	zahájit	za	NPP	3	79	Jaroslav Palas	M
zahájit	to begin	zahájit	za	NPP	3	71	Pavel Telička	M
napadnout	to occur	napadla	na	NPP	3	56	Jan Kraus	M
napadnout	to occur	napadla	na	NPP	3	58	Petr Pithart	M
napadnout	to occur	napadlo	na	NPP	3	58	Karel Hvížďala	M
napadnout	to occur	napadlo	na	NPP	3	57	Petra Buzková	F
napadnout	to occur	napadlo	na	NPP	3	56	Václav Klaus	M
nahradit	to replace	nahradily	na	NPP	4	60	Jana Bobošíková	F
nahradit	to replace	nahradit	na	NPP	3	68	Daniela Filipiová	F
nahradit	to replace	nahradit	na	NPP	3	52	Libuše Benešová	F
nahradit	to replace	nahradit	na	NPP	3	58	Pavel Anděl	M
nahradit	to replace	nahradí	na	NPP	3	45	Václav Moravec	M
pomoci	to help	pomoci	po	NPP	3	62	Viktorie Špidlová	F
pomoci	to help	pomohl	po	NPP	3	53	Václav Moravec	M
pomoci	to help	pomohla	po	NPP	3	55	Josef Zieleniec	M
pomoci	to help	pomohla	po	NPP	3	54	Václav Klaus	M
pomoci	to help	pomohly	po	NPP	3	48	Stanislav Gross	M
pomoci	to help	pomůže	po	NPP	3	53	Svatopluk Karásek	M
potvrdit	to confirm	potvrdil	po	NPP	3	51	Vladimír Špidla	M
potvrdit	to confirm	potvrdila	po	NPP	4	50	Jana Bobošíková	F
potvrdit	to confirm	potvrdila	po	NPP	4	44	Vlastimil Tlustý	M
potvrdit	to confirm	potvrdilo	po	NPP	4	49	Václav Moravec	M
potvrdit	to confirm	potvrdit	po	NPP	4	46	Cyril Svoboda	M
popsat	to describe	popsal	po	NPP	2	47	Jan Vávra	M
popsat	to describe	popsal	po	NPP	2	52	Jana Bobošíková	F
popsat	to describe	popsal	po	NPP	2	45	Miroslav Ransdorf	M
popsat	to describe	popsal	po	NPP	2	43	Vladimír Špidla	M
domluvit	to agree	domluveni	do	NPP	4	57	Jiří Paroubek	M
domluvit	to agree	domluveni	do	NPP	4	48	Milan Šimonovský	M

domluvit	to agree	domluvit	do	NPP	3	62	Lubomír Zaorálek	M
dovolit	to allow	dovolil	do	NPP	3	65	Petra Buzková	F
dovolit	to allow	dovolit	do	NPP	3	70	Miloš Zeman	M
dovolit	to allow	dovolit	do	NPP	3	55	Petr Nečas	M
dovolit	to allow	dovolit	do	NPP	3	75	Stanislav Gross	F
dovolit	to allow	dovolit	do	NPP	3	68	Viktorie Špidlová	F
dovolit	to allow	dovolte	do	NPP	3	56	Marie Součková	F

Natural Perfectives

Token	ENG Translation	Word form	Prefix	Construal	# of syl	Vowel Duration	Speaker	Gender
zaplatit	to pay	zaplatil	za	NP	3	48	Martin Říma	M
zaplatit	to pay	zaplatila	za	NP	4	48	Ivan Langer	M
zaplatit	to pay	zaplatili	za	NP	4	39	Petr Nečas	M
zaplatit	to pay	zaplatit	za	NP	3	46	Petr Bendl	M
zaplatit	to pay	zaplatí	za	NP	3	57	Přemysl Sobotka	M
zaplatit	to pay	zaplatí	za	NP	3	47	Vlastimil Tlustý	M
zavolat	to call	zavolala	za	NP	4	45	Martin C. Putna	M
zavolat	to call	zavolá	za	NP	3	51	Jan Zahradil	M
zavolat	to call	zavolá	za	NP	3	40	Karel Šíp	M
zavolat	to call	zavoláte	za	NP	4	59	Jiří Paroubek	M
napsat	to write	napsal	na	NP	2	41	Petr Bratský	M
napsat	to write	napsal	na	NP	2	48	Václav Havel	M
napsat	to write	napsal	na	NP	2	39	Václav Moravec	M
napsat	to write	napsala	na	NP	3	36	Jaroslav Palas	M
napsat	to write	napsat	na	NP	2	59	Jiří Kraus	M
napsat	to write	napsáno	na	NP	3	53	Mirka Čejková	F
podívat	to watch, to look	podívat	po	NP	3	34	Jan Ruml	M
podívat	to watch, to look	podívá	po	NP	3	48	Jiří Paroubek	M
podívat	to watch, to look	podíváme	po	NP	4	59	Václav Havel	M
podívat	to watch, to look	podíváme	po	NP	4	39	Václav Moravec	M
podívat	to watch, to look	podíváte	po	NP	4	48	Stanislav Gross	M
podívat	to watch, to look	podíváte	po	NP	4	39	Vlastimil Tlustý	M
podívat	to watch, to look	podíváte	po	NP	4	34	Zdeněk Škromach	M
potěšit	to please	potěšil	po	NP	3	47	Miroslav Kalousek	M
potěšit	to please	potěšil	po	NP	3	37	Zdeněk Svěrák	M
potěšit	to please	potěšilo	po	NP	4	38	Přemysl Sobotka	M
potěšit	to please	potěšilo	po	NP	4	54	Zdeněk Hořínek	M
potěšit	to please	potěší	po	NP	3	30	Marek Eben	M

potěšit	to please	potěší	po	NP	3	56	Martin C. Putna	M
poradit	to advise	poradil	po	NP	3	30	Petra Buzková	F
poradit	to advise	poradila	po	NP	3	47	Aňa Geislerová	F
poradit	to advise	poradil	po	NP	3	61	Jitka Kupčová	F
poradit	to advise	poradila	po	NP	4	59	Ester Kočičková	F
poradit	to advise	poradit	po	NP	3	56	Václav Klaus	M
zachovat	to behave	zachoval	za	NP	3	57	Jana Bobošíková	F
zachovat	to behave	zachoval	za	NP	3	34	Vojtěch Filip	M
zachovat	to behave	zachovali	za	NP	4	39	Jan Vávra	M
zachovat	to behave	zachovám	za	NP	3	43	Stanislav Gross	M
namalovat	to paint	namalovat	na	NP	4	44	Jaroslav Šerých	M
namalovat	to paint	namalovat	na	NP	4	64	Miroslav Kalousek	M
namalovat	to paint	namalovat	na	NP	4	51	Vladimír Komárek	M

Specialized Perfectives

Token	ENG Translation	Word form	Prefix	Construal	# of syl	Vowel Duration	Speaker	Gender
zapsat	to write down	zapsat	za	SP	2	58	Michal Prokop	M
zapsat	to write down	zapsán	za	SP	2	54	Petr Nečas	M
zaznít	to sounds, to voice	zazněl	za	SP	2	107	Petr Mareš	M
zaznít	to sounds, to voice	zazněla	za	SP	3	90	Libuše Benešová	F
zaznít	to sounds, to voice	zazněla	za	SP	3	64	Miroslav Grebeníček	M
zaznít	to sounds, to voice	zaznělo	za	SP	3	62	Jaroslav Palas	M
zaznít	to sounds, to voice	zaznělo	za	SP	3	67	Mirek Topolánek	M
zaznít	to sounds, to voice	zaznělo	za	SP	3	86	Mirka Čejková	F
nadělat	to make	nadělali	na	SP	4	62	Vladimír Špidla	M
nadělat	to make	nadělali	na	SP	4	66	Miroslav Topolánek	M
nadělat	to make	nadělali	na	SP	4	74	Miroslav Vlk	M
nadělat	to make	nadělalo	na	SP	4	87	Jiří Dědeček	M
nadělat	to make	naděláme	na	SP	4	67	Martin C Putna	M
navázat	to establish	navázal	na	SP	3	71	Ivan Odilo Štampach	M
navázat	to establish	navázal	na	SP	3	57	Jan Pokorný	M
navázat	to establish	navázala	na	SP	4	72	Dagmar Havlová	F
navázat	to establish	navázala	na	SP	4	73	Vladimír Špidla	M
navázat	to establish	navázat	na	SP	3	91	Marie Součková	F
navázat	to establish	navázáni	na	SP	4	77	Miroslav Topolánek	M
dokončit	to finish	dokončena	do	SP	4	60	Martin Veselovský	M
dokončit	to finish	dokončil	do	SP	3	51	Jana Bobošíková	F
dokončit	to finish	dokončil	do	SP	3	56	Tereza Brdečková	F
dokončit	to finish	dokončili	do	SP	4	67	Václav Aulický	M
ponechat	to keep	ponechat	po	SP	3	92	Jaroslav Šerých	M
ponechat	to keep	ponechám	po	SP	3	71	Jan Zahradil	M
ponechat	to keep	ponecháme	po	SP	4	66	Miroslav Topolánek	M
dohrát	to finish playing	dohraju	do	SP	3	65	Marta Kubišová	F
dohrát	to finish playing	dohráli	do	SP	3	69	Jiří Langmajer	M

dohrát	to finish playing	dohrály	do	SP	3	87	Pavel Procházka	M
zapálit	to lit, to set on fire	zapálil	za	SP	3	67	Martin Veselovský	M
zapálit	to lit, to set on fire	zapálit	za	SP	3	69	Bohuslav Sobotka	M
zapálit	to lit, to set on fire	zapálit	za	SP	3	74	Michal Prokop	M
zapálit	to lit, to set on fire	zapálí	za	SP	3	80	Michal Žantovský	M
zažít	to experience	zažil	za	SP	2	85	Václav Havel	M
zažít	to experience	zažil	za	SP	2	90	Vladimír Špidla	M
zažít	to experience	zažil	za	SP	2	73	Václav Moravec	M
zažít	to experience	zažila	za	SP	3	79	Pavla Topolánková	F
zažít	to experience	zažila	za	SP	3	72	Petra Buzková	F
zažít	to experience	zažili	za	SP	3	80	Ivan Langer	M
zažít	to experience	zažili	za	SP	3	83	Přemysl Sobotka	M
narušit	to disrupt	narušit	na	SP	3	94	Jaroslav Bureš	M
narušit	to disrupt	narušeno	na	SP	4	98	Miroslava Němcová	F
narušit	to disrupt	narušit	na	SP	3	100	Karel Hvížďala	M
narušit	to disrupt	naruší	na	SP	3	84	Eva Zaoralová	F

Appendix C. English Translation for Default Prefixed Predicate Construals

PREFIX ZA-:

1. **Začala** dávat povely.
   She began to give orders.
2. Když chtěla psa **zastavit**, musela brzdit kramflíkem.
   When she **wanted** to stop the dog, she had to break with her (high) heels.
3. **Zapomněl** na vodu a na stromy.
   He **forgot** about water and trees.
4. Velice mě to **zajímá**.
   I am very **interested** in this.
5. Museli jsme mu **zaplatit** slušnou sumu.
   We had to **pay** him a big sum.
6. **Zavolal** jsem inspektora, aby vzal syna do vazby.
   I **called** the inspector to take his son to jail.
7. Tarantule zcela jistě dokáže **zabít** zvíře.
   A tarantula can certainly **kill** an animal.
8. Večer **zajistil** dveře neobyčejně důkladně.
   He **secured** the door remarkably thoroughly.
9. Trochu se tím problémem **zabývám**.
   I **deal** with this problem a little bit.
10. Kdykoliv jsem **zavřel** oči, zjevil se mi…
    Whenever I **closed** my eyes, he appeared to me…
11. Nadaci **založili** pro další rozšiřování…
    They **established** a non-profit organization for further distributions…
12. Policie ihned **zahájila** prohlídku
    The police immediately **initiated** a search.
13. **Zachránil** mu život.
    He **saved** his life.
14. Několikrát jsem se k ní **zachoval** ošklivě.
    A few times, I didn't **behave** nicely to her.
15. Potom, co jsem **zažil** a zkusil v Afganistanu.
    After what I **lived** through and went though in Afganistan,

16. Rána naslepo **zasáhla** cíl.
Long shot **hit** the target.
17. Zběžně jsem jej přelétl očima a **zaznamenal** jsem hojnost vykřičníků.
I briefly looked at it with my eyes and **noted** the abundance of exclamation marks.
18. Jmenuji se Basket Flora a mým úkolem je **zavést** tady nový pořádek.
My name is Basket Flora and my task is to **establish** a new order here.
19. Kývl na mě a **zamířil** do parku.
He nodded and **headed** to the park.
20. Eragon se pokusil jeho útoku **zabránit**, ale byl příliš pomalý.
Eragon tried to **prevent** him from attacking, but he was too slow.
21. Měla bys možná **zajít** k doktorovi.
Maybe you should **go** to the doctor.
22. Můj bratr nikdy nebýval vyzván, aby si **zahrál** monopoly.
My brother was never invited to **play** monopoly.
23. Velmi mě to **zaujalo**, děkuji.
It was very **engaging**, thank you.
24. Když zahlédl postavu s pistolí, **začal** křičet o pomoc.
When he caught a sight of a figure with a gun, he **started** crying for help.
25. Tato soutěž je **zaměřena** především na děti ze základních a středních škol.
This competition **focuses** primarily on children from primary and secondary schools.
26. Čím si to herečka **zasloužila**?
How did the actress **deserve** this?
27. Ale všechny ty záznamy byly **zařazeny** mezi důkazy.
But all recordings were **incorporated** into evidence.
28. Krátce se suše **zasměje**.
He **laughed** shortly and dryly.
29. Příliš pozdě **zachytila** sestřin pohled.
It was too late when he **caught** sight of his sister's look.
30. Královna, která právě stála u okna **zaslechla** jeho poznámku a rozesmála se.
The queen who was just standing by the window **overheard** the remark and started to laugh.
31. Dean **zavrtěl** hlavou.
Dean **shook** his head.
32. Místní úřady mu stavbu **zakázaly**.

Local authorities **prohibited** him the construction.

33. Šéfův kamarád všechny zná, všechno **zařídí** a všechno má pod kontrolou.
    A friend of my boss knows everyone, he **arranges** everything and has everything under control.

34. **Zarazila** se, jako by zkameněla.
    She **stopped** astonished, as if she was petrified.

35. Pro zatím si to všechno pěkně **zapíše** do paměti a bude postupovat podlě plánu A.
    For now, I will **write** everything **down** in my memory and will proceed according to plan A.

36. Tiše mu **zašeptala** do ucha.
    She quietly **whispered** into his ear.

37. Martin se na něho s obdivem **zadíval**.
    Martin **looked** at him with awe.

38. Do takové války se musí **zapojit** každý, nikdo nemá právo zůstat stranou.
    Everyone has to be **involved** in a war like this, no one has the right to stay aside.

39. Do něčeho jsem se **zabral**, a nadobro jsem přestal vnímat okolí.
    I got **absorbed** by something, and completely ceased to take notice of the surroundings.

40. V tu chvíli **zazněl** z chodby rachot.
    At that moment a rumble **sounded** from the hall.

41. Vlastně chtěla z oddělení utéct, ale sestry ji **zadržely**.
    She actually wanted to run away from the unit, but the nurses **held** her **back**.

42. Během konfliktu **zahynuly** desítky tisíc civilistů.
    During the conflict, tens of thousands of civilians **died**.

43. **Zapálil** jsem si cigaretu a čekal.
    I **lit** my cigarette and waited.

44. Při jedné takové cestě byla v Praze **zatčena**.
    She was **arrested** in Prague during one of her such trips.

45. Pokusila se k nim **zajet** ještě jednou, ale víckrát ji nevpustili dovnitř.
    She tried to **drive** by one more time, but he wouldn't let her in anymore.

46. Myslím, že se **zastřelil**.
    I think he **shot** himself.

47. V ten den se tisíce mužů **zamilovalo**.
    On this day, thousands of men **fell in love**.

48. Sally se na chvilku **zamyslela**.

Sally **reflected** for a short while.

49. **Zaútočil** na ně muž ozbrojený nožem.
    A man with armed with a knife **attacked** me.
50. Pak jsi **zamumlala** cosi, na co nezapomenu.
    Then you **mumbled** something, that I will never forget.

PREFIX *NA-*

1. Lámal jsem si hlavu a snažil se **najít** alespoň nějaké možné vysvětlení.
   I wondered and tried to **find** at least some possible explanation.
2. Mohli by o tobě **napsat** román.
   They could **write** a novel about you.
3. Znenadání mě **napadlo**, že nemám lístek.
   It **occurred** to me out of the blue, that I don't have a ticket.
4. Sám jsem již **nabídl** odměnu.
   I already **offered** compensation.
5. Pěstounka mě **naučila** číst a psát.
   My foster mother **taught** me how to read and write.
6. **Nalezl** jsem stopu, že dívku zavraždili.
   I **found** lead, that they murdered the girl.
7. Šel jsem **navštívit** umírající starou paní.
   I went to **visit** a dying old woman.
8. **Narodil** jsem se jako svobodný Američan.
   I was **born** as a free American.
9. Náhle **nastalo** ticho.
   Suddenly, silence **occurred**.
10. A hned jste **nastoupil** na post to manažera?
    And you immediately **started** in a manager position?
11. Chtěl jsem **nahradit** Pavlovi ztrátu Zrzka.
    I wanted to **replace** Paul's loss of Zrzek.
12. V mé přítomnosti jí **navrhl**, aby s ním utekla.
    He **suggested** to her in my presence to run away with him.

13. Náhodou jsem na to **narazil**.
I **came across** this by chance.
14. **Naplnila** jsem hrnek cukrem.
I **filled** my cup with suger.
15. **Natáhl** se pro telefon.
I **reached** for a telephone.
16. Zazvonil jsem a stručně **naznačil**, že čekám.
I rang the bell and politely **indicated** that I was waiting.
17. **Nasadil** si černé brýle a vstal, aby Filipovi pomohl.
He **put on** his black glasses and stood up to help Filip.
18. Ten kapele pomohl, aby se zviditelnila a **natočila** debut Definitely Maybe.
He helped the band to become more visible and to **film** a debut Definitely Maybe.
19. Nevím, jak jinak bych to měl **nazvat**.
I don't know how else to **call** it.
20. **Naklonil** se ke mně a pošeptal mi do ucha.
He **leaned** towards me and whispered into my ear.
21. Podařilo se vám **navázat** spojení?
Were you able to **establish** a connection?
22. Váš otec vám **nařídil** vrátit se rovnou domů.
Your father **ordered** you to come straight home.
23. Je potřeba, aby ten trend, který byl **nastaven** v 90. letech, pokračoval.
It is necessary that the trend that was **established** in the 90s continues.
24. Zhluboka jsem se **nadechl** a pokusil se opět zkrotit své nervy.
I **breathed** in loudly and tried to tame his nerves again.
25. Potřebuji se **napít** vody.
I need to **drink** some water.
26. A aniž mohla slovo **namítnout**, otevřel dveře a vyšel do deště.
And before she could **object** anything, he opened the door and walked out into the rain.
27. Pak si **nalila** do sklenice pivo.
Then, she **poured** beer into a glass.
28. Přibližně dnešní podoby **nabyl** ostrov asi před milionem let.
The island **acquired** its present appearance million years ago.
29. Do vozu **nahlédli** dva vojáci v neznámých uniformách.

Two soldiers in foreign uniforms **looked into** the train car.

30. Že bychom je po škole **naložili** do auta a vyrazili na víkend pryč.
   That we could **load** them into the car after school and drive them away for the weekend.

31. Za peníze, které jsem dostal, jsem **nakoupil** spoustu věcí.
   I **bought** a lot of things for the money that I received.

32. Mohlo by to **narušit** jejich důvěru v lékaře.
   It could **disrupt** their trust in their doctor.

33. **Natáhl** paži, nabral vodu a velmi pomalu si políval hlavu.
   He **extended** his arm, scooped up water and slowly poured it over his head.

34. Druhá etapa prací je **naplánována** na letošní rok.
   The second round of work is **planned** for this year.

35. Pan Majer musel **najmout** hospodyni.
   Mister Majer had to **hire** a mate.

36. A proč se nedaří tu nebezpečnou chybu **napravit**?
   And why is it not successful to **rectify** the dangerous mistake?

37. Rychle si to **namířil** rovnou do kostela, byl ještě otevřený.
   He quickly **headed** straight to church which was still open.

38. Kuřecí maso **nakrájíme** na nudličky.
   We **cut** chicken meet into strips.

39. Nikdy v životě jsem se tak **nenajedl**.
   I have never **eated** so much in my life.

40. **Nastartoval** vůz a odjel asi o sto metrů dál.
   He **started** the car and drove away about a hundred meters.

41. Děti měli za úkol **namalovat**, co rodina dělala o víkendu.
   Children were assigned to **draw** what their family did over the weekend.

42. Elizabeth si toho všimla a **narovnala se**.
   Elizabeth noticed it and **stood up straight**.

43. Už kolem sebe ve městě **nadělal** spoustu rozruchu.
   He already **made** a lot of fuss around him in town.

44. Co na kursu proberou je **nahráno** i na CD.
   What they discuss in course is also **recorded** on a CD.

45. Na obrazovku **naskočil** obraz.
   A picture **popped up** on the screen.

46. Rychle jsem **nasedla** do auta.
    I **got in** the car quickly.
47. Než jsme se sem **nastěhovali**, bydleli jsme v bytě první kategorie.
    Before we **moved** here, we lived in a first class flat.
48. **Nakreslil** jejich přibližné postavení špičkou boty do bláta.
    He **drew** their approximate location with the tip of his muddy shoe.
49. Pes se **nakazil** vzteklinou, ale příznaky se ještě neobjevily.
    The dog got **infected** with rabies, but symptoms have not appeared yet.
50. Většina z nich se prostě a jednoduše **naštvala**.
    Most of them got simply **upset**.

PREFIX *PO-*

1. **Potřebuji** naprosto nutně padesát tisíc liber.
   I **need** absolutely necessarily fifty thousand pounds.
2. Když jsem se na něho **podíval**, právě dočetl dopis.
   When I **looked** at him, he just finished reading a letter.
3. Možná nám to trochu **pomohlo**, že jsme konečně skórovali.
   Maybe it **helped** us a little bit that we finally scored.
4. Na okamžik zastavily mezi skalami a pak **pokračovaly** dál.
   They stopped between rockes for a moment and then **continued** farther.
5. Přece jen se mu **podařilo** dojít ke břehu.
   He **succeeded** in reaching the banks after all.
6. Budu to **považovat** za poklonu.
   I will **consider** this to be a compliment.
7. Tatínek **postavil** stan a v noci jsme hned měli návštěvu-kolem stanu chodil jaguár.
   Dad **built** a tent and at night, we immediately had a visit-a jaguar was walking around the tent.
8. **Poznal** ho na první pohled.
   He **recognized** him on first sight.

9. Alespoň jsem **použil** nových a pozoruhodných metod.
   At least I **used** new and interesting methods.
10. Oba dopisy **poslala** lodní společnost.
    Both letters were **sent** by a shipping company.
11. Pozoroval tep na hrdle a **počítal** údery.
    He observed the pulse and **counted** the beats.
12. Najednou jsem to všechno **pochopil**.
    All of a sudden I **understood** everything.
13. Socialisté také včera **potvrdili**, že nový kodex nepodpoří.
    The socialist party also **confirmed** yesterday that they will not support the new codex.
14. **Podal** mi přes stůl noviny.
    He **handed** me newspaper across the table.
15, Dnes je všechno jinak a **pokusíme** se vysvětlit důvod.
    Today everything is different and we will **try** to explain the reason.
16. Na rukou i na nohou **pohyboval** prsty.
    He was **moving** toes and fingers.
17. **Položil** si ruku na srdce a uklonil se.
    He **put** his hand on his heart and bowed.
18. **Pozoroval** jsem ho, ukryt v listí stromu.
    I was **watching** him, [while I was] hid in the leaves of a tree.
19. Pak zavolal do recepce a **požádal** o lepenku.
    Then he called the reception and **asked** for a tape.
20. Stál jsem venku a **poslouchal**, jak Gloriin zpěv mizí v dálce.
    I stood outside and **listened** to Gloria's singing disappearing in the distance.
21. **Poznamenala** jsem, že kdybych tu nebyla, mohla bych si to jen ztěží představovat.
    I **remarked** that if I wasn't here, I could hardly imagine this.
22. Podle mě bude lepší **počkat**, zda antibiotika přece jen zaberou.
    According to me it is better to **wait** if the antibiotics start working.
23. Zbývá ještě tohle, **pomyslela** si.
    This is what we needed, she **contemplated**.
24. Chtěl jsem si s nima **povídat**.
    I wanted to **chat** with them.
25. Tu informaci ji dobrovolně **poskytla** ošetřovatelka, která znova procházela kolem.

The nurse that was walking by again willingly **provided** this information to her.

26. Těžko by se ta dobrota dala **popsat**.
It would be difficult to **describe** their helpfulness.
27. První rodina ve frontě uprchlíků **pocházela** z Kyjeva.
The first family in the line of refugees **came from** Kyiev.
28. **Potkat** nějaké zajímavé velké zvíře je umění.
To **meet** some interesting big animal is a science.
29. Byly to zajímavé pokusy, které se docela **povedly**.
Those were interesting experiments that **came out** quite **successfully**.
30. Našel si prázdnou židli u bazénu, **posadil** se, natáhl nohy a udělal si pohodlí.
He found an empty chair by the pool, **sat down**, put his feet up and made himself comfortable.
31. Otec dočetl, odložil noviny a **pohlédl** na Bobbyho.
Father finished reading, put down newspaper, and **looked** at Bobby.
32. Před léty mě **pozvala** jedna havajská univerzita, abych u nich rok učil.
Years ago I was **invited** by a Hawaiian university to teach there for a year.
33. Každé slovo, kteř vam **povím**, je svatá pravda.
Every word that I will **tell** you is gospel truth.
34. **Poradila** mi, kde lze nejlíp nakoupit zeminu, keře a stromky, a kdy je mám vysadit.
She **advised** me where to buy the best soil, bushes and trees, and when I need to plant them.
35. Ona se nedokázala **postarat** ani sama od sebe.
She couldn't even **take care** of herself.
36. Brazilce Ricarda Mella **porazil** hladce ve třech setech.
He **defeated** the Brazilian Ricardo Mella in three sets.
37. Nutno **podotknou**, že se jim daří a věřím, že vyšší soutěž uhrají.
It is necessary to **note** that they are doing well, and I believe that they can compete in higher competition.
38. Pak si v obchůdku s plážovými potřebami **pořídili** dobře padnoucí tmavé brýle.
Then they **got** nicely fitting sunglasses in a schop with beach supplies.
39. Ale viděla přece, jak pes **pohnul** čumákem, když se ozval ten zvuk.
But she saw that the dog **moved** its nose when the sound sounded.
40. Pak mě hrozně **potěšilo**, když ses začal měnit.
It **pleased** me very much when you started to change.
41. Marie **pokrčila** rameny a podívala se ke dveřím.
Marie **shrugged** her shoulders and looked towards the door.

42. Náhle **pocítila** nepřekonatelné nutkání vyjít na čerstvý vzduch.
Suddenly she **felt** overwhelming urge to walk outside for fresh air.
43. Přesto **povolili** převoz do obyčejné nemocnice?
They **permitted** the transport do an ordinary hospital?
44. Políbil ji na tvář a objal.
He kissed her on the cheek and hugged her.
45. Koruna **posílila**, což vyvolalo deflaci.
Crown **strengthened**, which resulted in deflation.
46. Požár **poškodil** především stěnu kolem komínu a střechu objektu.
The fire **damaged** the wall especially around the chimney and the roof of the building.
47. Mylord mi naznačil, že si mne **ponechá** ve svých službách.
Mylord indicated to me that he would **keep** me in his services.
48. Chodník se **posune** směrem k bazénu a celá plocha se vyasfaltuje.
The sidewalk **shifts** in the direction to the swimming pool and the entire area will be asphalted.
49. Jason popadl batoh, otevřel dveře a zkontroloval chodbu.
Jason grabbed his backpack, opened the door and checked the hall.
50. Chtěl bych ještě jednou **postoupit** do finále.
I would like to **advance** to the finals one more time.

PREFIX *DO-*

1. Po postupu jsme **dostali** pár dní volna.
After advancing, we **got** a couple days off.
2. Ve svém věku by **dokázal** roztržku mezi rodiči pochopit.
In his age, he **could** understand the argument between his parents.
3. Zde může **dojít** k poměrně hlučnému provozu.
It could **come** to relatively loud traffic here.
4. **Dodal**, že na hřebenech je deseticentimetrová vrstva sněhu.
He **added** that there is ten-centimeter layer of snow on the ridges.
5. Hladina Labe na vodočtu v Ústí nad Labem **dosáhla** v pondělí výšky 440 cm.
The level gauge on the Elbe in Usti nad Labem **reached** a height of 440 cm on Monday.

6. Já jsem tak **doufala**, že to teď bude lepší.
   I was so **hoping**, that it would be better now.
7. Právě proto mi **dovolte**, abych vám vysvětlil, co hodlám dělat.
   This is why you need to **allow** me to explain to you what I am planning to do.
8. Kdy jste se **dozvěděl**, co se stalo?
   When did you **learn** what happened?
9. Ale čet jsem dál a některým částem už rozumím a **dovedu** to lidem vysvětlit.
   But I read along and I can understand some sections now and I **can** explain them to people.
10. A všechno by snad **dopadlo** dobře, kdyby nebylo Berenice.
    And everything would have **turned out** well if it wasn't for Berenice.
11. Někteří lidé se pořád **domnívají**, že vědění je síla.
    Some people still **think** that knowing is power.
12. Můj sen se vyplnil, když odpoledne **dorazil** dav více než 6000 účastníků.
    My dream came true when a crowd of 6000 attendees **arrived** in the afternoon.
13. Litoměřická policejní mluvčí Alena Romová **doplnila**, že byl obviněn z trestného činu krádeže.
    The spokeswoman for the Litomerice police **added** that he was charged with the criminal act of stealing.
14. Pak se ohni v pase a **dotkni** se svými prsty prstů u nohou.
    Then bend in your hips and **touch** your toes with your fingers.
15. Už se nemohl **dočkat**, až se nastěhuje.
    I cannot **wait** to move in.
16. Klára se neodvážila větu **dokončit**.
    Klara didn't dare to **finish** her sentence.
17. Předem se **dohodneme** na přestávkách.
    We need to **agree** on breaks ahead of time.
18. Říkal jsi, že k tomu rozhodnutí **dospěla** sama.
    I was thinking that she **came to** the conclusion on her own.
19. Ozval se jeden sponzor a pokud se **domluvíme**, bude to fantastické.
    One sponsor contacted me and if we can **agree**, it will be fantastic.
20. A něco podobného už nemíníme **dopustit**, sálá z nich odhodlání.
    And we are not going to **allow** something like this; commitment is radiating from them.
21. Některé tituly Vám sami **doporučíme**.
    We can **recommend** some titles to you.
22. Tatry má ráda a jako studentka **dojela** s kamarádkou stopem až na východní hranici země.

She likes Tatry and when she was a student, she **reached** the east border of the country by hitch-hiking.

23. **Donutilo** nás to postupovat dopředu pěšky.
    We were **forced** to keep going by foot.
24. Úspěch se **dostavil** po několika opakovaných hlasováních.
    Success **showed up** after a few repeated polls.
25. Jediné, co se **dověděl**, bylo, že jsi odjela někam na venkov.
    The only thing that he **got to know** was that you left somewhere to the countryside.
26. Občas si prý **dopřeje** cigaretu i dnes.
    Sometimes he **indulges** in smoking a cigarette even today.
27. Čas ukáže, zda podmínku dodrží a nebude muset do vězení nastoupit.
    Time will show if he obides the condition and if he doesn't have to go to jail.
28. Svá slova doprovodila výmluvným gestem a zmizela v davu.
    She accompanied her words with an expressive gesture and disappeared in the crowd.
29. Pomáhal si slovníkem, který mu **donesla** jeho sestra.
    He was using the dictionary that his sister **brought** him.
30. Byl za ně zodpovědný a musel věc **dotáhnout** do konce.
    He was responsible for them and had **to follow through** to the end.
31. Jde o její novou helikoptéru, kterou už **dopravili** do New Yorku.
    It is regarding her new helicopter, which they had to **transport** to New York.
32. Věděla, že se v novinách absolutně nic pozitivního **dočíst** nemůže.
    She knew that she there is absolutely nothing positive to **read** in the newspaper.
33. U jejího manžela lze **doložit** častou nepřítomnost.
    They can **document** a frequent absence of her husband.
34. Každé městečko, které armáda **dobyla**, bylo pro ni odměnou.
    Every little town that the army **conquered** was a reward for her.
35. Sem mě **dovezl** jeden z mých šoférů a zas pro mě přijede.
    One of my chauffers **took** me here and he will come back for me.
36. Na tuhle záludnost několik závodníků **doplatilo** už v sobotní kvalifikaci.
    Some competitors already **paid a price** during the Saturday's qualifiers.
37. **Dohlédne**, aby ses v pořádku dostala domů.
    He will **insure** that you will get home safe.
38. Věřím, že budeš mít krásný, dlouhý život a **dožiješ** se věku požehnaného.
    I believe that you will live a beautiful, long life and **live to** a long blessed age.

39. Po několika stech metrech jej **dohnal**, sebral mu kolo a zavolal policii.
He **caught** him after a few hundred meters, he took his bike, and called the police.

40. Mezitím jeden z chlapců **doběhl** se starou lahví pro vodu.
In the meantime, one of the boys **ran** to get water with an old bottle.

41. Oba muži se hlasitě **dohadovali**.
Both men were **arguing** loudly.

42. **Docílil** jsem aspoň toho, že ta žena byla propuštěna.
At least I **achieved** that the woman was released.

43. Novou postel **doručili** do domu na Scott Street.
The new bed was **delivered** to the house on Scott Street.

44. Visí tu původní lustr, jinak se ale z vybavení **nedochovalo** nic.
There hangs an original chandelier, but nothing else was **preserved**.

45. Na chvíli ke mně **dolehl** zvuk motoru.
The sound of engine **reached** my perception for a short while.

46. Nejvíc mě **dojaly** manželčiny slzy a její vyznání.
I was **touched** the most by the tears of the wife and her declaration.

47. Musel jsem **doznat**, že jsem se zmýlil.
I had to **admit** that I was wrong.

48. **Dohrál** ještě poločas, pak se nechal vystřídat.
He still **finished playing** the half, then he was substituted.

49. A i když nákladní loď dostihne, donutit ji k návratu rozhodně nebude snadné.
And when they catch up with the cargo ship, to force them to turn around won't be easy.

50. Zaradoval jsem se, když jsem se **doslech**, že přijedete.
I rejoiced when I **heard** about you visiting

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