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Analyzing PATH: 
The Interplay of Verbs, Prepositions and Constructional Semantics

by

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ABSTRACT

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In this dissertation I examine first how the dynamicity of prepositions and the meaning of verbs interact in English motion constructions, and second what role the constructions themselves play in this interaction. I adopt a Construction Grammar perspective, which assumes that constructions can contribute to the interpretation of utterances. Based on an extensive corpus study and additional evidence from a survey on acceptability judgments, I investigate the limits of the semantic import of constructions with respect to the expression of PATH. To that end, I determine the degree of dynamicity of 19 prepositions on the basis of their frequency of occurrence in static versus dynamic utterance types. This degree of dynamicity measures a preposition’s contribution to the semantics of utterances instantiating the Caused-Motion Construction (CMC) or the Intransitive-Motion Construction (IMC) with respect to the predication of a dynamic PATH. I show that a dynamic PATH needs to be lexically expressed in motion constructions, either by the preposition or by the verb, if it is not retrievable through contextual factors. This has direct repercussions for the use of prepositions in the two constructions. I show that coercion of non-dynamic prepositions into a dynamic
interpretation is only possible if both the verb and the preposition inherently profile the endpoint. The power of constructions to coerce the meanings of lexical items, i.e. to influence the canonical interpretation of these items where they do not correspond to the construction’s semantics, is thus much more restricted than commonly assumed.

I also show that constructions are limited with respect to the number of lexical items that they can coerce in a given instantiation. The CMC and the IMC can either coerce a non-motion verb or a non-dynamic preposition, but the combination of non-motion verbs with non-dynamic prepositions yields utterances that no longer express a directional PATH.

Overall, this thesis illustrates that it is indispensable to consider the lexical semantics of the instantiating verbs and their co-occurrence restrictions with specific prepositions, even when examining the workings of more abstract linguistic units such as constructions.
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1 INTRODUCTION

This dissertation investigates the interplay between lexical and constructional semantics within English argument structure constructions expressing motion. The main objective is to explore the treatment and function of the semantic role PATH within both the Caused-Motion Construction (CMC) and the Intransitive-Motion Construction (IMC).

This first chapter serves several purposes. First, in Section 1.1, the theoretical approach, i.e. the usage-based model, is introduced. In Section 1.2 the general theoretical outline is supplemented with an introduction into Construction Grammar. Additionally, Talmy's work on the expression of motion is reviewed since his ideas have a considerable influence on this dissertation. Finally, in 1.3 a general introduction into the subject matter of the dissertation is given, which at the same time serves to lay out the structure of the thesis.

1.1 General orientation of the cognitive approach

The analysis in this work is grounded in what has come to be referred to as the 'usage-based model'. In this general orientation, the cornerstones of a usage-based approach are introduced. The usage-based model is not based on any specific grammatical model but it rather subsumes a number of similar approaches to language (e.g. Barlow and Kemmer 2000; Langacker 1991, 1987; Bybee 1985) that share a lot of the basic insights but differ in the specific theoretical details. In this work, I will take some of the implications of the usage-based approach rather seriously and I will consequently take frequency data as the main foundation of the analysis. The insights from the usage-based model that are introduced in this section thus serve as a guideline
for the methodology chosen in this dissertation. This methodology is then applied to the theory of Construction Grammar which will be introduced in Section 1.2.

1.1.1 The role of frequency and linguistic entrenchment

The basic insight of the usage-based model is that language use affects the linguistic system of each individual speaker; that is, a speaker’s linguistic system is formed through the instances of linguistic production that she\(^1\) has heard and produced throughout her life. In Kemmer and Barlow (2000) it is explained that the linguistic system is grounded in usage events in that it is built up through the numerous perceived instances of language in use. Any usage event has, however, a twofold effect. Since language is both perceived and produced by the same individuals, the perceived usage events shape the linguistic system of the individual speakers but at the same time each individual speaker contributes to the shaping of the language as a whole and her own linguistic system through her own linguistic productions. Kemmer and Barlow formulate this important aspect in the following way:

Language productions are not only products of the speaker’s linguistic system, but they also provide input for other speakers’ systems (as well as, reflexively, for the speaker’s own), not just in initial acquisition but in language use throughout life. Thus, usage events play a double role in the system: they both result from, and also shape, the linguistic system itself in a kind of feedback loop (2000:viii-ix).

This highly dynamic view, which leaves a lot of room for language change and

\(^{1}\) For reasons of convenience and readability, I will not each time use male and female pronouns. Instead, speakers will be referred to as female and hearers as male.
innovations, includes two basic mechanisms that guarantee the necessary degree of stability of the system to make communication possible. First, the insight that frequency yields entrenchment (cf. Langacker 1987, 1991, 2000; also Haiman 1994). The degree of entrenchment of a linguistic unit expresses how well established this unit is within the system: "Every use of a structure has a positive impact on its degree of entrenchment, whereas extended periods of disuse have a negative impact" (Langacker 1987:59). Second, the human capacity to abstract more schematic structural patterns from recurring specific but similar instances (see discussion further below in this section).

This conception of language that puts into focus the double function of linguistic usage events results in the fact that frequency plays an important role in linguistic analysis. Differences in frequency of occurrence are an important factor for different degrees of entrenchment. Note, however, there is no one-to-one relation between frequency and entrenchment. The notion of entrenchment with respect to a particular linguistic unit or an aspect of that unit implies that (i) entrenchment leads to a higher likelihood of production—it mirrors the degree of conventionality of a given expression; (ii) frequently used linguistic units have a central status within the system, and by the same token, frequently used aspects of a unit typically form part of the central sense of that expression; (iii) variation in frequency over time is aspect of ongoing language change. I will now discuss these three issues in turn.

Entrenchment is naturally a matter of degree. Frequently used expressions will be highly entrenched whereas rarely used expressions will be weakly entrenched or even not at all if it is a completely new usage. An expression that is frequently processed is more likely to get produced than one that is less often processed. Frequent usage thus has a
shaping effect on the linguistic system. Routinization via frequent experience leads to ease of production and interpretation. This routinization is easily describable within a network model of linguistic processing. Connections that are in frequent use will get strengthened (cf. Lamb 1999, MacWhinney 1989). Stronger connections can pass on a higher amount of activation and consequently satisfy the threshold of the node they are connected to more easily. Further, frequent activation leads to a lowering of the threshold which increases the likelihood of activation of the specific node (for details see Lamb 1999, ch. 12). Stronger entrenchment is thus a result of frequent activation but at the same time it leads to a higher probability of future activation of the specific structure.

The second aspect is a direct consequence of the process of routinization described above. More entrenched linguistic units have a central status within the system which comes about through the ease of accessing these units. Centrality and entrenchment do not only apply to units as wholes but also refer to specific aspects of a unit. Let us take lexical units as an example. Lexical units as entry points into the network structure are not considered as having meaning in and of themselves but rather by virtue of being connected to other units and domains (cf. Langacker 1987) within the network structure (cf. also Lamb 1999). Any given conceptualization thus depends upon the currently co-activated units and domains in that each time a unit is activated, the co-activation pattern changes according to contextual and situational factors. In Chapter 3 we will see the importance of co-activation patterns and resulting central status of specific semantic aspects in the case of prepositions. It will be argued that their conceived degree of dynamicity depends upon the frequency of usage in dynamic
contexts, which in turn leads to co-selection restrictions with respect to verbs in the expression of motion events.

The third consequence of entrenchment listed above is that variation in frequency over time, that is at the same time variation in the degree of entrenchment, is a cause for ongoing language change. This is straightforward in the case of lexical units. A slight shift in typical co-activation patterns already brings about a change in the semantics of the word. However, this process has also been shown to exist for larger symbolic units. For the way-construction it has been amply demonstrated that a formerly restricted use has through further entrenchment led to an extremely productive construction in English (Israel 1996). We will return to the way-construction in Chapter 7.

1.1.2 Linguistic structure emerges from usage

The usage-based model postulates a dynamic view that sees language in constant flux and in an on-going state of change. The structure of the system is not seen as a fixed complex of rules. Rather, systematicity and rule-like structures emerge from innumerable prior usage events (cf. e.g. Hopper 1987, 1998; Fox 1994; Bybee 1985, 1999).

The claim that linguistic structure is emergent entails that discourse is prior to structure. This needs to be explained in a little more detail since there is of course no discourse without structure. On the one hand, this claim has an ontogenetic aspect in that children learn grammar by gradually generalizing from single instances (cf. Tomasello 1992, 1998). We will discuss this further below. On the other hand, the notion that discourse is prior to structure and that grammar emerges out of discourse implies that language structure results from routinization and from the gradual entrenchment of
specific occurring patterns in discourse. Hopper expresses his concept of Emergent Grammar which is similar to the view advocated within the usage-based model in the following way:

The notion of Emergent Grammar is meant to suggest that structure, or regularity, comes out of discourse and is shaped by discourse in an ongoing process. Grammar is, in this view, the name for certain categories of observed repetitions in discourse. It is hence not to be understood as a prerequisite for discourse, a prior possession attributable in identical form to both speaker and hearer. Its forms are not fixed templates but emerge out of face-to-face interaction in ways that reflect the individual speaker’s past experience of these forms, and their assessment of the present context, including especially their interlocutors, whose experiences and assessments may be quite different (1998:156).

Two aspects of this quote need further elaboration. I will first comment on the differences in experience of the interlocutors, and then, and more importantly on the notion of templates.

The linguistic experiences of each individual speaker are naturally different, hence, on the basis of the usage-based model as well as Emergent Grammar, each speaker will have a slightly different linguistic system. However, within a speech community there is of course a high degree of commonality across speakers. Speakers share linguistic experiences and there will naturally be a higher degree of commonality among speakers that are geographically close to each other (see also Kemmer and Israel 1994). Entrenchment of specific lexical items and grammatical structure not only applies on the level of the individual speaker but also on the level of the speech community that shares linguistic experiences. Being aware of idiosyncratic differences, I will therefore
idealize across individual speakers and capture the commonalities shared by many
speakers with respect to a particular set of constructions.

The second aspect I want to comment on is the notion of templates. Hopper
argues against grammar as having the form of fixed templates. Instead he claims that
structure and regularity comes out of discourse. Within the usage-based model, this is
exactly the view taken; however, the specific mechanisms and the form of the emerging
structure need to be spelled out in a little more detail. Specifically, and this is something
Hopper does not elaborate on, the claim that the emerging structure and regularity in turn
organize future discourse. That is, Hopper places emphasis on the ongoing shaping force
of discourse rather than on structures that have been abstracted and now in turn shape
future discourse. This leads us to the notion of schemas, which is a concept of central
significance within the usage-based model.

The notion of schemas refers to any kind of regularity in mental processing that
has been abstracted over various linguistic usage events. Schemas can be regarded as the
common essence of these usage events. They capture similarities and leave out
individual differences. They are hence more abstract and less detailed than their more
richly specified instantiations. It is assumed that schemas are formed on all levels of
linguistic experience (as well as other mental experience, cf. Langacker 2000; for an
account of the nature of schemas and how they relate to the notion of schemas in
psychology see also Barlow and Kemmer 1994). The importance of schemas lies in the
fact that, once formed, they start influencing the linguistic system. In linguistic
production they offer a structuring device. Their mere existence enhances the likelihood
that speakers will again make use of the specific structure and thus produce utterances
that resemble those they have heard before. This repetitive use naturally leads to further entrenchment. In linguistic reception, on the other hand, schemas guide the expectations of what is being said and function as templates to compare currently heard productions to old linguistic experience (cf. Langacker 1987). If a newly heard production is isomorphic with an existing schematic structure the hearer will be satisfied and deem the linguistic intercourse as successfully interpreted. If it differs from any of the existing schemas the hearer has to accommodate and come up with a possible interpretation.\(^2\)

We will see later in Section 1.2 that constructions can be seen as a special kind of schema. They, too, are abstractions that emerge through recurring similar linguistic patterns. The recurrent usage of a particular syntactic pattern with a particular semantic content gives rise to constructions like the CMC or the IMC.

The aspects of the usage-based system that have been discussed in this section

\(^2\) This view of schemas is extremely plausible on a neurocognitive level. First of all, in experiments with network simulations it has been shown that abstract, more general representations are generated spontaneously. They are not learned (that is, they are not programmed into the network) but instead abstractions are a byproduct of the workings of the model if it is trained with repetitive and regularized input (Spitzer 1996). Second, these abstract representations are then used in the analysis of any new input. This function is another byproduct of the workings of the network. In a kind of back-and-forth interactive process the schematic templates are mapped onto the patterns of the incoming activation until the right match is found. Only then can the network reach a stable endstate. Spitzer, following Mumford, explains this process in the following way:

...the bulk of cortical information processing is carried out through the interaction of two reciprocally connected areas working at different levels. In this view, the higher area uses stored templates to synthesize the most likely pattern to match the one coming up from the lower level and sends the pattern down to the lower level. In the lower area, the input pattern and the synthesized input from the higher area (this area’s proposal for disambiguation of the input) are compared. This process either shows a good match between input from “below” and synthesized interpretation from “above”—in which case the process comes to an end and the system reaches a stable state—or, if there is not a good match (i.e., the matching process leaves a large amount of information unexplained), the residual differences are fed back to the higher area. Using this new input, the higher area comes up with a new interpretation, and the process starts over again (Spitzer 1999:127f).

In addition, Mumford (1992) was able to show that not only simulations of neural networks work in this fashion but that indeed the cortical neurons function this way.
lead to a further important property. The emphasis of structure being emergent from prior linguistic usage events naturally places importance on the acquisition of language. How does structure emerge in the first months and years of our lives when linguistic experience has as yet been comparatively scarce?

A natural prediction within the usage-based model would be that we can assume the same principles governing the emergence of linguistic structure that have been outlined above to also govern the ontological acquisition of language. At least with respect to constructions, this claim has in fact been made by Tomasello (1992, 1998). Tomasello notes that acquisition also advances from the specific to the more general. He talks of ‘verb island constructions’ (1998) a slight change from his former ‘verb island hypothesis’ (1992). The term verb island constructions reflects the fact that according to Tomasello, children learn verbal constructions lexical item by lexical item without at first noticing any potential similarities across the different usages. That is, early constructions are lexically specific and can in no way be equated with adult constructions. Tomasello notes that

... at some point children begin to notice similarities in both the form and function of various subsets of verb island constructions, and so move toward more adult-like, abstract, and verb-general constructions (...). They do this by means of cognitive processes such as pattern recognition, categorization, and schema formation that are common in many domains of human cognitive development. Evidence for this process comes from both children’s ability to use novel verbs in constructions creatively in experiments (...) and from their production of non-conventional utterances in which verbs are used in constructions in creative ways, (...), which result from an overgeneralization of an abstract construction to a verb not normally used in that construction (1998:439).
The acquisition of language is thus not seen to differ in kind from any linguistic process in later life. The same mechanisms apply and the same process of the emergence of structure across recurrent similar instances governs the first acquisition of language as well as the later ongoing shaping of the linguistic system. Within a theoretical approach that places emphasis on emergent structures rather than innate rules (for a proponent of the latter see for example Pinker 1995) this comes as no surprise.

1.1.3 The linguistic system as an integral part of the conceptual system

So far the linguistic system has been discussed as if it were a self-sufficient, closed structure. We have not yet discussed how other cognitive systems interact with it and how it forms part of our overall conceptual system. In the following, it will first be shown that the linguistic system is not different in kind from other cognitive subsystems and second that it is highly integrated within the overall cognitive system.

The linguistic system is not different from other cognitive systems in two major respects: (i) the cortical areas that are typically used for language processing are in no way different from other cortical areas, i.e. the kind of neurons are the same and the density of neuronal structure is also not different (cf. Kandel et al. 2000; Lamb 1999; Spitzer 1999); and (ii) it is assumed that language is structured in accordance with the same basic perceptual mechanisms that have been posited for the overall conceptual system, most importantly figure and ground perception (cf. Langacker 1987, 1991; Talmy 1988b).

Gestalt psychologists in the first part of the last century realized that human perception (and possibly that of other animals, too) is crucially based on the principle of
distinguishing between figure and ground. Figures are typically smaller, moveable, and undergo change, as opposed to grounds which are large, generally immobile, and stable. Human language structure reflects the principles of figure and ground perception. A lot of linguistic structure can be described in terms of this perceptual difference. Talmy makes this explicit when introducing the notions of figure and ground into linguistics (cf. e.g. Talmy 1975, 1978, 1985). With respect to a motion event, the figure is defined as the moving entity, i.e. it is generally the subject and thus the most prominent element in the sentence, or else the direct object in cases of caused motion. The ground, however, is the location with respect to which the motion is carried out, i.e. it is generally the oblique and thus the more backgrounded, less important sentential element. Langacker's trajector and landmark are very similar concepts, though he considers his notions to be a special case of figure and ground alignment since they represent linguistic instantiations (1987:231). Within the theory of Cognitive Grammar, the perceptual figure and ground organization and the linguistic trajector and landmark organization are seen as fundamentally so similar that it makes sense to think of the perceptual asymmetry as the basis for the abstract cognitive asymmetry. This asymmetry is considered a basic organizing principle that is also fundamental to other basic notions within the theory like the profile/base distinction (cf. Langacker 1987, ch. 5).

That the linguistic system is highly integrated into the overall conceptual system has been noted by a number of researchers. Lakoff (1987) and Johnson (1987) both stress the relation of bodily experience to human cognition and the repercussions this has for linguistic structure. Mandler (1992) stresses the organizing function image schematic structures, which are derived from early perceptual analysis, have for linguistic
processing. Mandler focuses on the infant’s perceptual analysis, whereas Lakoff and Johnson stress bodily experience, that is, not only perception but more importantly, the acting out of specific motor routines. They thus place more emphasis on kinetic experience. However, all of them realize the importance of image schemas.

Mandler sees image schemas that are developed in infancy as an important source for a lot of our adult concepts; that is, the latter are based in these pre-linguistic structures. Image schemas are important in that they “provide a level of representation intermediate between perception and language that facilitates the process of acquisition” (Mandler 1992:587). They are thus seen as an important link between symbolic and pre-symbolic processing and they nicely illustrate the interconnectedness of linguistic structure with the general cognitive system. Image schemas are the result of perceptual analysis that starts very early on in life and they provide a kind of rudimentary and pre-linguistic syntax. Perceptual analysis “involves a redescription of spatial structure and of the structure of motion that is abstracted primarily from vision, touch, and one’s own movements” (ibid:591). Mandler consequently defines image schemas as “dynamic analog representations of spatial relations and movement in space” (ibid). This is also the view Gibbs and Colston take when claiming that “image schemas are imaginative and nonpropositional in nature and operate as organizing structures of experience at the level of bodily perception and movement” (1995:349). Image schemas are not accessible to consciousness, though they form the basis of conscious and conceptually richer images.

Of further relevance for this work is that image schemas such as those of ANIMATE MOTION, INANIMATE MOTION, SELF MOTION, PATH, and CONTAINMENT are seen as part and parcel of any conceptualization of a motion event. Their importance lies not
only in facilitating the acquisition of language, a valid point that Mandler stresses, but they also play a role whenever we perceptually experience a motion event. If we assume with Mandler that image schemas are structures intermediate between perception and language, we would also have to assume that they get activated each time we perceive something that corresponds to their respective activation patterns. That would at the same time imply that they structure each perceived motion event. This will no doubt have repercussions on language, since it is assumed that linguistic structures have links with image schematic structures. Through the analysis of linguistic data, researchers have postulated the general existence as well as the probable kinds of image schemas. My claim is that through the analysis of frequency data, we can furthermore get an idea about the strength of the links between, for example, prepositions and specific image schemas. The cline of dynamicity for a range of spatial prepositions established and discussed in Chapter 3 is a direct result of this approach. The frequency of occurrence of a preposition in dynamic spatial contexts, as opposed to its frequency of occurrence in the description of static spatial configurations, provides indirect evidence for the strength of its links to the PATH schema and to the different motion schemas. That is, prepositions like, for example, in and into will have extremely strong links to the image schema CONTAINMENT. The link to the PATH schema will, however, be much stronger for the preposition into than for in.

Having outlined the specificities of the usage-based model, we will now turn to a review of the most important literature. In Chapter 2 when introducing the methodology we will come back to the notions of frequency and entrenchment when specifying how a
corpus-based analysis corresponds naturally to the requirements a usage-based approach places on linguistic investigation.

1.2 Construction Grammar and Talmey’s work on the expression of motion

This section introduces the main theoretical foundations relevant for the dissertation. I will concentrate on a short introduction to Construction Grammar and a review of Talmey’s work on lexicalization patterns and on the expression and conceptualization of motion events in general. There are certainly more relevant traditions and theories that also play an important part in the analysis. There is, however, no room to do justice to all of them. Instead, I will make reference to and discuss their work at appropriate points throughout the dissertation. Moreover, since this work is for the most part based on empirical data that serve to probe more deeply into the workings of English motion constructions than previous accounts, rather than being a theory-based analysis, the focus will be on the data rather than on a review of related works.

1.2.1 From Case Grammar to Construction Grammar

Construction Grammar is a comparatively recent linguistic theory. It has mainly grown out of the work form Charles Fillmore and thus contains visible traces from Case Grammar as well as Fillmore’s frame semantic approach. The most detailed and thorough treatment of constructions thus far has been supplied by Goldberg in her work on argument structure constructions (1995). In the following, the development of Fillmore’s work up to his work on constructions is briefly summarized in order to identify some of the origins of the later theory. The work on Case Grammar is
specifically interesting with respect to the treatment of the different locative cases (Fillmore’s term for semantic roles). As will be shown, the number of locative cases recognized changed over time. In a second step in Section 1.2.2, Goldberg’s work on argument structure constructions is presented, focusing in particular on the motion constructions. Constructions contain particular semantic roles that are reminiscent of the different cases. Goldberg merely recognizes a general PATH role without differentiating between the different segments of PATH such as source, trajectory\(^3\), or goal. It is one of the tasks of this dissertation to examine whether it is necessary to further recognize more specific PATH roles.

One of the basic tenets of Case Grammar was the claim that underlyingly, each noun phrase has a specific semantic case assigned to it. Fillmore recognizes varying numbers of cases in his different articles on Case Grammar and this includes variation in the number of locative cases. In “The Case for Case” (1968a) he only mentions a general Locative case, whereas in “Lexical Entries for Verbs” (1968b) he further distinguishes between a Source and a Goal case. We will look at this development in more detail shortly. First, however, I want to introduce the more basic claims of Case Grammar as a theory of language processing.

Fillmore regards cases as universal, presumably innate concepts that structure our perception of real world events\(^4\).

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\(^3\) The term ‘trajectory’ is used to refer to the medial section of a path. This segment is often referred to as ‘path’ (cf. e.g. Bennet 1975, Johnson 1987), this however, leaves a lot of room for misunderstandings.

\(^4\) Fillmore’s cases are in that respect similar to what Langacker (1987, 1991a) calls Role Archetypes. Both regard them as prelinguistic conceptions that are grounded in our everyday experience. They are seen as universal notions. Both Langacker and Fillmore recognize similar types of roles but also maintain that “they do not form an exclusive club” (Langacker 1991:285).
The case notions comprise a set of universal, presumably innate, concepts which identify certain types of judgments human beings are capable of making about the events that are going on around them, judgments about such matters as who did it, who it happened to, and what got changed (1968:24).

The number of cases is regarded as limited, though Fillmore never actually provides a complete list of possible cases. Instead, he discusses the cases he recognizes from the English language and leaves the list open. Necessary cases he lists in the 1968 paper include Agentive, Instrumental, Dative, Factative, Locative, Source, Goal, and Time. This list, however, changes over the course of the years. At first, Fillmore regarded the case roles of Source and Goal as strictly referring to motion through space. However, later he considered these roles to be broader notions that also cover changes of state, i.e. transformations, and temporal progression (cf. Fillmore 1971).

In the early conception of Case Grammar (e.g. Fillmore 1968), the claim he makes is that verbs are selected according to the case environment the sentence provides, that is, it is not the verbs that determine the selection of participants, but instead participants fulfill specific case roles and these determine the choice of verb. According to Case Grammar, the case roles are thus the prime element in both our conceptualization of events and their subsequent expression in language. Verbs differ with respect to what kind of case frame they can occur in. Typically, they are capable of occurring in various environments though they display preferences for specific case frames. This is an

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5 In 'Some Problems for Case Grammar' (1971) the Dative is divided into Experiencer and Goal case.
6 In 'Some Problems for Case Grammar' (1971) he subsumes the Factative as well as the later introduced Resultative under the Goal case which thus specifies the end-result of either a motion event, of something coming into existence or of a transformation of some kind.
interesting notion that will be taken up in the later analysis. We will see that some motion verbs have strong biases with respect to a specific PATH segment. These verbs are restricted in their general profile and cannot freely pattern with just any kind of spatial prepositional phrase. This observation suggests that a general PATH role for motion constructions is not specific enough.

By the late seventies, Fillmore thought about events as being conceptualized relative to scenes. Here we find ideas that are very similar to what Talmy formulates in his work. Fillmore (1977a) claims that any subpart of a scene necessarily evokes the entire event frame. A verb is in this conception linked to a specific frame and profiles specific aspects of this frame. Whereas in his earlier transformational work the verb did not yet have the status of being the primary element of a sentence, it now becomes obvious that the choice of verb organizes the sentence structure and the number and kind of participants. The verb thus influences which elements can be put into perspective (or profiled). Perspective-taking is a matter of sentence organization. Fillmore (1977b) divides a sentence into a nucleus, which consists of subject and object, and a periphery, which consists of elements such as prepositional phrases (PP). Which elements of a particular scene will be included in the nucleus depends on the choice of perspective taken by the speaker. Different factors influence this choice and Fillmore (1977b) introduces a saliency hierarchy on the basis of which the speaker decides which perspective to take on a scene. The saliency hierarchy comprises semantic properties of participants in the following order:

7 Temporal progression is not to be mixed up with the separate case of Time.
active over inactive
causal over noncausal
human over inanimate
change over non-change
complete over part
figure over ground
definite over indefinite

The concept of frame semantics that Fillmore (1976, 1982) developed from the mid-seventies onward is similar to Lakoff's (1987) notion of idealized cognitive models and partly also to Langacker's general conception of an encyclopedic lexicon (1987). Not only verbs but also nouns are seen as involving frame-semantic knowledge. That is, these words are seen as being conceptualized against a rich background that includes cultural knowledge and individual experiences. Probably Fillmore's best-known example of such a specific frame is the 'commercial event frame' (1977b). The different verbs sell, buy, spend, and cost all describe aspects of the same frame. Depending on the verb choice, different participants are lexically predicated and thus attended to. The idea of perspective-taking plays an important role within the conception of frame semantics. We select a verb depending on which aspect we have directed our attention to, or where we want to direct the hearer's attention. For example, we can use the verb spend to direct the hearer's attention towards the buyer and the purchased item and we can use the verb cost when we want the hearer to focus on the item.

A further important claim is that the non-lexicalized participants are nevertheless conceptually activated. That is, a particular frame is accessed in its entirety. The lexically predicated participants are more salient than the non-lexicalized elements, and the participants in subject position are more salient than those in object or in an oblique
position. The least salient participants are those not lexically predicated; however, even the aspects of the frame that are not lexically predicated in a given usage are seen as being conceptually activated, though not actively attended to.

1.2.2 Introducing Construction Grammar

To go from frame semantics to Construction Grammar means to leave all the rich semantic structure behind and focus on the syntactically relevant aspects of verb meaning. Recall that it was said in Section 1.1 that constructions are a specific kind of schema. Schemas were described as capturing and representing similarities across recurrent similar usage events. Argument structure constructions capture similarities across verbs and their usage in different utterance types on a syntactic as well as semantic level. For lexical items, Fillmore explains that

the semantic information associated with a lexical item (...) does its work in part by providing an indicator of the semantic frame with which the item is associated. The semantic role array in the valence description (what I used to call case frame), identifies the elements which are foregrounded ("profiled" to use Ron Langacker's term) within such a frame (1988:43).

Concerning the interaction of lexical items and constructions, he then explains that

the lexicon, which in important ways is not distinct from the repertory of constructions, associates with each lexical item, explicitly or implicitly, information about the grammatical construction in which the items can participate. To the extent that a given lexical item is closely tied to one or more specific grammatical constructions, describing that item is equivalent to describing the constructions in which it participates (1988:42).
Constructions are thus closely tied to verbs; to their meaning as well as to what Fillmore now calls “the role array in the valence description”. That is, a construction not only extracts a common semantics from the different verbs associated with it, but also a common syntax in that the argument structure of the most common and most tightly linked verbs is reflected in the argument structure of the construction itself.

In general, constructions are seen as form-meaning pairings that link a specific syntactic structure to abstract meaning components. Constructions are thus not different in kind from lexical items, they are simply more abstract representations. The similarities between constructions and lexical items can further be seen by the fact that both can be primed. Bock (1986) supplies experimental evidence that subjects tend to produce sentences that are structurally identical to the priming sentence. It has further been shown by Weiner and Labov (1983) that the strongest factor for the use of an agentless passive was its previous use in one of the five preceding clauses.

One of the defining properties of constructions is that their meaning is not entirely predictable from their component parts. Strict compositionality is thus excluded by definition. The size of constructions ranges from single morphemes to entire argument structure constructions which have a clause level information structure. It is the latter that we will now look at in more detail.

Argument structure constructions have been investigated in great detail by Goldberg (1995). Goldberg introduces and analyzes, for example, the Ditransitive Construction as in Sam baked Mary a cake; or the Resultative Construction as in He slammed the door shut. Figure 1-1 illustrates the CMC and the following example (1-1) illustrates a typical utterance that fully instantiates the construction.
Figure 1-1: The Caused-Motion Construction (Goldberg 1995:163)

(1-1) William pushed the dog’s body onto his friend’s chest.

Figure 1-1 shows the skeletal structure of the CMC. On the syntactic level it consists of the elements verb, subject, oblique, object. In any instantiation of the construction, these elements are arranged syntactically as NP VP NP NP. In a fully instantiated utterance, the lexical elements filling the syntactic slots mirror the semantics of the construction. This is illustrated in (1-1). Here the verb push lexicalizes the two semantic elements MOTION and CAUSE. The participant roles associated with the verb are further compatible with the roles specified by the construction and can easily be fused or mapped onto each other. The subject functions as the causer and the object as the THEME or FIGURE, i.e. the moved entity. Finally, the oblique, onto his friend’s chest, is a dynamic PATH expression. A directional PATH is a further defining characteristic of the CMC as indicated by the subscript to the PATH specification.

The semantic elements are seen to have been abstracted over numerous usage events. Since the construction is prototypically and most frequently used in a fully instantiated way these have come to be closely associated with this kind of syntactic arrangement. This close link between the syntactic configuration and the semantic elements is what it means to say that the construction has a meaning associated with it.
A direct consequence of this tight link is that it is possible to deviate from the constructional template in that the semantics of the lexical items in the instantiation do not exactly match the semantics of the construction they instantiate. It can thus be argued that a lot of the creativity of language use stems form constructional import. Goldberg uses the example shown in (1-2) to illustrate that constructions carry meaning independently from the instantiating lexical items.

(1-2) ‘Sam squeezed the rubber ball inside the jar. (Goldberg 1995:158)\(^8\)

In (1-2) the verb *squeeze* encodes neither *MOTION* nor *CAUSE*, nor does the preposition encode *PATH*. Goldberg claims that the sentence is nevertheless understood as referring to a dynamic caused-motion event and she attributes this interpretation to the semantic import of the construction. One of her main arguments for establishing constructional import is that in this way we get around positing additional implausible verb senses, such as a verb *squeeze*: ‘to move by squeezing’. In this way polysemy is reduced to a necessary minimum and the deviant semantics of specific lexical items in rare usage patterns are attributed to constructional import. It will, however, be shown in Chapter 5 that sentences such as the one shown in (1-2) are not very well suited to illustrate constructional import. It is generally not possible to leave too much semantic content to be filled in by the construction. The process of semantic import of the construction supporting the interpretation of utterances breaks down when both the verb and the preposition do not correspond to the constructional semantic template.

\(^8\) The little check mark in the beginning of the sentence is used to indicate that the example is constructed. The check mark is used for completely made up examples as well as examples that are slightly altered
Goldberg herself is far from seeing the workings of constructions as unconstrained. She introduces two principles that ensure the necessary compatibility between verbs and constructions: (i) the Semantic Coherence Principle, which states that the participant roles of the verb must be construable as instances of the argument roles of the construction. This principle rules out the possibility that syntactically isomorphic utterances which are semantically not compatible with the construction could be used as instances of the construction. The other principle is (ii) the Correspondence Principle which states that each profiled and lexically expressed participant role of a verb must be fused with an argument role of the construction (Goldberg 1995:50). The second principle implies that the construction can add on participants in case the verb itself has a lower valence than the construction. However, the construction cannot eliminate participants and thus decrease the valence of instantiating verbs. That is, it is possible to use an intransitive verb in the CMC as in Goldberg’s example *Fred sneezed the napkin off the table* (1995:156). However, it is not possible to use a typically transitive or even ditransitive verb in the CMC, *He put into the room.*

Naturally, there are many more interesting details that Goldberg develops in her monograph. The aim here is to summarize the aspects that are most important for the present investigation. A lot of the particulars of her analysis will, however, be taken up at later points in the dissertation.

1.2.3 Talmy’s lexicalization patterns and motion event frames

Leonard Talmy has worked extensively on the syntax and semantics of space and
corpus examples.
motion and has substantially influenced this area of linguistic research. His work can be considered groundwork in the field of cognitive linguistics, especially his introduction of the notions of FIGURE and GROUND into linguistic discourse as well as his typology of lexicalization patterns (1985). The latter gave rise to numerous similar studies on different languages (e.g. Schaeffer 1985, 1986, Aske 1989, Schaeffer and Gaines 1997, Choi and Bowerman 1992, Slobin and Hoiting 1994, Slobin 1996) and has never been challenged in its fundamental claims.

Talmy set up the notion of FIGURE and GROUND in opposition to Fillmore’s cases of Source, Path, Goal and Location. He defines the FIGURE as

the Figure object (...) a moving or conceptually moveable point whose path or site is conceived as a variable, the particular value of which is the salient issue (Talmy 1978:627).

GROUND, on the other hand, is defined as follows:

The Ground object is a reference-point, having a stationary setting within a reference-frame, with respect to which the Figure’s path or site receives characterization (ibid).

Talmy voices three major criticisms concerning Fillmore’s case system. First, he notes that there is nothing within the framework of Case Grammar that shows the commonality of the six cases of Source, Goal, Path, Locative, Patient, and Instrument. Second, nothing makes it explicit that the cases Source, Path, Goal, and Locative share the function of reference point; and third, there is nothing in the system to show that Source, Path and Goal all belong to motion events, whereas Locative is part of static configurations (Talmy 1978).

Talmy claims that his system, which includes not only FIGURE and GROUND but also the notions of PATH and that of either FACT-OF-MOTION or LOCATEDNESS, exactly
captures all commonalties as well as differences. To understand these notions a little better, we will first look at his seminal paper on lexicalization patterns.

Talmy defines lexicalization as the process in which “a specific meaning component is found to be in regular association with a particular morpheme” (1985:59). His enterprise in the study is to discover typological patterns with respect to what kind of semantic components different languages characteristically encode in either the verb root or in a satellite. He introduces satellites as a new word class which had thus far not been recognized as a linguistic category. He defines them as “certain immediate constituents of a verb root other than inflections, auxiliaries, or nominal arguments” (1985:102). Talmy adds that as yet there is still some uncertainty as to what kind of constituents merit classification as satellites. However, an important criterion is that satellites are semantically bound up with the verb. They make up part of the meaning of the verb root and this meaning would alter considerably were they not present. A case in point are English verb particles. Unlike prepositions, they are non-optional elements in that the semantics conveyed by the verb changes depending on their presence or absence. In (1-3), the difference between particles and prepositions is illustrated, a. being an example of a verb-particle construction and b. representing the use of the same morpheme as a spatial preposition.

(1-3) a.  He ran up a bill.
   b.  He ran up the stairs.

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9 In Linder’s (1981) terms we can say that the change in meaning comes about through a different profiling within the evoked functional assembly of the verb compared to the verb alone. That is, verb particles in English usually profile the endstate of a process, whereas most bare verbs are neutral with respect to a
In (1-3b) we can omit the PP and would still be describing the same basic event. Yet, this is not possible in (1-3a). Here the lack of the particle construction would yield a totally unrelated utterance.

Talmy's study of lexicalization patterns is based on an investigation of the encoding of motion events in different languages. He posits that any motion event consists of the necessary elements of (i) a FIGURE, that is the moving or located object, (ii) the fact of MOTION, i.e. whether the FIGURE is moving or statically located, (iii) a PATH, which is the course followed or the site occupied by the FIGURE with respect to the GROUND, and (iv) the GROUND, which is the location with respect to which the motion is carried out, or with respect to which the FIGURE is located. These four semantic elements, together with the two optional elements of CAUSE and MANNER, form the basis of the typology of lexicalization patterns.

The element of PATH, which is the most important one in my investigation, can either be characteristically conflated in the verb root, thus yielding so-called verb-framed languages; or it can be expressed in the satellite, thus yielding a satellite-framed language. Talmy claims that each language has a preferred lexicalization pattern. This does not mean that the two types are mutually exclusive, i.e. it is not the case that a language must either conflate PATH in the verb or in the satellite, globally. Instead, every language displays a preference for a specific conflation pattern, and the majority of the verbs will adhere to that principle. Each language will also typically have a number of verbs of other types; however, the number of those is negligible compared with the number of verbs of the major pattern.
In this classification, English is grouped as a satellite-framed language, since the major lexicalization pattern is that of encoding PATH in the satellite conflating the fact of MOTION and MANNER in the verb. (1-4) illustrates this pattern.

(1-4) 'The cat ran out of the kitchen.

In (1-4), the verb run expresses the MANNER of motion, namely fast motion using limbs. The word out constitutes the satellite. It elaborates on the information given by the verb in that it adds specificities about the PATH of the motion. In the case at hand it evokes the source, i.e. a container-like GROUND.

Talmy regards PATH-conflating verbs such as enter, exit, and depart as exceptions that only constitute a minor pattern in English. He claims that in English, PATH-conflating verbs are generally those borrowed from the Romance languages. There are thus fewer of them than there are of the native manner-conflating type and they are also used less frequently.

Spanish, on the other hand, is an example of a language that conflates MOTION and PATH in the verb root as its major lexicalization pattern.

(1-5) 'El gato salió de la cocina (corriendo)
The cat moved-out from the kitchen (running)
'The cat ran out of the kitchen.'

In (1-5) we can see that the Spanish verb contains information that is expressed in a satellite in the English translation. The MANNER component, on the other hand, expressed in a gerundive form, if at all (cf. Slobin 1988 and 1996 on the underspecification of both PATH and MANNER in Spanish narratives).
A third type that Talmy describes is represented by Atsugewi. This language conflates the FIGURE and MOTION in the verb, whereas the satellite represents either PATH and GROUND or PATH and CAUSE. Sentence (1-6) illustrates this pattern (Talmy 1985:74):

(1-6) w- ca- staq'- -fct
     3RD INST [MOTION+FIGURE] [PATH+GROUND]
     literal: ‘runny icky material moved into the creek from the wind blowing on it.’
     ‘The guts blew into the creek.’

English has only a very limited number of FIGURE-conflating verbs. Some examples are rain, snow and hail. In Chapter 7 we will come back to Talmy’s classification of verbs when discussing the fact that in English a lot of manner verbs contain a schematic PATH specification. It will be shown that, at least in English, Talmy’s distinction reflects a continuum rather than strictly separated classes. As an example of the non-discreteness of these categories, consider the verb slither. Slither is a prime example of a manner-conflating verb that expresses a smooth, almost frictionless movement without the use of limbs. At the same time, slither has a strong FIGURE component. It is mainly associated with snakes but more schematically, the verb evokes a long, thin, limbless creature.

Talmy claims in his 1985 paper that the components of FIGURE, GROUND, MOTION, and PATH are all necessarily present conceptually as well as lexically in any given utterance describing a motion event. This analysis is more refined in his 1996 paper on the windowing of attention. Here Talmy specifies that these elements do not all have to be present in the linguistic material coding the conceptualization. The different elements can either be highlighted or ‘windowed’ for attention, that is included in the utterance, or they can be backgrounded or ‘gapped’, that is not included in the utterance.
The implication is that gapped portions of a scene, i.e. non-lexicalized elements, are nevertheless understood because they are part of the evoked event frame and hence recoverable from it.

Talmy explains that different languages will allow alternatives of windowing; they will conventionally foreground specific aspects of complex scenes while omitting others. Windowing is thus, on the one hand, subject to a certain degree of language specific convention and, on the other hand, it is to some extent the choice of the individual speaker which portion of a scene she chooses to window or gap when formulating an utterance.

In the 1996 paper Talmy further subdivides the element of PATH into a source, the starting point of the motion event, a trajectory, or "medial portion of a PATH" in Talmy's words, and a goal, the final location where the motion comes to rest. These different subportions of a PATH can also be selected for attentional windowing. However, Talmy notes that the different segments of PATH have a non-intra-dependent relationship with each other. That is, the different elements of PATH do not entail one another: "...for path-windowing, a later path segment is not entailed by an earlier one but is rather represented as additionally present" (1996:24). This is different from the larger, more complex structure of a motion event frame. The different elements of a motion event frame are in an intra-dependent relationship in that they mutually entail one another. According to Talmy, intra-dependent relationships allow a free selection of windowing within an event frame, since due to the internal entailments any window will necessarily convey the whole complex. Within a non-intra-dependent relation like PATH there are, however, more restrictions with respect to the selection of attentional windows.
Talmy does not further elaborate on any restrictions that might arise from the fact that the different elements of a PATH do not co-evolve each other\textsuperscript{10}. I will investigate the question of whether it is really the case that PATH is completely non-intra-dependent. It will be shown in Chapter 5 that the fact that coercion of non-dynamic prepositional phrases into a dynamic interpretation is possible in the case of a profiled endpoint is evidence against the complete non-intra-dependence of the different PATH segments. Further arguments against the non-intra-dependent relationship of PATH components come from Lakoff, though not in reference to Talmy. He notes that the image schema transformation from PATH to ENDPOINT-focus is natural since “it is a common experience to follow the path of a moving object until it comes to rest, and then focus on where it is” (1987:442). He further points out that in ENDPOINT-focus schemas there is an understood path (ibid:456) and that it follows from a Figure being at a specific point of a path that it has also been on all previous points of the path (ibid:458). These two statements contradict Talmy’s non-intra-dependent relationship in that Lakoff establishes an implicit relationship between the different elements of a complex PATH. It will become obvious at various points throughout the dissertation that it is necessary to incorporate Lakoff’s observations into Talmy’s notion of a non-intra-dependent PATH. Whereas it is true that neither source nor trajectory entail the other segments of PATH, the goal does have a special status in that a goal specification necessarily entails a starting point, i.e. a source,

\textsuperscript{10} He discusses the differences between OPEN and CLOSED PATHS. An OPEN PATH refers to motion events whose starting and ending points are at different locations in space, whereas CLOSED PATHS are defined as events of motion whose starting and ending point coincide spatially. He notes that in CLOSED PATHS it is impossible to only foreground the initial window. The Source is in this case not representative of the whole PATH.
as well as some covered ground, i.e. a trajectory.

1.3 Outlining the problem

The aim of this dissertation is to provide a corpus-based analysis of English motion constructions with specific emphasis on the notion of PATH. This task has arisen mainly out of four observations: (i) Even though Goldberg (1995) provides an excellent account of the CMC, she bases her claims exclusively on grammaticality judgments. One aim of this dissertation is thus to seek empirical verification of her results. (ii) When examining the relation between instantiating lexical items and constructions, it is typically verbs that are investigated (cf. e.g. Fillmore 1985; Levin and Rappaport 1991a; Goldberg 1995, 1997; Levin et al. 1997). However, the prepositional phrase also plays a crucial role in the conceptualization of the event. It is therefore necessary to examine the use of prepositions in motion constructions in more detail and to also investigate how verbs interact with prepositions within constructions. (iii) Examining motion constructions, the main research focus has so far been on the CMC (cf. e.g. Randall 1983, Jackendoff 1983; Gawron 1985; Goldberg 1995). The CMC has as yet been neglected (but see Carter 1988). When constructions of intransitive motion have been studied then mainly in the form of the way-construction (cf. e.g. Jackendoff 1990, Marantz 1992, Israel 1996, Goldberg 1996b). One objective of this dissertation is therefore to establish the construction status of the expression of intransitive motion for utterances like He walked into the forest. (iv) Finally, the last observation that led to the formulation of the research topic involves Talmy's (1985) work on lexicalization patterns. As noted in Section 1.2, Talmy establishes that motion verbs display various
lexicalization patterns. It is, however, the case that there are differences within the vast class of so-called manner-conflating verbs regarding the patterning with prepositional complements. Some are easily understood as referring to translocational motion as in (1-7) even when occurring with non-dynamic prepositions, whereas others are preferably interpreted as referring to non-translocational motion when occurring with non-dynamic prepositions as in (1-8).

(1-7)  
a. About 120 of the 750 refugees who bolted from the camp jumped in the bay.  
b. As you step in that tiny room the deathbed is directly to your right.

(1-8)  
a. The minority Tutsi once were a patrician tribe who wandered in these volcanic mountains around the 10th century.  
b. If the radar had been monitored, an air traffic controller would have tried to contact the pilot and warn him he was flying in prohibited airspace, Oberstar said.

All four sentences contain the preposition into in the corresponding original corpus examples. Note that unlike the utterances in (1-7), the utterances in (1-8) are no longer interpreted as referring to translocational motion now that the preposition has been changed to the less dynamic in. This observation has two implications: (i) there are differences within the class of manner-conflating verbs with respect to an inherent PATH salience; (ii) we cannot posit a general constructional ability to coerce non-dynamic PPs into dynamic ones as apparently assumed by for example Croft 1991 and Goldberg 1995.

In what follows, these four observations are elaborated upon. Before proceeding any further, it is, however, pertinent to take care of some important terminological issues. I have already been using the terms PATH, dynamic, translocational and static without further defining them. Yet, it is crucial to be explicit about the exact sense in which I will
apply these labels. First of all the term PATH: I will use the term PATH to refer to a
FIGURE's dynamic traversal of a specified GROUND.\textsuperscript{11} That is, unlike Talmý's (1985)
conception of PATH, I will not include static locatedness under this notion. To refer to
motion in a confined space as in \textit{She is walking in the streets}, the term PATH is modified
with the label \textit{non-translocational}. The term \textit{translocational motion} is exclusively used
to refer to directed motion, i.e. motion from point A to point B as in \textit{He is running into
the house}. The terms static and non-dynamic are used interchangeably to refer to
prepositions that do not predicate a dynamic PATH (see Chapter 3).

We are facing one obvious problem when wanting to differentiate between
dynamic and non-dynamic uses of prepositions. In English it is generally possible to use
prepositions in both dynamic and static contexts. Consider (1-9) and (1-10).

(1-9)  a. The largest slice of life on view in Turpan is the central market, which
fills cavernous buildings and sprawls into surrounding outdoor areas.
   b. As Arafat's fast-moving motorcade reached Gaza City, which was decked
in Palestinian flags and welcome banners, tens of thousands of people
poured into the streets to cheer him.

(1-10) a. We want to dictate our own conditions," said Mamdouh Abu Watfa,13, as
he waited for noon prayers inside the Palestine Mosque.
   b. In an exercise familiar to most Americans, 49 numbered balls will spin
inside a clear plastic drum and six balls will be selected at random to
determine each week's winners.
   c. Near daybreak, Wade said, Winslow went inside the cabin.

(1-9a) is an example of subjective motion (Langacker 1987). That is, no actual motion of
a FIGURE is taking place, instead, the utterance describes a static configuration. The only
dynamic aspect is the mental scanning process (see also Chapter 6, Section 6.4). (1-9b)

\textsuperscript{11} FIGURE and GROUND are used in Talmý's (1975) sense.
illustrates a straightforward dynamic use of *into*. (1-10) illustrates the different uses of *inside*. Whereas (1-10a) illustrates a static usage, (1-10b) illustrates an example of non-translocational motion. (1-10c) finally shows *inside* used in a dynamic scene.

Basically all English spatial prepositions lend themselves to usage in non-dynamic and dynamic scenes. Arguing from a usage-based perspective, and based on the assumption that frequency yields entrenchment, I hypothesize that a preposition mainly used in a dynamic context will have a strongly entrenched dynamic sense whereas a preposition that is mainly used in non-dynamic contexts will only have a weakly entrenched dynamic sense. Instead it will display a highly entrenched non-dynamic sense. I further hypothesize that the degree of entrenchment will govern the interpretational bias in ambiguous utterance types. A highly static preposition is predicted to maintain a non-dynamic interpretation in an utterance like (1-11), in which both readings are possible.

(1-11) ‘David Johnson, 38, one of the people in line, said the man drove on the sidewalk and swiped a building, hitting some men as the crowd scattered.

A translocational reading of (1-11) implies that the man drove onto the sidewalk, i.e. he came up onto the sidewalk while driving. A non-translocational interpretation is to see him driving down the sidewalk without an initial phase of his driving up onto it. Speakers of English typically interpreted sentences like the above non-translocationally. In fact, out of 40 consulted speakers, 19 claimed that a non-translocational interpretation is the only possible reading of the sentence. 9 speakers first got a non-translocational interpretation upon reading the sentence but claimed that both interpretations are actually
possible. Interestingly, 9 others stated that only a translocational interpretation is possible and 3 asserted that both interpretations are possible but the translocational reading came to their mind first.\textsuperscript{12} Variation in interpretation confirm the assumption that a preposition’s dynamicity is a matter of degree. To determine this specific degree of dynamicity of different prepositions is the task of Chapter 3. Here I will establish a scale of dynamicity for spatial prepositions in English. This scale is based on a preposition’s frequency of usage in dynamic versus static utterances (see Chapter 2 for methodology).

Discovering the differing degrees of dynamicity of the prepositions will allow us to examine the various constructions’ ability of coercion. Regarding coercion, a further important factor is the interplay of the semantics of the verb and the preposition within the construction. Note in that context, that in comparison, the examples in (1-7) are not as nearly as ambiguous as example (1-11). To analyze the dynamics between verbal and prepositional semantics, specifically with respect to the expression of PATH, is one of the main concerns of this dissertation.

Within Construction Grammar, the only two claims made about the expression of PATH thus far have been the following: (i) the CMC must contain a directional, i.e. dynamic, PP, and (ii) within the CMC, static PPs can be coerced into a directional interpretation, if “the relationship between the meaning of the locative term and the directional interpretation it receives is one of endpoint focus” (Goldberg 1995:159).

The differences in interpretation of (1-7) and (1-11) already point to the fact that the problem is more complex than Goldberg suggests. Evidently it is not the case that the CMC can always coerce a non-dynamic PP into a dynamic reading as long as the

\textsuperscript{12} In Chapter 2, I will introduce the exact method used for this survey.
preposition profiles the endpoint. We have seen for (1-11) that the preposition on can be interpreted as either profiling the endpoint or, it can be interpreted as referring to a location in the boundaries of which motion takes place. The construction alone does evidently not resolve this ambiguity. A question that arises is consequently: Which other factors influence a construction’s ability to coerce? How can we constrain coercion in such a way as to make sure that it really covers all possible cases? To illustrate the problem with a further example, consider (1-12).

(1-12) a.  ‘Sigfried released the tiger onto the stage.
          b.  ‘Roy released the tiger on the stage.

(1-12a) is clearly an example of the CMC. Even though the verb does not inherently lexicalize motion, the utterance is, on the basis of constructional import, understood as referring to an instance of caused-motion, i.e. the tiger is released to then move onto the stage. The utterance in (1-12b), however, challenges the view put forth by Goldberg. She does not formulate any constraints regarding the interplay of verbal semantics and prepositional usage within the CMC. Yet, looking at (1-12b) it becomes obvious that though structurally identical to (1-12a), the sentence is no longer unambiguously interpretable as an instance of the CMC. That is, the PP is not necessarily interpreted as referring to a dynamic PATH. Rather, it is understood that the tiger was released while already being on the stage. I will show in the analysis that due to the semantics of the verb, the construction looses its ability to coerce a non-dynamic PP into a dynamic interpretation (see Chapter 5, Section 5.2 for details). Chapter 5 is concerned with an in-depth analysis of the interplay of verbs and prepositions within the CMC. The aim is to
arrive at a more precise understanding of the factors underlying coercion. It will be shown that the internal PATH profiling of the verbs is of major importance in this respect.

When considering the attention paid to the different PATH roles in the localist tradition and within Case Grammar, it is surprising of how little significance it seems to be within Construction Grammar. It was already noted in Section 1.2 that Fillmore at various times recognized different case roles. Fillmore (1968a) considers it sufficient to have a general LOCATIVE case, whereas he later split this into LOCATIVE, GOAL and SOURCE. To name but a few of the linguists who concerned themselves with the notion of PATH, consider the following diverging opinions. Gruber (1965, 1976) considers the categories of LOCATION, DIRECTION, GOAL, and GOAL ACCOMPANIMENT to be sufficient to fully describe the prepositional inventory of English. He subsumes sources as well as trajectories under the goal specification. A source, he sees as a negative goal, whereas he regards a trajectory as a complex source-goal specification. Bennett (1975), who borrows heavily from Fillmore's ideas and also works with case roles, invokes the largest inventory for the description of static and dynamic spatial relations\(^{13}\). He recognizes a LOCATIVE case, and further a SOURCE, PATH, and a GOAL case.\(^ {14}\) Considering these other linguistic traditions, we would expect a role specification as general as PATH not to be specific enough for the construction.

It is likely that within Construction Grammar, PATH has not received that much attention due to its oblique status. PATH is an unprofiled role within the CMC and the  

\(^{13}\) Since Bennett advocates a monosemous approach, his case roles at the same time include temporal relations.

\(^{14}\) Stratton (1971) also argues for the recognition of PATH (i.e. trajectory) as a separate case role. But see for example Deklerck (1977) for arguments against a separate case role PATH.
IMC, i.e. a role not linked to a direct grammatical relation (SUBJ, OBJ or OBJ₂ \(^{15}\)) (see definition for constructional profiling of argument roles in Goldberg 1995:48). The unprofiled role PATH is thus easily considered as being of lesser importance. To do justice to Goldberg, it needs to be noted that her using the term PATH does not seem to have any further theoretical implications about this role. She freely switches between a general PATH specification and a GOAL specification in her illustrations of the CMC. Therefore, we have to assume that she uses PATH simply as a general label for any possible segment of a PATH, i.e. source, trajectory, or goal, with the only constraint being that the PATH has to be directional and fully determined by the causal force. She even notes that “roles are semantically constrained relational slots in the dynamic scene associated with the construction or the verb. Therefore the particular labels that are used to identify these roles have no theoretical significance” (Goldberg 1995:49). The role associated with the oblique slot in the CMC is that of a directional PATH. This general specification does not conflict with a more restricted specification that might be necessary for certain verbs. As expressed in the above quote, roles are seen as semantically constrained relational slots. The constraint stems either from the verb or the construction. The only constraint that the construction imposes is that the PATH has to be directional. Any other constraints that specific verbs might impose are significant only for actual instantiations of the construction. These constraints are, however, in no conflict with the general constructional constraint. The fact that some verbs have very strong windowing preferences, e.g. that they in the overwhelming majority of cases take

\(^{15}\) OBJ₂ refers to the grammatical relation filled by the second NP in ditransitive utterances (Goldberg 1995:48, Footnote 11).
goal complements, or source complements, does not affect the meaning or the structure of the construction as a whole. That is, verbs like *enter* or *invade* which profile the goal, or verbs like *eject* or *release* which profile the source (cf. Chapter 5), are more specific in that they profile a specific segment of PATH, but they do not contradict the general directional PATH role. Since a construction is an abstraction over numerous similar but distinct usage events, the constructional specification is a schematic common denominator. To be able to accommodate all different kinds of motion verbs and even non-motion verbs with different profiling preferences, it is thus necessary to have the most abstract semantic specification possible. Goldberg’s schematic directional PATH role is thus in no way in conflict with any of the more detailed traditional approaches to case roles or semantic roles.

It will be shown in Chapters 6 and 8 that there are, however, some specific verb classes within the broader category of motion verbs that contradict the directional PATH specification. These verb classes stand in that they almost exclusively pattern with non-dynamic prepositions. Consider (1-13) and (1-14), which are generally seen as instantiations of the CMC and the IMC, respectively.

(1-13) When the patch is placed on a wound, blood vessels from around the injury penetrate upward into the patch over a period of weeks.

(1-14) I landed at Patrick Air Force Base and didn’t even know which way the Cape was.

I will show in the analysis that these verbs are restricted profile verbs that exclusively profile the endpoint. They furthermore do not allow for coercion of the non-dynamic PP into a dynamic interpretation, though based on Goldberg’s view of constructional
coercion this would be expected. Yet, I will show in Chapters 6 and 8, in most cases it is only marginally acceptable to use a directional PP with these verbs as in (1-15).

(1-15) a.  `When the patch is placed onto a wound, blood vessels from around the injury penetrate upward into the patch over a period of weeks.

b.  `*I landed into Patrick Air Force Base and didn’t even know which way the Cape was.

Without wanting to go any deeper into the analysis now, we will see later that the violation of the directional-PP constraint with certain classes of verbs makes it necessary to state the existence of further constructions (cf. Kay 1996). These constructions are similar to the CMC and the IMC, respectively, with the only exception being that their inherent PATH specification is that of a non-dynamic PATH.

1.4 Organization of the thesis

To end this first chapter, I will lay out the structure of the dissertation, which at the same time serves as a summary of the most important points. In Chapter 2 the methodology used for the data selection is introduced. I will argue for the different methods used as well as introduce them. The analysis in the dissertation is mainly based on frequency data obtained in an extensive corpus study. The corpus data are, however, further supplemented with acceptability judgment data. This two-way approach serves to provide converging evidence from different kinds of linguistic processing, i.e. language use in context and controlled and focused deliberations about language.

Chapter 3 lays the groundwork for the analysis in the later chapters. Since the main focus in this dissertation is on the extent of constructional semantic import
measured by way of a construction’s ability to coerce non-dynamic PPs into a dynamic PATH specification, it is necessary to define what exactly is counted as a dynamic PATH phrase. To that end, an index of dynamicity (ID) is established which is based on a preposition’s frequency of occurrence in static versus dynamic uses.

Having established the ID, it is then possible to investigate the different motion constructions in more detail. Chapter 4 starts out with the CMC. First, Goldberg’s for the most part intuition-based claims concerning the use of the CMC and the relation of verbs to the construction are tested empirically. The remainder of the chapter serves to develop the different hypotheses that guide the further analysis. In particular, it will be shown that constructions are limited with respect to their ability to influence the interpretation of lexical elements in a given instantiation. To investigate these limitations is the objective of both Chapter 4 and Chapter 5. In Chapter 5 the main focus is on the interplay between verbs and prepositions regarding the expression of PATH. It will be shown that the lexical profiling of a dynamic PATH, whether incorporated as part of verbal semantics, or lexically expressed in a dynamic preposition, is indispensable. If not lexically expressed, PATH needs to be recoverable from context. Using frequency data as well as acceptability judgment data gathered in an extensive survey, it will be shown that the underspecification of PATH even within motion constructions generally leads to a non-translocational interpretation of the predicated event.

Analyzing the co-occurrence patterns of verbs and prepositions within the data set leads to the topic of Chapter 6. As mentioned previously, there are specific verb classes that almost exclusively pattern with non-dynamic prepositions. In the CMC this class is that of verbs putting and positioning, i.e. verbs like put, place, lay, sit, and position. The
semantics of these verbs are analyzed and I will show that these verbs are restricted in their PATH profile. They exclusively profile a static endpoint, which goes against the semantic specification of the CMC. Based on this observation, a new construction is introduced: The Caused-Position Construction. This construction is shown to be a separate but related construction of the CMC.

Research on motion constructions so far has focused on the CMC. The IMC though mentioned by Carter (1988) and Goldberg (1995), has never really been analyzed in any detail. In Chapter 7, I will therefore go deeper into the structure and semantics of the IMC. First, the general relation between the construction and the instantiating verbs is explored. Then, in parallel fashion to what is done for the CMC in Chapters 4 and 5, the interplay of the instantiating verbs and prepositions with respect to the expression of a dynamic PATH is analyzed. I will show that the same constraints formulated for the CMC also apply to the IMC. Moreover, not only do they apply but it is further the case that the IMC is even more constrained than the CMC when it comes to the lexical underspecification of PATH. Two different explanations for this are offered.: (i) the lack of an external AGENT who introduces a sense of directedness; (ii) the existence of the way-construction limits the productive use of the IMC.

Chapter 8 is the correlate to Chapter 6 in that it analyzes verbs profiling a non-dynamic PATH that occur in the IMC: verbs of arrival, which profile a static endpoint; and verbs of departure, which profile a static starting point. Both verb classes are semantically analyzed with respect to their PATH profiling. In parallel fashion to the positing of the Caused-Position Construction as a separate but related construction to the CMC, two constructions related to the IMC are posited, the Intransitive-Arrival
Construction and the Intransitive-Departure Construction. I will further argue for the necessity of actually positing two different constructions. An alternative solution would be to simply posit one construction with a non-dynamic \textit{PATH} specification. Yet, a single construction encompassing both arrival and departure is too wide-ranging. Unlike in the case of the general IMC which is schematic with respect to source, trajectory and goal, it is necessary to have two different constructions in the case of a non-dynamic endpoint and source point specification, respectively.

Finally, in Chapter 9 the findings are summarized and some concluding remarks are expressed about the special status of \textit{PATH} and its role in motion event constructions.
2 DATA SELECTION AND METHODOLOGY

This dissertation is for the most part based on an extensive corpus study. However, many times the frequency data obtained from the corpus have been supplemented with speaker intuitions. In the following, I will first argue for the use of corpora as a basis for linguistic analysis, in 2.1. Following that in 2.2, I will then introduce the chosen corpus and methodology. In a second step, I will argue for the usefulness of complementing corpus data with acceptability judgment data in 2.3. Again, the general discussion is followed by an introduction of the methodology used to obtain the data in 2.4.

2.1 The use of corpora in linguistic analysis

The one obvious fact about language corpora that cannot be stressed too much is that they provide naturally occurring text data (both spoken and written) of language in use. The availability of large corpora and the comparatively easy method of searching through them with special computer software provide an excellent basis for the approach to language that is advocated in the usage-based model. The use of corpora makes possible the foundation of a linguistic theory on the basis of linguistic usage events. Corpora permit us to identify what is central and typical in a specific language. The use of corpora allows for the investigation of two extremely important aspects of language use: (i) it makes it possible to obtain frequency data; and (ii) it enables the extraction of recurring constructions and the range of patterns used in a language, and (iii) it makes possible to detect specific collocation patterns.

The relevance of frequency in linguistic processing has already been noted in Section 1.1. Frequency data allow us to make precise and well-founded claims about the
degree of entrenchment of linguistic units.

The extraction of recurring patterns is one of the chief advantages corpora offer. Within a usage-based model, recurring patterns have a central status in language processing. They form the basis for more abstract schemas since speakers extract schemas from recurring similar usage events. Barlow points out that “most of language consists of semi-regular, semi-fixed phrases or units” (1996:15). It is these units that we can detect in corpora and that provide insights into the structure of the language. The claim is that the patterns of occurrence paired with information about their frequency of occurrence provide us with insights into the structure of the grammar. Patterns of frequency relate to the general linguistic knowledge of the speakers. It needs to be noted that this relationship is not a direct one. Corpus material is a sample of speech across a linguistic community and usually restricted to a specific genre. However, a large enough corpus that is furthermore balanced across genres should give us a very good picture of the kind of language speakers within a community are exposed to and the kind of language they in turn produce.

The importance of collocation patterns for meaning has long been noticed within linguistics. Firth already noted almost fifty years ago that “you shall know a word by the company it keeps” (1957:11). The use of large-scale corpora has managed to shed light on this important aspect of language use that is difficult to investigate by intuition alone. The fact that words are systematically co-selected (Stubbs 1996:40) in language production is highly significant. That is, it is not the case that one word at a time is chosen but instead whole chunks of words. Naturally, words that co-occur regularly will
be more likely to also co-occur in future usage events\textsuperscript{1}. Co-occurrence patterns are liable to get violated in constructed data (see for example discussion in Section 5.2 of Chapter 5). Yet, these patterns are an important factor in word meaning and often pre-determine whether a word can be used felicitously in a specific context. The co-occurrence patterns of verbs and specific prepositions will be used as an indicator for whether specific verbs should be regarded as profiling source, trajectory, or goal. We will see that this distinction is relevant when it comes to the possible occurrence with less dynamic prepositions in motion event constructions. These patterns can easily be detected with the use of corpora. Using introspective methods, on the other hand, bears a certain risk that Stubbs formulates as follows: “Grammars based on intuitive data will imply more freedom of combination than is in fact possible” (1996:40).

Word meaning is not only influenced through stable collocation patterns but also through the larger context that is provided each time a word is used. Meaning is a matter of active negotiation between interlocutors (cf. Gumperz and Levinson 1996). It is not fixed but instead highly influenced by the surrounding context. With Langacker (1987) we can say that words are entry points into the conceptual network structure. Defining words as mere entry points entails that the subsequent route the activation takes can

\textsuperscript{1} A straightforward explanation of why words are systematically co-selected can be given within a network model of language production (cf. Lamb 1999). When two lexical items are frequently used in close temporal and spatial (within the sentence structure) proximity, connections between both lexical nodes will get established automatically. In the future both lexical nodes will automatically co-activate each other through this direct connection. This general property of network models has a direct correlate in neurological structure that they try to model. Hebb’s rule states that neurons that are frequently co-activated will automatically form a link to then activate each other once one of them is stimulated (cf. Spitzer 1996). This basic rule that applies to single neurons is of course also valid for the larger structure of cortical columns, the more likely neurological structure for the representation of linguistic items (cf. ibid; Lamb 1999).
differ each time a word is used. That is, which patterns are activated in the network structure depends not so much on the word itself but at least to the same degree on the current context. This contextual influence on word meaning is not only restricted to present and past usage events but also affects future usages. Context thus shapes word meaning and corpora are an excellent source for the study of language in context. In the analysis (specifically Chapters 5 and 7), it is illustrated how context can influence the interpretation of more static prepositions as referring to translocational motion. It is further argued in Chapter 7 that context gradually shapes word meaning. For example, the repeated use of a non-motion verb in a motion context will finally lead to an additional motion sense of the verb in question. It will be argued that one of the major tenets of Construction Grammar, namely the reduction of lexical polysemy, only holds true for creative and nonce uses. Once a verb comes to be used conventionally in a motion context it is hard to maintain that it does not have a separate motion sense. A case in point are verbs predicking instruments like shovel, spoon, and pump which are likely to occur in instantiations of the caused-motion construction or verbs like parachute, bulldozer, and bicycle which are likely to occur in instantiations of the intransitive-motion construction. I will argue in Chapter 7 that these verbs should be categorized as lexicalizing motion (but see Goldberg 1997).

Corpora not only allow insights into word meaning but also provide an excellent basis for grammatical investigations. Sinclair notes that the principal observation of corpus linguistics has been that contextual meaning affects structure (1991:6f). Within the usage-based model and other cognitive-functional, and discourse-based theories (e.g. Langacker 1987, 1991; Bybee 1985, Hopper 1987, 1998; Goldberg 1995) this
observation is stated in a more pronounced way. Not only does meaning affect structure, but structure has meaning. That grammar and lexis form a continuum is one of the fundamental insights of these linguistic models. The difference between lexical and grammatical units lies mainly within their level of specificity and complexity, but they are not different in kind.

Acknowledging the existence of constructions already implies subscribing to the view that grammar and lexis form a continuum. Argument structure constructions in the way defined by Goldberg combine a syntactic specification with an abstract semantic level. How much meaning constructions actually carry is one of the guiding questions of this work. One way to examine this is to test how many different verb types occur in the construction, i.e. how productive the construction is (cf. Goldberg 1995: ch. 5 on the productivity of constructions). Of specific importance are the kinds of verbs that do not fully instantiate the construction, since it is these verbs that prove the construction’s ability to actually supply semantic content that is not lexically predicated. Corpora provide the a sound basis for this kind of analysis. They allow us to determine the number of different verb types occur in a construction and with that determine how productively constructions are used in actual discourse.

Stubbs notes a further aspect of the intricate relation between grammar and lexis when he states that “what corpus study shows is that lexis and syntax are totally interdependent. Not only different words, but different forms of a single lemma, have different grammatical distributions” (1996:38). We will see later in Chapter 7 that this observation is also relevant for the purpose of this investigation and that there is, in fact, a tendency to use different aspectual and tense forms of verbs to express the different
segments of PATH. It is, for example, the case that a past tense form supports a goal interpretation, whereas present progressive forms are more likely to be interpreted as referring to non-goal directed motion when the preposition allows for both readings. Meaning is thus not constant across different inflected forms of lexical items (cf. Stubbs 1996).

Notwithstanding all the other advantages corpora offer, the main focus in this work will be on frequency data. Frequency data are used to determine the following aspects: (i) a preposition’s degree of dynamicity, (ii) the degree of relatedness of specific verbs to the respective motion constructions, (iii) the internal profiling of verbs with respect to the different segments of PATH, (iv) the number of different verb types occurring in a construction, (v) the number of fully instantiated versus not fully instantiated constructions, and (vi) the kind of deviations from the constructional template, i.e. is it mainly the verb that does not fully instantiate the constructional template or is it mainly the PP that deviates?

In the following, it is explained how these data were extracted from the corpus and which corpus was used. First, the nature and origin of the corpus is introduced in 2.2.1 before turning to the actual methodology of the data processing in 2.2.2.

2.2 Data sources and methodology

2.2.1 The North American News Corpus

The corpus used for the dissertation is the North American News Corpus (NAN) that is available from the Linguistic Data Consortium (LDC) from the University of Pennsylvania (http://www.ldc.upenn.edu). The NAN Corpus is composed of texts from

The decision to work with a written rather than a spoken corpus is based on the following reasons: (i) the availability of larger corpora; (ii) the relatively small number of instances of the caused-motion construction in spoken data; and (iii) the fairly comparable use of motion constructions in both spoken and written language. These three points are now elaborated upon in the order of mention.

Even though there now is an obvious tendency to provide more and more spoken corpus data, the availability of spoken language in corpus databases is still wanting if compared to the multimillion word corpora that exist for written language. Before deciding to use the NAN, I conducted a preliminary study using the Switchboard corpus which is also available from the LDC. The Switchboard corpus is composed of telephone conversations between strangers that are given a selected range of topics to talk about. The corpus consists of only 3 million words and it turned out that the number of instantiated Caused-Motion Constructions is rather low (around 2% of prepositional usage occur in instantiated CMCs). Further, it is the case that I saw no significant differences as to the use of the construction when compared to written language. That is, as in the written data, the construction is usually fully instantiated. Only a small number of verbs do not lexicalize either MOTION or CAUSE (compare Chapter 4 for the use of CMC in written data). Without wanting to go into any further detail, it seems that the
deviations from the constructional template follow the same pattern in spoken as well as in written language.\textsuperscript{2} That is, it is either the case that the verb does not lexicalize MOTION and/or CAUSE as in (2-1), or that the preposition used is not a dynamic preposition as in (2-2).

(2-1) ...but I tried to do it [a U-turn] on that ten speed [bicycle] and wrecked, and I told her a dog was chasing me. But I wrecked it into the curb. (Switchboard)

(2-2) And so my husband and I loaded bricks in his pickup truck for days. (Switchboard)

It does not occur that both the verb and the preposition deviate from the constructional semantics. One of these two lexical elements always fully instantiates the construction (for discussion see Chapters 4 and 5).

\textit{2.2.2 Setting up the data base}

To get a sufficiently large data base that would enable me to make claims about the general use of the English motion constructions, I decided to search the corpus for different prepositions. In this way I ensured finding a representative selection of different verb types and also verb uses within the construction that would not necessarily be expected. It would have been too big a task to go through a sufficiently large number of examples of each of the English prepositions. I therefore selected 19 different prepositions (the criteria according to which these prepositions were selected are discussed below). The way I proceeded was to download 3000 occurrences of a single

\textsuperscript{2} This statement is only based on a limited preliminary study. It is left to further research to test whether the constructional restrictions found in this dissertation apply to spoken data in the same measure.
preposition. All in all I thus had a data base of 57,000 utterances. I then went through the entire data base in order to extract all uses of the preposition in concrete spatial contexts, dynamic as well as static. This procedure reduced the database to 9107 utterances (5611 dynamic and 3496 static utterances). These 9107 utterances form the basis for the degree of dynamicity that is going to be established for each preposition in Chapter 3. The next step consisted in extracting all instances of the caused-motion, and the intransitive-motion construction from all concrete spatial utterances. Within these 9107 utterances there were 958 occurrences of the caused-motion construction and 1358 instantiations of the intransitive-motion construction. This total of 2316 utterances constitutes the basis for the analysis.

The prepositions were selected according to the following four criteria: First, I regarded frequency as an important aspect. Therefore, I chose the twelve most frequently occurring prepositions, namely in, to, on, at, by, from, into, through, over, between, under, out of (according to Francis and Kučera1982). In this list, I left out for, with, and about, which are rarely used spatially. I further did not count of on its own, though it is actually on top of the frequency list. Instead, I only included the spatially more relevant out of. The second criterion was to get full paradigms. I thus added inside, out, outside, and onto (to complement the already included into, in, out of, and on) in order to be able to directly compare the use of more static and more dynamic prepositions and the

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3 Only the prepositions to was handled slightly differently. I excluded all occurrences of the to-infinitive from the 3000 examples. This special treatment was necessary since no other preposition has a comparable syntactic function that occurs so frequently. Had they not been excluded from the data set, there would have been hardly any occurrence of either motion construction patterning with to within the data set because most of the examples would have been to-infinitives. This exclusion was of particular importance
influence the degree of dynamicity has on the production, interpretation and acceptability of motion event constructions. The third criterion was to include prepositions expressing all the different segments of *path*, i.e. source, trajectory and goal. Therefore, I further included *along* and *across* since *through* and *over* would otherwise have been the only relevant trajectory encoding prepositions considering that *by* is used so rarely in the expression of motion events (compare Table 2-1). The fourth and last aspect I considered was to look for possible differences between prepositions that express goal attainment, as for example, *to* versus goal approximation (see Bourdin 1997 for the importance of the difference between attainment and approximation). Goal approximation is expressed through the preposition *toward* which was therefore also included in my data set. The 19 selected prepositions (in alphabetical order) and the number of extracted motion constructions for each preposition are listed in Table 2-1.

<table>
<thead>
<tr>
<th></th>
<th>CMC</th>
<th>IMC</th>
<th></th>
<th>CMC</th>
<th>IMC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Across</td>
<td>30</td>
<td>35</td>
<td>Onto</td>
<td>303</td>
<td>300</td>
</tr>
<tr>
<td>Along</td>
<td>27</td>
<td>74</td>
<td>Out</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>At</td>
<td>4</td>
<td>24</td>
<td>Out of</td>
<td>92</td>
<td>130</td>
</tr>
<tr>
<td>Between</td>
<td>6</td>
<td>2</td>
<td>Outside</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>By</td>
<td>0</td>
<td>1</td>
<td>Over</td>
<td>37</td>
<td>1</td>
</tr>
<tr>
<td>From</td>
<td>47</td>
<td>43</td>
<td>Through</td>
<td>48</td>
<td>169</td>
</tr>
<tr>
<td>In</td>
<td>5</td>
<td>11</td>
<td>To</td>
<td>62</td>
<td>115</td>
</tr>
<tr>
<td>Inside</td>
<td>35</td>
<td>26</td>
<td>Toward</td>
<td>95</td>
<td>202</td>
</tr>
<tr>
<td>Into</td>
<td>128</td>
<td>187</td>
<td>Under</td>
<td>11</td>
<td>7</td>
</tr>
<tr>
<td>On</td>
<td>8</td>
<td>9</td>
<td>Total</td>
<td>958</td>
<td>1358</td>
</tr>
</tbody>
</table>

**Table 2-1:** *Selected prepositions and number of instantiated CMCs and IMCs*

Apart from being able to find rare verb uses when extracting data by searching for

for calculating the degree of dynamicity (see Chapter 3). The results would have been significantly skewed had the *to*-infinitives been left in.
prepositions, a further advantage of this method is that it simultaneously provides data about the number of occurrences of the single prepositions in the two motion constructions. Even a first glance at Table 2-1 already tells us that both constructions display a clear tendency of being used with prepositions that are generally considered to be dynamic, i.e. into, onto, through, to, or toward. In Chapter 3 I will establish an index of dynamicity for the different prepositions. Then in Chapters 4, 5, and 7, it will be shown that this degree of dynamicity influences the different usage patterns of the prepositions in the two motion constructions.

In the analysis, the extracted 2316 utterances of both CMCs and IMCs are often complemented with separate corpus searches that involve specific verbs. These individual searches serve to determine the verb’s profiling preferences regarding the different PATH segments. The method used for these searches is the following: A specific verb is chosen and a substantial number of occurrences of this verb are downloaded from the corpus website. From these data, the uses of the verb in utterances expressing concrete spatial motion with respect to a GROUND are then extracted. The usual number of verbs I chose to get a representative sample of the verb’s usage is 250. However, for some verbs there are not enough examples to meet this threshold even in the NANT. In these cases, the total number of occurring utterances serves as the basis of analysis.

In order to establish the degree of dynamicity of a preposition, both prepositional as well as particle uses were counted. The basis for this choice is the assumption that for the investigated factor, i.e. the degree of dynamicity, it does not matter conceptually in which way a preposition is used since the same spatial schemas are present regardless of the syntactic function of the unit. O’Dowd (1998) has argued that what she calls adpreps,
i.e. prepositions that can be used both as particles as well as prepositions, form a single semantic category. That is, she claims that there are no separate conceptual representations for, for instance, *in* as in *He stepped in* and *in* as in *He stepped in the bath*. She claims that discourse factors decide in which way an adprep is used in a given instance. Given that there is no distinct conceptual representation, then particle and prepositional usage influence the degree of dynamicity in equal measure and therefore have to both be counted in order to determine the internal dynamicity of an adprep.

### 2.3 Complementing corpus data with acceptability judgment data

Corpora, no matter how large, are always limited. They are never a reflection of the entire possibilities that there are in a given language. One basic principle that the analyst has to adhere to when working with corpora is, therefore, that if a certain pattern cannot be found in a corpus this does not necessarily mean that this pattern does not exist at all or that it is not an acceptable usage. Apparent evidence of absence might always just be absence of evidence. For a study like the one I am presenting, it therefore makes a lot of sense to complement corpus data with acceptability judgment data in order to test the acceptability of possible co-occurrence patterns that did not come up in the data and also to test whether frequency of usage actually corresponds to different degrees of acceptability (see further below and Chapter 6, Section 6.6). Further, acceptability judgment data serve to elucidate subtle meaning differences and slight changes in the degree of acceptability that arise when constructing minimal contrasts between acceptable utterances (see further below and Section 2.4 and Chapters 5 and 7).

A further problem that arises when exclusively working with corpora is the lack
of negative evidence. Only through native speaker intuitions can we make claims about unacceptability. Frequency already gives us an idea about more marginal uses but only native speakers can judge the acceptability of sentences. Generally, it is probably safe to claim that working only with constructed examples and exclusively arguing based on introspection makes one overlook things. An observation repeatedly made by linguists working with corpora is that both the analyst and speakers confronted with corpus data are often astonished by the findings. Not only with respect to the patterns of occurrence (see 2.1) but also regarding specific utterances. O'Dowd mentions with respect to confronting native speakers with corpus data that “native speakers often surprise themselves by what they actually do say” (1998:42).

Only working with corpora, on the other hand, does not provide us with unacceptable examples that are often useful to clarify specific aspects. Corpora provide us with frequency data and within the usage-based model, low frequency of a specific pattern is expected to correspond to a marginal use and with that also with a low degree of acceptability. A pattern that is not very frequently produced and thus also perceived will probably neither have unit status (see Langacker 1987 for the notion of unit status), nor will it be specifically entrenched. Ideally we expect frequency data and acceptability judgments to correspond. That is, given a large enough corpus, we would expect that the non-occurrence of a specific pattern correlates with non-acceptability whereas high-frequency patterns can be expected to be highly acceptable. That is, relative frequency of a specific patterns should correlate to a degree with variability in judgments and with acceptability. The less frequent the type, the more likely should be any occurring speaker variability and the higher also the potential for unacceptability. The basis for this
assumption is the insight explicated in the usage-based model that frequency yields
entrenchment and with that ease of processing. A frequently produced utterance type is
thus more likely to be accepted as correct since speakers have at their disposal a well-
established model or template of the specific type. In Chapter 6 this expectancy is tested.
A low-frequency pattern, namely the use of putting verbs like place, sit, lay, position
together with dynamic prepositional phrases, is tested for acceptability with native
speakers. It will be shown that for the most part, there is a definite correlation between
low frequency and unacceptability. It is furthermore the case that distinguishing less
frequent, and marginally acceptable data with the help of corpora and native speakers is
an important part of linguistics since this is where we find the locus of innovation and
consequently language change.

A further way in which judgment data can profitably supplement corpus data is
the following: Corpora always show the use of language in context. However, at times it
is necessary to reduce contextual clues in order to test the semantic import of a specific
lexical item or of a construction. Context provides additional clues that often
disambiguate potentially ambiguous utterances, i.e. the use of a non-dynamic preposition
in a motion construction as in The dog ran in the garden. A given context could easily
provide a background for an directional interpretation of the sentence, i.e. seeing the dog
as entering the garden. However, without context we find variation across speakers with
respect to the two possible interpretation, i.e. a translocational interpretation or a non-
translocational interpretation that sees the dog as running within the garden. In the
analysis I will therefore repeatedly shorten corpus sentences in order to take away
contextual information that might bias the interpretation. A corpus does not help in
determining how people interpret ambiguous examples since corpora provide language in context. Yet, in order to test the import of constructional semantics, it is necessary to reduce the context and thus eliminate additional interpretational clues. This reduced utterance can then be presented to a native speaker in order to test the interpretation. In Chapters 5 and 7, this method is repeatedly applied.

There are thus at least three ways in which acceptability judgment data can profitably supplement corpus data: (i) they can be used to test whether frequency of occurrence corresponds to degrees of acceptability; (ii) they are a way to provide negative evidence; and (iii) they provide data on interpretational biases for ambiguous utterances. In the dissertation these three different aspects are all of importance. In the following the methodology used in obtaining acceptability judgment data is introduced.

2.4 Sources for acceptability judgment data: Questionnaires and informal polls

Two different ways of getting acceptability judgment data were followed: (i) the use of informal polls; and (ii) the use of standardized questionnaires. In the following the two methods are introduced consecutively.

Since I am not a native speaker of English, I do not completely trust my own judgments when wanting to decide whether a sentence is an acceptable utterance or not. The typical case in the dissertation in which I have to revert to acceptability judgment data is the following: A lot of the time I take a corpus example and exchange a dynamic preposition with its non-dynamic counterpart thus constructing a minimal pair that serves as a basis for comparison. A preposition is chosen that has the same relational profile but that does not at the same time lexicalize PATH. A case in point is the prepositional pair
into versus in. These exchanges are necessary in order to test whether the resulting utterance is still interpretable as an instance of a dynamic motion construction, i.e. either the CMC or the IMC. An example that illustrates the procedure is given in (2-3).

(2-3) a. At dawn on the morning of Sunday, Oct. 23, 1983 -- exactly 11 years ago Sunday morning -- an Islamic terrorist drove a Mercedes truck loaded with high explosives into the Marine Battalion Landing Team headquarters building at Beirut International Airport.

b. At dawn on the morning of Sunday, Oct. 23, 1983 -- exactly 11 years ago Sunday morning -- an Islamic terrorist drove a Mercedes truck loaded with high explosives in the Marine Battalion Landing Team headquarters building at Beirut International Airport.

Whereas (2-3a) is clearly an instance of the CMC which includes the expression of a dynamic PATH, i.e. into the Marine Battalion, (2-3b) is no longer unambiguously interpretable as such. In fact, it will be shown in Chapter 5 that speakers tend to interpret similar utterances as referring to non-translocational motion, i.e. an interpretation of the above example that sees the terrorist driving around inside the building rather than entering into it.

A known fact about ambiguous utterances like (2-3b) is that speakers often disagree. As pointed out before, variability in judgment is an expected result of peripheral, less entrenched patterns. The use of non-dynamic prepositions in motion constructions is a case in point as will be shown in Chapters 5 and 7. Capturing this possible and expected disagreement is a necessary task. It is therefore reasonable to have not one speaker evaluating the sentences, but five. The five speakers polled for judgments are not always the same persons across different examples, even though I generally refer to them as 'the five speakers'.
In these informal polls that always included five speakers for each example, the procedure adhered to was the following: The speakers were given the sentence, usually in written form, and they had to give a paraphrase of how they understood the sentence including any possible ambiguities. The speakers were familiar with the problem and thus not ignorant of the specific distinction tested. Whenever they thought that two interpretations were possible, they were asked to say which of the two came to their mind first.

The second method of obtaining judgment data was by using questionnaires. I conducted two surveys that asked for different kinds of judgments from the participants. The Survey 1 was testing the acceptability of various utterances, whereas the Survey 2 asked speakers to choose between different possible paraphrases of ambiguous sentences. The sentences are, in both cases, original corpus examples in which the preposition has been changed from dynamic to static or vice versa. In most cases the examples were furthermore shortened in order to take out contextual clues that would bias the interpretation. The two questionnaires are now introduced in turn.

As mentioned above in Section 2.3, the objective of the first survey was to check the correspondence between frequency data and acceptability judgments. Ideally, a convergence of evidence was expected such that differing degrees of frequency can be mapped onto differing degrees of acceptability. That is, in this case, it was expected that the low frequency of occurrence of dynamic prepositions patterning with verbs of putting and positioning (see Appendix A for a classification of verbs) would correspond to a low

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4 The two questionnaires as well as the results of the surveys are shown in Appendix C.
acceptability of these kind of utterances. I further predict a higher variability across
speakers in the judgments of low frequency patterns, and a greater uncertainty in
response. Differences of frequency within the verb class are also expected to be reflected
in degrees of acceptability. The verb *put*, for instance, is found more frequently with
dynamic prepositions than the verb *place*. It is therefore expected that speakers are more
likely to judge a sentence like (2-4) as acceptable than one like (2-5). Both examples are
taken from the original survey.

(2-4) 'Generally, when foreigners have reason to travel out of Pyongyang, the
government *puts* them *into* a car or train leaving the city after nightfall.

(2-5) 'The only thing to do was balance on the windowsill, draw up the ladder and
*place* it *into* the room.

The questionnaire comprising Survey 1 includes 15 different sets of sentences. Each set
of sentences includes two to three different variants of the same sentence, each with a
different preposition. The preposition always only differs with respect to dynamicity, i.e.
the relational profile does not change. Speakers then have to judge whether they consider
each sentence as an utterance that they could say in English. The three choices offered
are ‘yes’, ‘no’, and ‘maybe’. (2-6) shows one such set of sentences as presented in the
survey.

(2-6) a. The only thing to do was balance on the windowsill, draw up the ladder
and place it in the room.
Yes □ No □ Maybe □

b. The only thing to do was balance on the windowsill, draw up the ladder
and place it inside the room.
Yes □ No □ Maybe □
c. The only thing to do was balance on the windowsill, draw up the ladder and place it into the room.  
   Yes □  No □  Maybe □

The data for Survey 1 were retrieved in two different ways. First, the survey was put on the web and the web address was made known to undergraduates of the Rice University community who were asked via email to help a graduate student conduct linguistic research. From the 50 collected surveys, about half were obtained through this web survey. The other half of the survey data gathered was obtained through a traditional paper-and-pencil method. Here students on the Rice campus who were taking an introductory linguistics class were asked to participate. They either filled out the survey on the spot or they took it home and later returned it to the investigator. The sentences of the paper-and-pencil surveys were in a different order than the survey on the web, both in the overall sequencing as well as the internal sequencing of the sentence sets. In this way ordering effects were controlled for.

In both cases, i.e. in the web version and in the paper-and-pencil version of Survey 1, the subjects were given the same instructions. These are printed in the beginning of the questionnaire reproduced in Appendix C. In a trial run it was tested beforehand whether the instructions were sufficiently detailed for participants to fill out the survey in the absence of the investigator. The results of Survey 1 are discussed in Chapter 6.

Survey 2 involved a different task. Here subjects were asked to choose between two partial paraphrases of potentially ambiguous sentences. The choices given were to either choose one paraphrase as the only possible interpretation, to choose that both
paraphrases are possible meanings of the sentence, or to chose that neither paraphrase reflects the meaning of the sentence. In case anyone decided that both paraphrases are possible, the subject was additionally asked to identify which one of the two came to his mind first. (2-7) shows one example from the original survey.

(2-7) Every week during good weather, Kemen carefully moves every one of the statues on his center walkway.

1. Kemen moves the statues around on the walkway
2. Kemen moves the statues onto the walkway
Both are ok interpretations

1 came to my mind first
2 came to my mind first
Neither paraphrase says what the original sentence means

The setup of the testing environment was the same as for Survey 1. Again half of the results were obtained through the web and the other half through a paper-and-pencil testing with internally changed order of the sentences within questionnaires in order to control for ordering effects. 40 subjects were asked to participate. The results of Survey 2 are incorporated into Chapters 5 and 7.
3 PATH SALIENCE IN ENGLISH PREPOSITIONS—A CLINE OF DYNAMICITY

With respect to the expression of PATH, prepositions and particles are the most important element in an English sentence describing a motion event. In this thesis the focus is on prepositions since the two analyzed constructions, the caused-motion construction and the intransitive-motion construction both include directional prepositional phrases rather than particle constructions (see Lindner 1981 for an insightful analysis of English particle constructions). I will not analyze any single preposition in great detail as has been done in impressive and very detailed studies by researchers such as Vandeloise (1991), Hawkins (1984), Herskovits (1986), and Lakoff (1987). Rather, I am interested in the question of how freely the different prepositions are used in dynamic contexts.

It is a well known fact, that English prepositions can generally be used to describe static as well as dynamic scenes. Due to this double function we cannot classify them into two dichotomous classes of static prepositions versus dynamic prepositions. There are two other possibilities of viewing prepositions that better reflect their possible usage. It could either be said that English prepositions are generally neutral with respect to dynamicity (cf. Bennett 1975, Ruhl 1989) or else that their dynamicity is a matter of degree, which will be the position taken in this work (see Section 3.1). Both views share the advantage of not running into trouble when wanting to account for so-called static prepositions in dynamic contexts as in (3-1a) or for so-called dynamic prepositions in descriptions of static scenes as in (3-1b).

(3-1) a. Clinton's armored limousine pulled inside the municipal complex, allowing the president to leave his car beyond the sight of onlookers.
   b. In a beautiful, ominous scene, Linn, an 8-year-old, tries to help her father, who stands halfway through a revolving door, totally baffled.
Assuming that dynamicity is a matter of degree, the main objective of this chapter is to establish a dynamicity hierarchy of English prepositions. This hierarchy is of fundamental importance for the remainder of the dissertation because a preposition's degree of dynamicity will serve as a testing device for a construction's ability to add semantic content to not-fully elaborated instantiations. The definition of PATH that was formulated in Section 1.3 distinguishes between a dynamic PATH and static locatedness. Since English prepositions can generally be used to express both, we have to determine to what degree a preposition is dynamic rather than static in order to be able to better evaluate a preposition's semantic import when it is used in a motion event construction. Dynamicity is of crucial importance in the analysis of PATH in motion event constructions because, as we will see in Chapters 4 and 7, a dynamic PATH is one of the defining criteria for the IMC, as well as the CMC.

In this chapter, I will first argue why I prefer to ascribe different degrees of dynamicity to prepositions rather than seeing them as altogether neutral with respect to dynamicity (3.1). I will then introduce an empirically established cline of dynamicity in 3.2 which measures the global propensity of a preposition to occur in dynamic versus static environments, i.e. their relative degree of dynamicity. In 3.2.1 it will be shown that it is additionally important to consider their absolute degree of dynamicity, which simply measures a preposition's total occurrence in either environment. That is, we can not only consider how often a preposition is used in dynamic contexts proportionately but we also have to consider the absolute frequency of occurrence. In the last two sections of the chapter, we will look at a few prepositions in more detail, namely along and across in
Section 3.2.2, and *inside* and *outside* in 3.2.3. Both prepositional pairs behave almost identically with respect to their occurrence in dynamic versus static usages and the similarities between *along* and *across* as well as *inside* and *outside* will be investigated, respectively. Finally, in Section 3.3 I will investigate factors that bring about the degree of dynamicity of a preposition. It will be shown that it is important which segment of *PATH* is profiled and further, what kind of *GROUND* is in the relational profile of a preposition. It will be shown that prepositions including boundaries as a salient part of their relational profile are more easily used dynamically than prepositions without such a specification.

3.1 Are prepositions neutral or graded with respect to dynamicity?

What we can call the Lakoffian tradition, that is the view of prepositions as polysemous structures, clearly conflicts with a conception that treats them as neutral with respect to these multiple senses, i.e. a monosemous conception. The latter is put forth by authors such as for example Bennett (1975), Herskovits (1986), and Ruhl (1989).

In the study of *over*, Lakoff (1987) (based on Brugman 1981) establishes different schemas that all connect to one central sense. These schemas differ with respect to dynamicity. Some are static, others include a *PATH*, and still others display an endpoint focus and are thus essentially dynamic in nature. The central sense of *over* is, according to Lakoff, the *above-across* sense, that is, the sense that construes the trajector as moving along a *PATH* above the landmark and going all the way across the landmark. Lakoff notes that this sense is neutral with respect to contact and that this lack of specificity is what makes the image schema schematic. The sense is seen as being the central one since
it is found, naturally with varying modifications, in all the other related senses of the preposition. The different senses form a chain with decreasing relatedness to the central sense. The links between the different senses can be either similarity links, i.e. links that are defined through shared subschemas, or transformational links, i.e. links that are defined through related subschemas.

Without wanting to go into any detail regarding the specificities of the analysis, I think there are two main issues that are problematic with the approach. First, frequency is not addressed in the entire analysis and second, the analysis seems to attribute too much semantic content to the preposition itself rather than attributing it to other lexical elements in the sentence, to contextual information, or to the construction. The first two aspects will now be addressed in turn. The constructional approach is not treated separately since it has already been introduced in Chapter 1.

I argued in Section 1.1 that the frequency of usage largely determines the entrenchment of particular lexical items or even only particular semantic aspects of the item. Following this view, the degree of centrality of the different senses of over would have to be determined at least partly on the basis of frequency data and not solely on the basis of similarities to the one central sense.

The second criticism is more relevant to the present analysis. I claim that Lakoff attributes too much semantic content to the preposition itself. It is for example the case that properties of the landmark get incorporated in his analysis as separate semantic

\[\text{\footnotesize\textsuperscript{1} But note that Hawkins (1984) claims contra Lakoff, that there is actually no central sense of over that is found in one each of the multiple subsenses.}\]
senses of the preposition. Lakoff attributes different image schematic structures to the sentences in (3-2) (1987:421):

(3-2) a. 'The bird flew over the yard.
    b. 'The plane flew over the hill.
    c. 'The bird flew over the wall.

For (3-2a) he lists the properties ‘one-dimensional, extended, no contact’; for (3-2b) the list of properties is ‘one-dimensional, vertical, extended, no contact’; and finally, (3-2c) is listed as ‘one-dimensional, vertical, no contact’. Yet, the properties of verticality and extensionality refer to inherent properties of the landmark. They are relevant for the conceptualization in as far as the PATH of the trajectory is longer with an extended landmark and further removed from the ground with a vertical landmark. However, I do not regard these more detailed shape properties of a landmark to be part of the semantics of over. The sentences in (3-2) show, in fact, that the preposition does not specify any such properties. Important differences relevant for prepositional usage are whether the landmark is a container (e.g. in, inside, into, through, out of), a surface (e.g. on, onto, off, under), an extended landmark or channel (Hawkins 1984) (along), or whether it is conceptualized as a point (e.g. from, at, to). Any information beyond that is an aspect of the landmark and does generally not influence the preposition.

This view is supported by Ruhl (1989) who argues for strict monosemy for any closed class items. His claim is that

a considerable part of alleged lexical meaning is actually supplied by

---

2 Hawkins (1984) also only operates with four different landmark configurations which he labels MEDIUM, SURFACE, CHANNEL, and INDET (for indeterminate relation, what I will call point configuration).
other means; words are highly abstract in inherent meaning, often too much so for conscious understanding. It follows that all use of language is heavily modulated (1989:86).

This modulation of language is what he considers to be pragmatics. Ruhl makes a clear distinction between semantics and pragmatics and only considers as semantics what is part of the meaning of a word in every situation. Prepositions, he regards as highly general and thus as contributing only very little meaning to larger expressions (ibid:52). An important distinction for him to make is that between concrete and abstract senses. The abstract sense is the monosemous meaning that consists of only those meaning aspects that can be found in every single concrete instantiation. The concrete sense, on the other hand, may deviate from this abstract sense. The concrete sense comes about in usage. Here the meaning of a word is influenced by the discourse context, the collocation patterns and general pragmatic factors.

Ruhl's strict separation of semantics and pragmatics brings about his view that concrete instantiations of lexical items do not influence their meaning. Although I agree that extreme polysemy as in Lakoff's model goes too far in attributing too much semantic content to single words, I, at the same time, disagree with the monosemic approach. According to the usage-based approach, the repeated use of a word in novel contexts does influence its meaning (compare Chapter 7 Section 7.2). A monosemic representation such as Ruhl proposes is conceivable but only on a very high level of abstraction. There is no reason to believe that only this very abstract level represents the actual meaning of a word in speakers' minds. As explained in 1.1, a dynamic network view of the linguistic system leads to the assumption that each usage event of a lexical
item slightly modifies its network structure and thus the semantic structure of the word. In a network model, it is, therefore, not possible to maintain such a strict division between semantics and pragmatics.

Two extreme views with respect to the analysis of prepositions have been introduced. Lakoff advocates for extreme polysemy whereas Ruhl takes the opposite stance and argues for complete monosemy. The question now is how these two different approaches can help us in answering the question whether prepositions are neutral or rather graded with respect to dynamicity. In Ruhl’s analysis the answer is clear. Since in English a lot of the prepositions can generally be either static or dynamic, depending on the context, their monosemic representation would have to be neutral with respect to dynamicity. Dynamicity would then be determined by the concrete pragmatic context. Lakoff, on the other hand, determines a central sense for each preposition. In the case of *over* this central sense exhibits a dynamic PATH. Any static uses are seen as linked to the central schema through the other properties that remain constant. Hence, Lakoff would not opt for a conception that treats prepositions as neutral with respect to dynamicity. His approach does, however, not exclude the possibility of establishing degrees of dynamicity of the different prepositions.

Without wanting to solve the question of polysemy versus monosemy, I will show in the remainder of this work, how much the respective interpretation of a given preposition is influenced by factors such as for example the choice of verb, the nature of **figure** and **ground**, the choice of different tense and aspect forms, and certainly the choice of construction. The position that is advocated in this chapter can be seen as a middle ground between the two approaches. I argue that ambiguous prepositions have
certain biases with respect to dynamicity. These biases come about through the linguistic history of each preposition, that is through their actual usage through and in time. A preposition that is mainly used in dynamic contexts will, in future usage events, also more likely be used and interpreted in a dynamic way. In a concrete usage event we obviously never find the preposition in isolation. In that respect Ruhl is right in claiming that contextual and situational factors determine the concrete interpretation. However, previous usage furnishes us with certain expectations and I argue that these expectations are part of the meaning of the preposition. I would, therefore, answer the question whether English prepositions are neutral with respect to dynamicity in the negative. Even though they can be used in both static and dynamic contexts and are thus not fully determined in that respect, they generally have a preferred usage and thus a biased interpretation. Dynamicity in English prepositions is under the usage-based assumption, bound to be a matter of degree and we will see later on in the analysis of concrete motion event constructions that this degree of dynamicity, measurable by frequency, interacts with verbal semantics to influence the acceptability of utterances as descriptions of dynamic motion events rather than as descriptions of static configurations.

3.2 A cline of dynamicity

Establishing a cline of dynamicity for English prepositions is important for the three main hypotheses of this thesis that will be developed in more detail in the next chapter. Mainly, it is important to ascertain a preposition’s degree of dynamicity in order to be able to determine the semantic import of the preposition regarding the element of PATH. In the remainder of the dissertation it investigated in detail how PATH is expressed
in motion constructions. I will show that prepositions with a low degree of dynamicity are severely constrained when it comes to patterning with different verb classes in dynamic usages. This is of specific relevance within the theory of Construction Grammar, since it is generally claimed that constructions are able to add missing semantic elements (compare Chapter 1, Section 1.2). A preposition’s degree of dynamicity serves to test this claim.

A preposition’s degree of dynamicity is mainly determined by two factors. First, by the frequency of its occurrence in dynamic usage events, but secondly also by its frequency of usage in static configurations. When only looking at the dynamic usages we would merely be able to compare the prepositions with respect to each other, that is we would be able to state that, for example, *into* is used in dynamic configurations more often than *on*. However, we would still not know anything about the likely interpretational bias that is inherent to the preposition itself. Therefore it is necessary to determine the frequency of usage of a preposition in dynamic versus static contexts and to then establish which is the more entrenched sense.

I argued in Section 1.1 of Chapter 1 that frequency data reflect the degree of entrenchment of a given lexical item, a grammatical construction, or even only a specific semantic aspect of a lexical item. When looking at the degree of dynamicity, it is the latter we are investigating. Dynamicity is only one semantic aspect of a preposition, but it is possible to separately examine the degree of entrenchment of this specific aspect by comparing the frequency of occurrence in dynamic versus static contexts.

Prepositions are used in all kinds of environments. Only a small subpart of prepositional usage actually refers to concrete spatial configurations. However, this is the
subpart I am looking at when establishing the cline of dynamicity. The choice to restrict
the usages that feed into the degree of dynamicity to spatial uses rests on the assumption
that concrete spatial uses constitute their basic and central sense (see e.g. Lakoff's (1987)
Spatialization of Form Hypothesis and Jackendoff's (1990) Thematic Relation
Hypothesis). Any other more abstract uses are metaphorical extensions that are based on
the source domain of concrete spatial meaning. Theoretically there is no a priori reason
to separate metaphorical from concrete uses, but my purpose is to analyze the role and
behavior of prepositions in concrete spatial scenes. Even though it is possible that
abstract uses influence interpretational biases, I will restrict myself to the spatial uses
when establishing the degree of dynamicity.³

Two further comments need to be made about what I am referring to when
talking about the degree of dynamicity. First, the degree of dynamicity is an
impressionistic tool, a working notion that will help to evaluate the semantic contribution
of a preposition in a given utterance. It is not an all encompassing value but I see it as a
statistical notion that is based on frequency. Secondly, in the count for dynamic usages, I
only included directional uses. Occurrences of the prepositions in descriptions of motion
in place, as in John was swimming in the lake, were not counted as dynamic uses of the
preposition. In these cases the preposition itself does not contribute anything to the
construal of the scene as dynamic, since all the information about the dynamicity of the
activity originates in the verb. The preposition in this case merely situates the activity but
it does not itself add PATH information in the sense that was defined in Section 1.3.

³ It would be interesting to test in future research whether the prepositional degree of dynamicity would
alter considerably when including all kind of usages.
Occurrences of motion in place were thus treated as static. Table 3-1 illustrates the result of the count of the 19 selected prepositions. The criteria for the chosen sample of prepositions were introduced in Chapter 2. Columns 2 and 3 in Table 3-1 include the total number of occurrences of each preposition in concrete dynamic and static spatial configurations within the 3000 extracted examples. The number in brackets in each cell further ranks the prepositions according to their frequency of occurrence in the respective category.

<table>
<thead>
<tr>
<th>PREPOSITION</th>
<th>DYNAMIC #</th>
<th>DYNAMIC RANK</th>
<th>STATIC #</th>
<th>STATIC RANK</th>
<th>TOTAL Σ OF ROW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onto</td>
<td>1074</td>
<td>(1)</td>
<td>40</td>
<td>(14)</td>
<td>1114</td>
</tr>
<tr>
<td>Into</td>
<td>588</td>
<td>(2)</td>
<td>43</td>
<td>(13)</td>
<td>631</td>
</tr>
<tr>
<td>Toward</td>
<td>528</td>
<td>(3)</td>
<td>76</td>
<td>(12)</td>
<td>604</td>
</tr>
<tr>
<td>Through</td>
<td>511</td>
<td>(4)</td>
<td>8</td>
<td>(18)</td>
<td>519</td>
</tr>
<tr>
<td>Out of</td>
<td>446</td>
<td>(5)</td>
<td>86</td>
<td>(10)</td>
<td>532</td>
</tr>
<tr>
<td>To</td>
<td>408</td>
<td>(6)</td>
<td>38</td>
<td>(15)</td>
<td>446</td>
</tr>
<tr>
<td>Across</td>
<td>380</td>
<td>(7)</td>
<td>253</td>
<td>(4)</td>
<td>633</td>
</tr>
<tr>
<td>Along</td>
<td>360</td>
<td>(8)</td>
<td>217</td>
<td>(6)</td>
<td>577</td>
</tr>
<tr>
<td>From</td>
<td>329</td>
<td>(9)</td>
<td>81</td>
<td>(11)</td>
<td>410</td>
</tr>
<tr>
<td>Out</td>
<td>189</td>
<td>(10)</td>
<td>33</td>
<td>(16)</td>
<td>222</td>
</tr>
<tr>
<td>Over</td>
<td>186</td>
<td>(11)</td>
<td>113</td>
<td>(8)</td>
<td>299</td>
</tr>
<tr>
<td>Inside</td>
<td>177</td>
<td>(12)</td>
<td>961</td>
<td>(1)</td>
<td>1138</td>
</tr>
<tr>
<td>Outside</td>
<td>115</td>
<td>(13)</td>
<td>618</td>
<td>(2)</td>
<td>733</td>
</tr>
<tr>
<td>At</td>
<td>74</td>
<td>(14)</td>
<td>394</td>
<td>(3)</td>
<td>468</td>
</tr>
<tr>
<td>Between</td>
<td>66</td>
<td>(15)</td>
<td>99</td>
<td>(9)</td>
<td>165</td>
</tr>
<tr>
<td>In</td>
<td>40</td>
<td>(16)</td>
<td>206</td>
<td>(7)</td>
<td>246</td>
</tr>
<tr>
<td>On</td>
<td>40</td>
<td>(17)</td>
<td>230</td>
<td>(5)</td>
<td>270</td>
</tr>
<tr>
<td>Under</td>
<td>38</td>
<td>(18)</td>
<td>5</td>
<td>(19)</td>
<td>43</td>
</tr>
<tr>
<td>By</td>
<td>31</td>
<td>(19)</td>
<td>15</td>
<td>(17)</td>
<td>46</td>
</tr>
<tr>
<td>Σ of column</td>
<td>5611</td>
<td>3496</td>
<td></td>
<td></td>
<td>9107</td>
</tr>
</tbody>
</table>

Table 3-1: *Frequency of dynamic versus static uses of selected prepositions*

The problem with Table 3-1 is of course that as yet it does not inform us about the actual degree of dynamicity of the single prepositions. To that end it is necessary to actually
calculate what I call the index of dynamicity (ID). The ID, which indicates the degree of
dynamicity of each single preposition is determined using the following formula:

\[
\text{ID} = \frac{\text{# of occurrences in dynamic context}}{\text{total # of occurrences}}
\]

This formula yields a relative value for each distribution with respect to its internal
dynamicity. The ID value is listed in Column 5 of Table 3-2. Table 3-2 lists the
prepositions according to their ID rank.

<table>
<thead>
<tr>
<th>Preposition</th>
<th>Dynamic</th>
<th>Static</th>
<th>N</th>
<th>ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Through</td>
<td>511</td>
<td>8</td>
<td>519</td>
<td>0.985</td>
</tr>
<tr>
<td>2. Onto</td>
<td>1074</td>
<td>40</td>
<td>1114</td>
<td>0.964</td>
</tr>
<tr>
<td>3. Into</td>
<td>588</td>
<td>43</td>
<td>631</td>
<td>0.932</td>
</tr>
<tr>
<td>4. To</td>
<td>408</td>
<td>38</td>
<td>446</td>
<td>0.915</td>
</tr>
<tr>
<td>5. Under</td>
<td>38</td>
<td>5</td>
<td>43</td>
<td>0.884</td>
</tr>
<tr>
<td>6. Toward</td>
<td>528</td>
<td>76</td>
<td>604</td>
<td>0.874</td>
</tr>
<tr>
<td>7. Out</td>
<td>189</td>
<td>33</td>
<td>222</td>
<td>0.851</td>
</tr>
<tr>
<td>8. Out of</td>
<td>446</td>
<td>86</td>
<td>532</td>
<td>0.838</td>
</tr>
<tr>
<td>9. From</td>
<td>329</td>
<td>81</td>
<td>410</td>
<td>0.802</td>
</tr>
<tr>
<td>10. Over</td>
<td>186</td>
<td>113</td>
<td>399</td>
<td>0.717</td>
</tr>
<tr>
<td>11. By</td>
<td>31</td>
<td>15</td>
<td>46</td>
<td>0.674</td>
</tr>
<tr>
<td>12. Along</td>
<td>360</td>
<td>217</td>
<td>577</td>
<td>0.624</td>
</tr>
<tr>
<td>13. Across</td>
<td>380</td>
<td>253</td>
<td>633</td>
<td>0.600</td>
</tr>
<tr>
<td>14. Between</td>
<td>66</td>
<td>99</td>
<td>165</td>
<td>0.400</td>
</tr>
<tr>
<td>15. In</td>
<td>40</td>
<td>206</td>
<td>246</td>
<td>0.163</td>
</tr>
<tr>
<td>16. At</td>
<td>74</td>
<td>394</td>
<td>468</td>
<td>0.158</td>
</tr>
<tr>
<td>17. Outside</td>
<td>115</td>
<td>618</td>
<td>733</td>
<td>0.157</td>
</tr>
<tr>
<td>18. Inside</td>
<td>177</td>
<td>961</td>
<td>1138</td>
<td>0.156</td>
</tr>
<tr>
<td>19. On</td>
<td>40</td>
<td>230</td>
<td>270</td>
<td>0.148</td>
</tr>
</tbody>
</table>

**Table 3-2: Index of dynamicity for English prepositions in concrete usages;**
\[\text{ID}=1 \Rightarrow \text{dynamic}; \text{ID}=0 \Rightarrow \text{static}\]

Values approximating 1 stand for highly dynamic prepositions, whereas values
approximating zero stand for highly static prepositions. *Through* is thus the most
dynamic preposition and *on* is on the other end of the continuum, thus representing the most static preposition of these 19 selected items.

The ID measures how often a preposition is used in dynamic contexts as opposed to static contexts. It does not take into account the overall frequency of occurrence in the respective contexts. To contrast the overall frequency with the internal disposition, I will use the term *external degree of dynamicity* (ED). The existence of a gap between the internal and the external degree of dynamicity is why we find *under* on rank five on the ID scale, even though the overall occurrence of *under* in the expression of dynamic spatial motion is not very frequent. The ID ranking thus reflects how likely it is that a specific preposition is used in either a dynamic or a static context, but it does not reflect how likely it is to encounter that particular preposition in that environment in the first place. Now we turn to a more detailed discussion of the differences of these two values.

### 3.2.1 The necessity of internal and external rankings of dynamicity

Arguing from a usage-based perspective, it is additionally relevant how often a specific preposition is used dynamically in total measures. Let us briefly examine why both values are important, the ID as well as the overall count of dynamic usages, that is, the ED. The ID is important since we can assume that speakers have a preferred interpretation for each preposition when it occurs in ambiguous contexts or even out of context (even though, the latter does, admittedly, never actually happen in real discourse events). This preferred interpretation is what Goldberg (1995:157) refers to when she talks about intuitively more static or more dynamic prepositions and also what Bennett (1975) is trying to measure in his ad hoc experiment about the dynamicity of certain
prepositions. Assuming with Hawkins and Lakoff a polysemous representation of prepositions\(^4\), a usage-based conception would argue for strong entrenchment of those senses which are activated frequently. With respect to the ID this implies that the ID measures the internal degree of entrenchment of the dynamic versus the static sense of a preposition. That is, a high ID, i.e. an ID approximating 1, indicates an extremely entrenched dynamic sense of the preposition compared to its static sense; whereas a low ID, i.e. one approximating 0, indicates an extremely entrenched static sense compared to its dynamic sense. The degree of entrenchment captured with the ID, is, however, not the absolute degree of entrenchment but the relative degree internal to the semantic representation of its own senses. Only prepositions that have an ID around 0.5 are fairly neutral with respect to internal dynamicity, i.e. they occur in both environments equally frequently and both senses are equally entrenched with respect to each other.

So the second aspect that we have to take into account, is the overall frequency of dynamic uses. If we, for example, look at the preposition *inside*, we can see that it is ranked in position 18 when taking only the ID into account. The low ID of *inside* comes about through its extremely frequent occurrence in static usage events. In fact, of all the

\(^4\) With this I do not want to exclude the possibility of a monosemous sense for prepositions as for example Bennett (1975), Ruhl (1989) and Herskovits (1986) argue. However, I would argue for this sense to be an extremely abstract one. Linguists working within the usage-based approach generally assume multiple layers of representation for any given lexical item. These layers of representation differ in their degree of abstractness. It is well possible that there is a level at which prepositions are abstracted down to a very schematic core sense though Brugman (1981), Hawkins (1984), and Lakoff (1987) have shown that there is practically no core sense in the case of the prepositions like *over* and *around* (Hawkins 1984). However, even if there were a schematic monosemous level of representation this would not alter the fact that on a lower level, prepositions are polysemous. Even if the polysemous nature is only brought about by the context in which the prepositions are used as is often argued by proponents of the monosemic approach (cf. Ruhl 1989), then these very usages will occasion the building up of new cognitive structures connected to the prepositional representation. What else are these structures but additional senses?
prepositions listed, it has the highest number of occurrences in static usage events. There is, though, one aspect we cannot ignore, namely that *inside* is at the same time used considerably often in dynamic usages. It is, for example, used more often in dynamic contexts (117 instances) than the preposition *in*, which occupies rank 15 on the ID scale and is used in dynamic contexts only 40 times. This overall frequency of the dynamic sense determines the strength of entrenchment of the dynamic sense in absolute terms. Whereas the ID helps us in determining which sense of the preposition is more likely to be activated first in cases where the context does not allow for an unambiguous interpretation, the overall measure of occurrences in dynamic usages of a preposition informs us about a preposition’s likelihood of occurring in this environment. This latter factor is, for example, important when it comes to the patterning of the prepositions with different verbs. As will be shown in Chapter 4 for the Caused-Motion Construction and in Chapter 7 for the Intransitive-Motion Construction, the overall number of occurrences in dynamic usages correlates with the number of different verb classes a preposition can collocate with. Typically, prepositions that have a low overall frequency in dynamic contexts pattern with only one or two specific verb classes. Even though there is also a significant correlation between the ID of a preposition and the number of different verb classes it can correlate with, the overall number of occurrences of a preposition in dynamic contexts is an even stronger indicator for this relationship (compare Section 4.2.1 in the following chapter).

To summarize, in order to determine the degree of dynamicity of a given preposition we need two different values. On the one hand, we need the index of internal dynamicity (ID) illustrated in Table 3-2 which informs us about a preposition’s
propensity to be used in either dynamic or static usage events, that is, measures the degree of entrenchment of the dynamic sense of a preposition as opposed to its static sense. The ID is important to predict how utterances that are ambiguous with respect to a dynamic or static use of a preposition are most likely to be interpreted. On the other hand, it is also important to determine the ED, which informs us about the overall degree of entrenchment of the dynamic sense of a given preposition and with that about the likelihood of a preposition's occurrence in dynamic situations. These two values, the internal and the external degree of dynamicity (ED) are not identical. A preposition can be internally dynamic but at the same time display a low external count of overall dynamic occurrences. *Under* is a case in point; it has an ID of 0.884 and is thus ranked fairly high on the ID scale, namely position 5. However, if we look at the total number of occurrences in dynamic use, we only find 38 in a sample of 3000. It is therefore necessary to also take the ED into account.

Table 3-3 ranks the prepositions according to their ED in Column 2 and contrasts this with their ID rank in Column 3 in order to illustrate which prepositions are specifically skewed with respect to the congruity of these two values.⁵

---

⁵ The I column calculates the number of rows beneath it in which the ranking of the ID value is higher than the ID value of the current row. The P column calculates the number of rows beneath it in which the ranking is lower than the ID value of the current row. The control column expresses I+P (this value must equal n-i in every i row). All three columns are exclusively for the purpose of calculating the correlation.
Table 3-3: Correlating the prepositions’ ED and ID applying Kendall’s $\tau$

The prepositions that display specifically skewed values are bolded in Table 3-3. The table includes further columns to establish whether the ED and the ID correlate significantly. The statistical procedure used to evaluate the correlation and to obtain a coefficient of correlation is Kendall’s $\tau$. The sum measured in Table 3-3 is $83^6$ thus yielding a $\tau$ value of 0.48538. This $\tau$ value is now used to determine the significance of the result which is reflected by the $z$ value$^7$ which is in our case 2.90386. This value tells us that we do in fact find a statistically highly significant correlation between the external

$^6$ The sum is calculated using the following formula: $S=\sum P-\sum I=127-44 = 83$. Kendall’s $\tau$ uses the formula: $\tau = \frac{2 \times S}{n \times (n-1)}$

$^7$ The formula necessary to calculate the $z$ value is the following: $z = \frac{\tau}{\sqrt{\frac{[(2 \times (2n+5)) / [9n \times (n-1)]]}}}$
and the internal degree of dynamicity of a preposition (p<0.01). That is, generally we can say that there is a correlation between the ED and the ID to the effect that the higher the ED (the overall frequency of a preposition's usage in dynamic environments), the higher also the ID (the internal index of dynamicity depending on a preposition's internal imbalance between the number of dynamic versus static uses). The reverse also holds true: The higher the ID, the higher the ED. This correlation is, in fact, of even higher significance (τ = 0.64912; z = 3.88346, p<0.001).

The disparity between the ED and the ID is due mainly to the prepositions across, along, inside, outside, under, and by, the values of which are bolded in Table 3-3 above. These six prepositions show extreme divergence between their ED and ID, which tells us that we have to pay special attention to them in the analysis in the chapters to come. Further, I claim that at least for the pairs across and along as well as inside and outside, it is no coincidence that they constitute blocks in Table 3-3. We can see that both pairs have almost identical ranks in both their ED and their ID. This is unlike by and under, which follow each other on the ED rank but are wide apart on the ID scale. For this pair we can ignore the ED ranking since it is coincidental. The almost identical patterns of across and along as well as inside and outside, merit closer scrutiny. We will now examine each pair in turn.

3.2.2 Across and along—a closer look at similarities

Across and along are both prepositions that express the trajectory, i.e. the medial portion of a path. They are semantically very similar in that both predicate an undirected imperfective path (cf. Hawkins 1984). An imperfective path is defined by Hawkins as a
path that does not include the endpoints, i.e. source and goal, in its relational profile. It is further undirected, since the preposition lexicalizes no information on directionality of the trajectory. A path along a river can be both up or down the river. Any such specification has to be added through additional morphological material. Thus, neither boundedness nor directionality figure in either across or along.

Hawkins further lists the prepositions by, over, under, through via, and past as imperfective path prepositions (1984:78). We thus have to ask ourselves why these pattern differently with respect to their internal and external dynamicity\(^8\). Along and across are different from via, past, and by in that the latter generally profile a point-like landmark that functions as a reference point for the path taken. In Hawkins’ terms, we can say that the landmark is of an indeterminate configuration. This implies that the shape or nature of the landmark is in no way determined through the preposition. Conceptually it might as well be a point-like structure. This is of course very different from both along and across. Along profiles a channel configuration and across a surface configuration. The important commonality between the latter two is, however, that both prepositions profile an imperfective path which includes the profiled landmark as an inseparable part. Both prepositions establish a relation of contact, or at least close proximity in the case of along, between trajector and the landmark throughout the entirety of the path.

A lot of the characteristics listed in the last paragraph for across and along also hold true for through. Through also profiles an undirected imperfective path, and through

\(^8\) This, of course, only refers to the prepositions that are included in the analysis. We do not know the ED or ID values from via and past.
furthermore often profiles a relation of contact between trajector and landmark throughout the entirety of the path. However, there is one crucial difference that distinguishes this preposition from the other two. Through profiles what Hawkins names a medium configuration and what I call a container-GROUND. The important difference with container-GROUNDS is that even though the preposition itself might profile an imperfective and thus unbounded path, the GROUND by its very nature brings boundaries into the profile of the prepositional phrase. As we will see later, a further important point is that these boundaries typically have to be crossed by the trajector, i.e. the FIGURE. The nature of container-GROUNDS and their relevance for the notion of PATH are the topic of Section 3.3.3 of this chapter. We will then see how the specification of boundaries as an integral part of the landmark sets all prepositions profiling container-grounds apart, such that the notion of boundaries plays an extremely important role when it comes to PATH.

Over and under also profile an imperfective path and therefore have to be contrasted with across and along. First of all, with over and under there is no necessary relation of contact between trajector and landmark. In the case of over, contact is even excluded in most of its uses. Furthermore, unlike across and along, over and under do not necessarily relate trajector and landmark over the entirety of the path. It is possible to pass under a bridge or fly over a house. In both cases the landmark figures as a point along the path and is thus more like an indeterminate configuration. The landmark does not constitute an inseparable, basically path-creating entity as is the case with the landmarks profiled by the prepositions along and across. The important difference is that over and under are less restricted when it comes to possible landmark configurations.
Along and across exclusively profile a channel and a surface configuration, respectively, and it is always the case that trajector and landmark are inseparable.

To sum up, the important unifying characteristics for across and along that make them pattern alike when it comes to questions of dynamicity are the following: (i) they profile an undirected imperfective path; (ii) they, in all cases, profile an inseparable relation between trajector and landmark throughout the entirety of the path; and (iii) the landmark does not prominently profile inherent boundaries. These correspondences in the relational profile of the two prepositions bring about very similar uses (e.g. similarity in subjective motion construal, see Chapter 6 and 8) and it is therefore not surprising that their ED and ID values should correspond as closely as they do (see Table 3-3). The examples in (3-3) and (3-4) illustrate some typical uses for across and along in dynamic and static configurations respectively.

(3-3)  

a. At Mostly Memories, an antique shop on the tony Upper East Side, rats patter **across** the period furniture and Persian rugs.

b. Mickey Tolbert, 25, a Bradley security worker who described himself as a former gang member, strolled **along** Tobacco Road, pointing out spots where volunteers plan to round up registered voters on primary day.

(3-4)  

a. Maryland's annual eagle survey counted 182 breeding pairs nesting **across** the state this spring, up 14 percent from the 159 pairs spotted last year, according to the state Department of Natural Resources.

b. The appeal almost had a ring of fatigue in an otherwise boisterous address, delivered under heavy security, with police sharpshooters standing **along** rooftops and warily eyeing the enthusiastic crowd below.

The examples in (3-3) reflect the unifying characteristics listed above of across and along for dynamic usage of the two prepositions. In (3-3) the predicated PATH is imperfective since there is no mention whatsoever of either a starting or an ending point
of the described motion. The verbs *patter* and *stroll* are further verbs that do not inherently profile a specific segment of *path* but instead are of open scope (Lindner 1981). That is, any segment of the *path* could be profiled by the prepositional phrase complement, there are no limitations set by the semantics of the verb. Contact of the *figure* with the landmark is maintained throughout the described events.

In the examples in (3-4) the main difference to those in (3-3) is, of course, that the expressed events are static rather than dynamic. In the examples, it is the verb that brings about this crucial difference. The most important characteristic that the description of a static scene brings about in the prepositions is what has been called subjective motion (cf. Langacker 1987, Matsumoto 1996a, 1996b). We will come back to the possible subjective motion interpretation for these two prepositions in Chapters 6 and 8. We will then find that a subjective motion reading is even possible with some motion verbs.

The examples in (3-3) and (3-4) as well as the previous analysis of the two prepositions show that the main difference between *along* and *across* is that they profile a channel and a surface landmark respectively. Another difference is that with *across*, one or more boundaries of the landmark are crossed. Otherwise their respective usages are very similar. This similar prepositional semantics is what motivates the close to identical ranking on the *ED* as well as the *ID* scale. In Section 3.3 of this chapter, factors that determine a preposition' degree of dynamicity are investigated and in that context we will come back to the prepositions *along* and *across*. 
3.2.3 *Inside and outside*—low-ID prepositions in dynamic contexts

*Inside* and *outside* are both frequently used without a lexically predicated GROUND. They are thus in the category called *adpreps* by O’Dowd (1998). Adpreps are prepositions that can be used both as particles, i.e. without a predicated landmark, as well as prepositions, i.e. together with a lexically predicated landmark. As discussed in Chapter 2, I counted particle as well as prepositional usages in order to determine the degree of dynamicity of a preposition. The two prepositions in question, *inside* and *outside*, show an extreme propensity for particle usage and this frequent usage is one of the reasons why their ED is so much higher than their ID. Questions that arise and that we will now turn to are (i) why these two prepositions should be so prone to be used as particles and further, (ii) what other factors bring about this discrepancy between the internal and the external degree of dynamicity.

The two prepositions *inside* and *outside* are generally treated as prime examples of static prepositions. Goldberg shows the stativity of *inside* using the grammatical test of preposition fronting (1995:158). She notes that when fronted, *inside* can only receive a static interpretation which brings about the unacceptability of a sentence like *Inside the house he ran as quick as lightning* (Goldberg, ibid). Here the clause as *quick as lightning* induces a directional reading; however, the fronted preposition precludes such an interpretation. This is unlike a dynamic preposition such as *into* which receives a dynamic interpretation no matter in which position it is in the sentence, compare *Into the room he ran as quick as lightning*. This test, as well as Bennett’s (1975) testing of speakers’ intuitions regarding the dynamicity versus stativity of some English prepositions, all point to the fact that *inside* as well as *outside* are highly static. This is
further reflected in the ID ranking of both prepositions in Table 3-2. Out of 19 tested
prepositions they occupy ranks 18 and 17, respectively. Remember that the ID reflects
the internal degree of dynamicity of a preposition. That is, it measures how often a
preposition is proportionately used in dynamic versus static contexts.

Even though both prepositions are clearly far towards the static end of the
continuum, their ED rankings indicate that they are used considerably often in dynamic
contexts; in fact, much more often than for example in which, nevertheless, has a higher
ID. This discrepancy comes about through two factors which will now be discussed in
turn. The first relevant factor the semantic import of the salient boundaries. As
mentioned above, both inside and outside are often used as verb particles. I agree with
Lindner’s (1981) and O’Dowd’s (1998) analysis of regarding particles as prepositions
with null complements or to say it in other words, as intransitive prepositions. The
landmark in a spatial verb particle construction is under this analysis still within the
scope of the particle but it is sublexicalized, that is, it is not overtly lexically predicated.
A lexically predicated landmark is naturally much more salient in the conceptualization
of the entire event. However, even a sublexicalized landmark is weakly activated in that
a preposition in particle usage does not suddenly lose its relational landmark
configuration. That is, a particle like on in a usage like jump on still profiles contact with
a surface, and in as in go in still profiles the inclusion within a container despite the fact
that its landmark is not specified. Inside and outside both incorporate aspects of the
landmark to a higher degree than any other preposition, which is a likely reason why they
are specifically prone to be used as particles. The lexemes inside and outside both
predicate a salient aspect of the landmark, namely the boundaries or the region near the
boundaries of the sublexicalized container landmark. The container-GROUND is profiled through the morphemes in and out, respectively, and the boundaries and adjacent region of this profiled container are then highlighted through the morpheme side. That is, both inside and outside are more complex than any other simple preposition of English when it comes to the degree of landmark incorporation. The use of a particle such as inside thus results in a higher degree of specificity. This higher degree of specificity is probably one of the reasons why the more complex preposition is frequently chosen in contexts where both are possible.

This higher degree of complexity, and with that specifically the high degree of landmark incorporation, also gets reflected by the fact that inside and outside are the only two prepositions that can function as the landmark of other prepositions and thus serve nouns which is their original grammatical category. This possible usage as a prepositional object complement is also due to the fact that part of the landmark is already lexically incorporated in the preposition. Prepositions are relational in character. They relate a FIGURE to a GROUND, thus having a valence of two. When used as nouns, inside and outside both internally fill the landmark slot thus turning into relational terms with a valence of only one. This is possible through a metonymic relationship that gets established between the whole landmark, which is relationally profiled through the morpheme in or out, namely a container, and a part of that landmark, namely the boundaries which get profiled through the morpheme side.

The second reason why inside and outside, are often used in dynamic contexts in spite of the perceived and attested low dynamicity, is their extreme endpoint salience. This endpoint salience of the two prepositions is motivated by two factors. First, the
profiling of the boundaries of the container-GROUND leads to a general increase in endpoint salience of any utterance. Second, it is generally the case that more static prepositions display a higher degree of endpoint salience when used in dynamic contexts (compare Chapters 6 and 8 in particular). We will now examine these two explanations in more detail before discussing why it is that this profiling the endpoint should occasion the relatively frequent use of the prepositions in dynamic contexts.

The inclusion of boundaries in the relational landmark configuration of a preposition leads to an increase in endpoint salience because the location where the motion predicated by the verb comes to rest is thereby clearly delimited. This delimiting aspect of the boundaries is more salient for the preposition inside than it is for either in or into since inside focuses to an even higher degree on the interior of the landmark. Comparing inside to into, we note that the latter includes both a dynamic PATH and the endpoint configuration in its relational profile. The predication of the PATH, however, leads to a decreased endpoint salience. This difference between the two prepositions can clearly be seen in (3-5).

(3-5) He fiendishly cut a hole to look down on her before she began screaming, shouting, banging doors and routing him back out the hole, much the way her two pet cats dart wide-eyed inside the sleeper-couch when company comes.

In (3-5) the use of into would completely alter the sense of the utterance. Into profiles a PATH that starts outside of and terminates somewhere within the boundaries of a container. However, if the real world object referred to through the prepositional complement is not what we typically think of as a container-object then the sense obtained is one of a collision with the outside walls of the object rather than an entering
into the object. That is, example (3-5) used with *into* would express that the cats collide with the couch rather than moving into the interior of it. We can thus see that even though the preposition *into* profiles a container-GROUND, the real world object constituting the GROUND has to physically match the container schema. *Into* cannot in and of itself evoke a container image of an object that does not match the schema. *Inside*, on the other hand, always profiles the interior of the predicated landmark. Even an object that we usually not think of as having an interior can be construed in that way with the use of *inside*.

*In*, when compared to *inside* is also not as endpoint salient when used in dynamic motion events. Even though, like *inside* it also profiles the interior of a container, there is one important difference. Due to the lexical predication of the boundaries of the container-GROUND, the use of *inside* ensures that the FIGURE is really within the realm of the container. Vandeloise (1991) pointed out for the preposition *dans* in French and Herskovits (1986) showed that it also holds true for *in* in English, that the use of *in* is still appropriate when the FIGURE is only within the functional realm of the container but not really completely within its boundaries. *Inside* is not appropriate to use when, for example, an apple is lying on top of other apples that are in a fruit bowl in such a way that the apple on top is not at all surrounded by the outer sides of the bowl anymore. *In* is perfectly fine in a configuration like this. *Inside* is really only to be used when the FIGURE is completely within the boundaries of the predicated landmark.

The boundary salience of *inside* and the resulting focus on the interior of the landmark is illustrated in example (3-6a) for particle usage and in (3-6b) for prepositional usage.
(3-6)  
a. She went back inside, told the woman on the phone that she had found the glasses, put them in an envelope and placed it behind the bar.

b. After the training run, she stepped inside her home, grabbed a drink and got a perfunctory growl from her dog, Casey.

Both (3-6) a and b illustrate typical cases for the use of inside. What is typical about them is that inside is preferred in dynamic scenes when the speaker wants to continue with a description of what is happening in the interior of the space the FIGURE has moved into. The use of inside already sets the stage for any further events in the interior. The use of in in (3-6a) would not have the same effect. In does not profile the interior that much and therefore some kind of discourse marker would be needed that has a similar stage setting effect in order for the speaker to be able to continue with a description of what is going on in the interior of the profiled container. A comparable effect would be reached through the use of there as illustrated in the slightly altered example in (3-7).

(3-7) She went back in. There she told the woman on the phone that she had found the glasses, put them in an envelope and placed it behind the bar.

A further difference is that the use of in in (3-7) calls for more discourse context. The house that functions as the GROUND needs to be active in the consciousness of the speaker (cf. Chafe 1994) for the use of in to be appropriate in the sentence.

The same focus on the boundaries of the profiled container is reached through the use of outside. The difference is that outside relates the FIGURE to the exterior of the profiled landmark, that is, it profiles exclusion instead of inclusion, though the boundaries of the container-GROUND are equally salient. (3-8) illustrates the dynamic use of outside for particle as well as prepositional usage.
(3-8)  a. Crowley, 26, who served as a police officer from 1990 to 1993, raced outside and chased Smith, whose criminal record includes convictions for drug trafficking and assault and battery.

b. During that ‘87 talk, Garcia remembered the first time he was wheeled outside the hospital to sit in the sunshine and recuperate.

The examples in (3-8) illustrate that the use of outside has a similar stage-setting effect as the use of inside. In both examples, the description of the scene continues in the new location profiled by the particle or preposition.

To sum up, I have shown different reasons why inside and outside are both prone to be used as particles. The high particle usage was given as a reason why the ID and the ED of the two prepositions display such a high discrepancy. Used as prepositions, they are mainly used to describe static scenes. However, the frequent usage as particles at the same time raises the frequency in dynamic scenes.

The second question posed above was why more static prepositions used to express dynamic events generally highlight the endpoint of a PATH rather than any other segment of it, i.e. the source or the trajectory. Non-dynamic prepositions relate a FIGURE to a GROUND in a static spatial configuration\(^9\). Typically, this profiling of a fixed arrangement between FIGURE and GROUND does not change when the preposition is used in a dynamic context. It will be shown later (specifically in Chapters 5 and 7) that the use of non-dynamic prepositions generally requires a PATH-salient motion verb. In that way, the dynamic PATH is predicated by the verb and the preposition functions to specify the final configuration of FIGURE and GROUND. Theoretically it is of course possible that this

\(^9\) The nature of the relation can naturally also be temporal or of a more abstract nature, but as mentioned before, I am restricting the analysis to spatial configurations.
fixed arrangement might function as the starting point of the PATH rather than the end point. It is, however, the case that if a more static preposition like for example inside, at, or on were used to express source in a motion event in the same way these prepositions can be used to express the goal, this would yield an incomplete utterance. There would be no lexical element expressing directionality. This is exemplified in (3-9). In the example there is no information whatsoever about the PATH if the log is seen as the source of motion.

(3-9) *The ants were running on the big red log. (On the reading that the big red log is the starting point of the motion)

This is different when the GROUND functions as the goal of the PATH as in example (3-10):

(3-10) Then he was off to Hot Springs High School for a class of '64 gathering. There, he eagerly jumped on stage with other band members and belted out the pop songs “Runaround Sue,” “Stand By Me,” and “Duke of Earl.”

The expression of a starting point always requires the additional lexicalization of directionality, which is generally achieved through the use of from as shown in (3-11).

(3-11) A crew on a freight train sitting on the other track waiting to cross over behind the passenger train noticed sparks flying from underneath the car and radioed the passenger-train engineer, but it was too late

The predication of the goal with non-dynamic prepositions allows for at least a partial reconstruction of the PATH. We know that somebody who jumps onto a stage will probably have started from the ground, gone through the air for a bit and then landed on the stage. Even though this information is gapped (Talmy 1996a) it is easily filled in
through our experience with these kinds of events. Highly static prepositions used in
dynamic contexts thus have to express the endpoint of the PATH, since otherwise they
would not provide sufficient information for a complete conceptualization of the event
were they used to express any other segment of PATH.

The answer to the last question posed in the beginning of this section is a natural
continuation of this line of argumentation. We asked why endpoint salience of static
prepositions should at the same time occasion their relatively frequent usage. That is,
why are more static prepositions preferred or even obligatory in some dynamic contexts?

At this point we will only briefly comment on this question. In the chapters to
come (specifically Chapters 6 and 8) when looking at specific verb classes and how they
interact with specific constructions, we will deepen the analysis. The main point is,
though, that some verbs specifically highlight the endpoint of the PATH. Verbs like for
example arrive, place, land, or lay profile the endpoint of a PATH. That is, they profile
the coming to rest of the moving FIGURE. This resting state is best expressed through
more static prepositions since they do not additionally highlight a dynamic PATH. Note
that the verbs in question lexicalize PATH instead of the MANNER of MOTION. PATH, as a
necessary element of any motion event (Talmy 1985, 1996a), is thus already expressed in
the verb. Hence, the directionality of the moving FIGURE is known. Furthermore, as
mentioned before, the use of a more static preposition profiles the fixed arrangement
between FIGURE and GROUND. The endpoint is thus more salient when a preposition is
used that highlights locatedness rather than a dynamic reaching of the endpoint.

Relating back to the fundamental question of this section, we can now see how
the salience of the endpoint, that the use of more static preposition brings about, is one of
the causes for the discrepancy between the internal and the external degree of dynamicity of both *inside* and *outside*. The two prepositions are fundamentally static prepositions; however, the specific semantics contributed through their focus on the boundaries and the interior of the predicated container-GROUND, as well as their inherent endpoint focus in dynamic situations, often add necessary elements to the conceptualization of the whole scene. We have seen that a preposition like *inside* can be used to construe an object as a container-like entity even though it might not really have these properties. These factors occasion that these more static prepositions are used considerably often in dynamic contexts, a fact which gets expressed through their ED value. Despite this relatively frequent usage, it is the case that their ID is low since numerically, the vast majority of utterances they occur in are static. This is why speakers, when asked to judge whether a preposition like *inside* or *outside* is static or dynamic, almost unanimously vote for a static classification (cf. Bennett 1975).

### 3.3 Factors determining a preposition's degree of dynamicity

In this section, factors determining the degree of dynamicity will be investigated as far as they become apparent through the ranking in Table 3-3. These factors are important for the later analysis of PATH in Caused-Motion as well as Intransitive-Motion Constructions, since they have a direct impact on the degree of PATH-salience in any instantiation of either constructions. This impact on the PATH-salience is again a matter of degree: the more of the identified factors are present in a preposition, the higher it will be on the dynamicity hierarchy. A high position on this hierarchy is equivalent to a high degree of PATH-salience. I will show in Chapter 4, 5 and 7 that PATH-salience interacts
with possible verb choices such that more dynamic prepositions allow for a less restricted choice of verbs. More static prepositions typically pattern with a more limited set of verbs in the motion constructions.

A further reason to isolate the factors determining the degree of dynamicity of a preposition is that these semantic components do not necessarily have to be expressed in the preposition. It is possible to use a less dynamic preposition when other lexical elements in the utterance predicate any of the factors. It will become more apparent in the chapters to come how this works exactly. For now it is the objective of this section to merely isolate and introduce the relevant factors. First, we will look at how the expression of the endpoint of PATH leads to high dynamicity (3.3.1), then properties of the different landmark configurations are discussed (3.3.2). In 3.3.3, the factor of goal attainment is compared to mere goal approximation.

3.3.1 The expression of a goal increases the degree of PATH-salience

There is a very strong tendency to express goals rather than any other portion of a PATH. This tendency has been shown for English (cf. e.g. Ikekami 1987; Stefanowitsch and Rohde 1999; Verspoor et al. 1999) as well as in investigations of other languages (cf. e.g. Allen and Frantz 1986) and even in typological studies (Bourdin 1987). Following Ikekami, Verspoor et al. (1999) derive from this distributional bias the “goal-over-source principle”, which they describe as constituting a “strong hierarchy in the everyday experience of the ‘source-path-goal’ schema” (Verspoor et al. 1999:98). They claim that for human actions, the goal is generally more important than the source. The sole expression of the source of motion often provides insufficient information with respect to
the continuation of the PATH. This is different from the expression of the goal (Stefanowitsch and Rohde 1999; Ungerer and Schmid 1996). The expression of the goal implies the completion of the event, i.e. when the outcome of an activity is known, it is usually possible to reconstruct the circumstances leading up to the final result. In other words and with respect to motion events we can say that PATH is recoverable from its GOAL. Unlike a SOURCE, the expression of a GOAL can metonymically stand for the whole PATH. The expressions for the distinct components of PATH, that is SOURCE - TRAJECTORY - GOAL, thus differ with respect to informativeness. The goal has to be considered the most informative portion of a motion event, since it implies completion of the event and with that allows for no further uncertainties.

As noted in Section 1.2 of the first chapter, Talmy (1996a) introduces the notion of gapping in order to refer to the possibilities of foregrounding and backgrounding specific aspects of complex events. A foregrounded portion is a windowed portion of the event frame, i.e. a portion that is lexically predicated and which thus receives special attention. Non-lexicalized elements are backgrounded: they are gapped and thus not part of the window of attention formed from the predicated elements. Gapped portions of a scene, i.e. non-lexicalized elements, are nevertheless understood because they are part of the evoked event frame and hence recoverable from it. It was noted, however, that Talmy distinguishes between the different elements constituting the motion event frame, i.e. FIGURE, GROUND, MOTION and PATH, which all entail one another, and the different elements constituting PATH. According to Talmy, the latter do not entail one another. We can now additionally account for the apparent goal-bias with the help of Talmy’s observation. Since there is no entailment relationship between source, trajectory and
goal, the encoding of any earlier segment will not automatically include information about subsequent stages. This implies that when a speaker chooses to encode the source or trajectory of a motion event, she will also have to lexicalize any subsequent stages if she wants the listener to know about those: they are not given. The goal is usually perceived as the most informative part of a motion event since it implies completion of the event. Speakers might, for economic reasons, choose to only encode the goal, since if they mentioned any prior portion of the event frame they would for the sake of informativeness also still have to encode it.\textsuperscript{10}

This preference for the encoding the goal over other portions of a \textsc{path} naturally leads to a higher degree of dynamicity of prepositions predicking the endpoint of a motion event. Speakers generally prefer to encode goals over sources or trajectories, which results in a considerably higher count of goal-expressing prepositions in dynamic scenes (compare Table 3-2).

3.3.2 \textit{Landmark specifications increase the PATH-salience}

It is noticeable in Table 3-3 that for both the ID and the ED, a criterion for a higher degree of dynamicity seems to be the specificity of the landmark configuration. Of the four relational configurations there are for English prepositions, namely container, surface, channel, and point (cf. Hawkins 1984), containers and surfaces seem to figure

\footnote{10 It has to be noted that only completed paths are best represented through the expression of goal. The expression of the endpoint is informative in order to infer completion; but if there is no completion there is no reason for the hearer to infer it (compare also Stefanowitsch and Rohde 1999 who showed that the so-called goal bias depends on the semantics of the verbs). Yet, completed paths seem to be the unmarked, or preferred paths. This preference might be the same as that for preferring perfective events (compare the description of the prototypical transitive event in Kemmer 1993 and also Rice 1987)}
prominently in the higher ranks of the dynamicity scale. Disregarding the channel configuration since it is not very frequent and of the 19 selected prepositions only along profiles a channel, it is possible to establish a hierarchy of landmark configurations with respect to dynamicity of the following order: container > surface > point.

Numerically the nature of this hierarchy can be shown by adding up the ED and ID ranks for prepositions that are comparable and only differ with respect to their landmark configuration. Thus we can compare into, in, and through with onto, on, and across. The set of prepositions profiling containers yields a sum of 43, whereas the set of prepositions profiling surfaces yields a sum of 59. Since lower numbers signify a higher rank of the respective dynamicity scales, this result clearly shows a higher degree of dynamicity for the container prepositions. Comparing containers and surfaces with point configurations, we have to restrict ourselves to the comparison of two prepositions each since point configurations naturally do not have an equivalent to through and across. Again the specificity hierarchy for landmark configurations is confirmed: into/in = 36 > onto/on = 39 > to/at = 40.

The established hierarchy mirrors the special status that containers seem to have when it comes to the conceptualization of spatial relations. Several observations can be listed that emphasize this special status. First, prepositions expressing a relation of inclusion in a container are learned first (cf. Clark 1973). In the same study Clark observes that a relation of inclusion is the most salient. Children under age three always place objects given to them into containers that are around them. This happens even if other tasks are equally easy to perform and also irrespective of the instructions given to them. Gibbs and Colston point out that “containment is quite relevant to preverbal
thinking and is an early part of conceptual development” (1995:366). They note that already 9-month old infants have a concept of containers “where things appear and disappear” (ibid). Johnston and Slobin (1979) show the existence of a developmental hierarchy with respect to the acquisition of prepositions which corresponds to Clark’s observations. The hierarchy is of the following order: in > on > under > at > behind\between > in front of. Further, language change with respect to the expression of directional motion often starts out with utterances involving container-GROUNDS (cf. Schaefer and Gaines 1997, Rohde 1999).

It is interesting to note that the developmental hierarchy corresponds to the dynamic hierarchy of landmark configurations. This is a further indication that there is something special about container-GROUNDS and that the relation of inclusion obtains conceptual salience. The next question now is, why there should be a hierarchy like this? What makes containers better landmarks than surfaces or points and surfaces better landmarks than points in the expression of motion events? It is again the notion of a specified endpoint that plays a role and most prominently the specification of boundaries. The boundaries that make up an important part or are even the most salient part of a container serve an important function in the conceptualization of dynamic motion events. They clearly delimit the area of where the moving FIGURE comes to rest. In the following this significant factor will be discussed and compared with the role boundaries play in surface and point configurations.
3.3.3 Boundaries as a delimiting factor for endpoint configurations

I showed in Section 3.3.1 above that the expression of the goal is generally preferred over the expression of any other segment of PATH. Among the different possibilities of expressing goals, containers functioning as landmark configurations are best suited to ensure the FIGURE’s reaching of the goal. With respect to containers, Johnson notes that they imply “fixity of location” (1987:22). This very fixity is one of the factors ensuring that a moving FIGURE has reached the endpoint of the PATH when it ends up in a container-GROUND. The three-dimensional perimeter inhibits any possible continuation of the FIGURE’s PATH. The special nature of containers can best be shown when comparing container configurations with surface and point configurations.

A container configuration delimits the endpoint of a moving FIGURE in three dimensions. That is, a typical container has a bottom which delimits the area with respect to length and width, i.e. horizontal extension, and it has sides which further add the dimension of verticality. This delimitation of the dimension of verticality is missing in surface configurations. A surface is also a naturally delimiting area in that a FIGURE that is moving onto a surface is bound by the predicated horizontal plane. However, the higher degree of dynamicity of prepositions profiling container configurations suggests that conceptually it makes a difference whether the movement of a FIGURE is impeded by a two, or a three-dimensional configuration. This relation between dynamicity and delimiting boundaries comes about through the already established increase in dynamicity through the expression of the endpoint of a PATH. A clearly delimited GOAL facilitates and enhances the conceptualization of a completed PATH. The assertion that
containers are indeed best suited for the conceptualization of spatial enclosure is once more confirmed by an observation from Johnson. He mentions that

the experiential basis for in-out orientation is that of spatial boundedness. The experientially most salient sense of boundedness seems to be that of three-dimensional containment (1987:21).

Point configurations as opposed to container or surface configurations are indeterminate with respect to dimensionality. Their spatial extension does not figure in the conceptualization of events containing these kinds of configurations. Points as landmark configurations thus have no delimiting capacity at all. They merely function as reference points that indicate where the moving figure comes to rest.

To sum up, it has been shown that containers are best suited to represent a definite endpoint. By virtue of their delimiting boundaries the moving figure is clearly restrained from further motion. This delimiting capacity is not as salient with two-dimensional surface configurations and basically inexistent with one-dimensional point configurations. It was noted before that the expression of an endpoint enhances the overall dynamicity of an utterance. It therefore follows that containers which conceptually constitute the best endpoint configuration further increase the degree of dynamicity

3.3.4 Goal attainment is more dynamic than goal approximation

The only preposition in the selected subset expressing goal approximation is toward. As can be seen in Table 3-3, it is fairly dynamic both in terms of its ED as well as its ID. Quirk et al. subsume the semantics of toward in a succinct manner: “Toward
expresses movement without the idea of completion” (1985:677). This idea of lacking completion is the relevant factor making toward less dynamic than prepositions like onto or into. Note that it is not the lack in specificity of the profiled landmark. Though toward does profile a point configuration, there is no equivalent preposition that would express a PATH towards a container or a surface. That is, toward subsumes all different kinds of landmarks. This is due to the fact that the relational nature of the GROUND is of no consequence since the preposition does not profile a contact relation.

Since a point-like configuration is the most abstract, i.e. the least specific, it can be used to schematically refer to containers, surfaces, or channels. This decreased specificity with respect to the landmark configuration is illustrated in (3-12a) where toward relates to a GROUND which can easily be conceptualized as a container and in (3-12b) where it relates to a GROUND typically conceptualized as a surface.

(3-12) a. As the commander of the Marines, Col. Martin Berndt, started out of his helicopter “he saw the young pilot coming out of the woods, running toward the helicopter,” Smith said.

b. The F-16 was hit Friday by a missile near the Bosnian Serb town of Banja Luka, and accompanying jets saw it plunge toward the ground.

The fact that toward is used for all kinds of different landmarks and that there are no prepositions that specifically express goal approximation with profiled container or surface landmarks should lead to a very high count in dynamic contexts. Since the preposition is not at all specific with respect to the relational landmark, it is used in all

\[\text{\footnote{This expected high frequency is, however, counterbalanced by the preference for completed paths. Note that all the different dynamic goal prepositions are each more dynamic than toward. This observation leads}}\]
cases of expressed goal approximation, there is no other preposition that could be seen as competing in this specific environment. However, prepositions like into and onto are still more dynamic than toward. This higher degree of dynamicity can therefore be attributed to the fact that into and onto express the attainment of the specified goal and with that, the positive completion of the event. The importance of goal attainment and the conceptual relevance of the description of completed events has already been discussed in 3.3.1. The lesser degree of dynamicity of toward over into and onto can be seen as a further piece of evidence for the preference for expressing completed events, which raises the information value of the utterance.

3.4 Summary of results

The main objective of this chapter has been to establish the degree of dynamicity of a selected subset of English spatial prepositions. The degree of dynamicity is based on the frequency of occurrence of each preposition in concrete utterance types expressing dynamic motion versus their occurrence in concrete utterance types expressing static locatedness. The thus established index of dynamicity (ID) serves as a measuring device of a preposition’s semantic import regarding the expression of PATH in the expression of motion events. The higher a preposition’s ID, the more PATH-salient is the preposition.

It has further been shown that it is not sufficient to only measure a preposition’s internal propensity to occur in static versus dynamic contexts, i.e. its ID. It is also important to take into consideration the absolute number of occurrences in dynamic
contexts, i.e. its ED. We have seen that specifically prepositions like *inside* and *outside* which have IDs, nevertheless occur in dynamic scenes rather frequently. Different factors such as the salience of boundaries as well as a clearly delimited endpoint were shown to be important for the use of more static prepositions in dynamic scenes.

On the basis of the ID and ED ranking, a further hierarchy could be established: the hierarchy of landmark configurations. It was shown that regarding dynamicity, containers are better GROUNDS than surfaces which in turn are better GROUNDS than point configurations. It could be shown that this finding correlates with what is known from language acquisition. That is, the dynamicity hierarchy corresponds to the acquisition hierarchy of prepositions. This correspondence was interpreted as supporting the conceptual salience of container GROUNDS and with that the importance of boundaries. The delimiting nature of boundaries which figure most prominently in container GROUNDS ensures a FIGURE's reaching of the goal and with that establishes a dynamic PATH.
4 PATH AND THE CAUSED-MOTION CONSTRUCTION

The Caused-Motion Construction (CMC) has been analyzed in a very insightful manner by Goldberg (1995). There are, however, a few questions, specifically with respect to the role of PATH, that remain unanswered or that are not examined in enough detail. Goldberg’s main objective in her book on argument structure constructions is to establish the overall nature of constructions and to introduce a set of them. So far, her research concerning constructions and the instantiating lexical elements mainly focuses on the role of verbs within constructions (cf. Goldberg 1995 ch. 2, 1999). The nature of the prepositional phrase and with that, the specification of the PATH is, however, another important aspect that merits closer scrutiny. Just as the semantics of the verb influences the likelihood of production, the nature of the prepositional phrase and its interplay with verbal as well as constructional semantics also plays a crucial role when it comes to frequency of production and also to the acceptability of specific instantiations.

A further shortcoming of the research on the CMC is that the findings have never been empirically verified. The purpose of this chapter is, therefore, to probe deeper into the characteristics of the CMC on the basis of an extensive corpus study. Specifically, the role of PATH within the construction is going to be analyzed. On the basis of the analysis of the last chapter, it is now possible to investigate how the degree of dynamicity interacts with verbal semantics.

This chapter is structured in the following way. First, Goldberg’s findings regarding the relation between verbs and constructions are briefly summarized and then tested for empirical validity (Section 4.1). The findings then form the basis on which we can build a more detailed investigation into the role of prepositional phrases and their
relationship to verbs within the CMC. Three hypotheses are introduced and investigated. First in Section 4.2, it will be tested whether there is a cline of instantiated utterance types that depends on the lexicalization of MOTION and PATH in the verb and preposition, respectively. The prediction made is that there are constraints regarding a construction's ability to influence the interpretation of lexical elements. In 4.3, I will investigate whether there is a correlation between a preposition's degree of dynamicity and the number of different verb types the preposition typically collocates with. The prediction is that prepositions higher in dynamicity should pattern with a significantly higher number of different verb types than prepositions with a low ID. Section 4.4 is devoted to an investigation of the internal PATH profiling of verbs and the repercussions this has on the possible co-selection choices of prepositional phrases as well as on the construction as a whole. Finally, a short summary of the main results of the chapter is given in 4.5

4.1 The relationship between verbs and prepositional phrases in the CMC

In her 1997 analysis of the relationship between verbs and constructions, Goldberg establishes a hierarchy of ways in which verbs can be related to constructions. The hierarchy is of the following order: elaboration > force-dynamic relation (means, instrument, result, denial) > precondition > co-occurring activity (1997:396). An elaboration of the construction is seen as the prototypical case. Here the lexical elements instantiating the construction fully lexicalize all the semantic elements of the construction. (4-1) illustrates this prototypical usage.

(4-1) Kemen carefully moves every one of the statues onto his center walkway so he can mow his lawn.
In (4-1) *Kemen* syntactically constitutes the subject and is at the same time the semantic
CAUSE or AGENT of the resulting motion event. The verb clearly expresses MOTION, the
statues are the THEME or FIGURE of the event, that is, they are the entity that is being
moved; and the prepositional phrase expresses the dynamic PATH which in this case
constitutes the GOAL of the motion event. Hence, all the semantic elements that form part
of the CMC as introduced in Section 1.2 of Chapter 1, are instantiated in the example.

In force-dynamic relations that hold between the verb and the construction, the
verb does not lexicalize MOTION but instead some metonymically related event which
then results in the interpretation of the utterance as describing a motion event. In (4-2)
we can see examples of each of the possible force-dynamic relations listed in the order of
mention in the hierarchy above, i.e. means (4-2a), instrument (4-2b), result (4-2c) and
denial (4-2d).

(4-2) a. Stir yeast into 2 cups of warm (105 to 115 degrees) water until it is
dissolved.¹
b. Among other problems, the dirt would be trucked through downtown Las
Vegas, raising the risk that even a minor incident or spill would generate
horrific publicity that could maim the tourist industry.²
c. But a few moments later the crafty veteran, resting against the ropes
where he does some of his best counter-punching and covering up, waved
McCall toward him.
d. 'Pat locked Chris out of the room (Goldberg 1997:392).

¹ This example is a slight deviation of the constructional template in that in imperative constructions there
is no expressed AGENT. It can be argued, however, that imperatives are a sub-construction of the CMC.
Imperatives are typically uttered in direct face-to-face interactions. The AGENT is in these cases
contextually given and conceptually highly active since it is the addressee himself that is being referred to.
² Goldberg (1995) lists passives as sub-constructions of the CMC.
Expressing the means as in (4-2a) as well as the instrument as in (4-2b) is straightforward when looking at the sentences. The expression of a relation of result as in (4-2c) entails that the motion not expressed in the verb is a result of the predicated action. In the example, it is thus the waving that results in McCall’s (FIGURE) moving. In (4-2d) a relation of denial is illustrated denial, that is, the potential motion of the figure is inhibited by the action expressed in the verb.

The third type of relation that can hold between the verb and the construction is what Goldberg names a relation of precondition. In a case like that, the verb expresses an event that makes it possible for subsequent motion to take place. Thus again, motion is not lexicalized in the verb but clearly understood through the semantic import of the entire construction. An example to illustrate this relation can be seen in (4-3).

(4-3) After a winding, six-year journey through the solar system, the spacecraft Galileo Thursday unleashed a probe toward Jupiter—the first of several crucial steps heralding the start of its two-year study of the largest known planet.

The last possible relationship on the list established by Goldberg is that of a co-occurring activity. One example of this kind of relation has been investigated in an elaborated corpus-based analysis by Levin et al. (1997). The authors have shown that verbs of sound emission can be used in a motion event construction when the sound is a concomitant activity of the motion event. A necessary restriction they note is that the sound has to actually be produced by the motion. Given that the activity expressed in the verb has to be metonymically related to the motion event, it is natural that only the description of sounds that are actually produced by the ongoing motion can be taken as representing the
entire event. That is, a sound that is produced merely as a concomitant but not causally related activity cannot be used to represent the event. Verbs of sound are used much more frequently in intransitive motion events, the topic of Chapter 7, but they also sometimes occur in CMCs. (4-4) is an example of this type.

(4-4) Wine educators say a winemaker must make some 200 decisions on each batch of wine before the cork is finally, with a loud ga-chunk, plunked into the neck of the bottle.

When looking at the sentences (4-1) through (4-4) there are two things to note. First of all, Goldberg's claim about possible constructional import is supported in that the different verbs used in the examples are not all verbs of motion. Strictly speaking, only the verb move in (4-1), which was used to illustrate the prototypical usage of the CMC, lexically predicates MOTION. Nevertheless, all the other verbs also occur in the CMC and in each case the utterance is interpreted as actually expressing a motion event.

A second observation can be made when looking at the different prepositional phrases. All the prepositions in the examples are highly dynamic with respect to the dynamicity cline established in Chapter 3.2. This is, in fact, not a mere coincidence. Instead, it is typically the case as will be demonstrated with corpus data in Section 4.2 that speakers choose a highly dynamic PP when they have selected a verb that does not fully instantiate the constructional template. This observation has important implications.

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3 Apart from expressing a sound that is produced by the ongoing motion, a further possibility for the use of verbs of sounds in the description of caused motion is to represent the CAUSE for the MOTION of the FIGURE as in the following example: According to police, as he and his friends were buzzed into the lobby, two men followed them through the door and -- together with a third robber already in the building -- pulled out guns and yelled, "Give it up." Here the verb buzz functions as a speech act verb as in They were called into the lobby, and would in Goldberg's categorization better fit into the category of verbs that maintain a
It suggests that it is not enough to only consider the relation between the verb and the construction. The prepositional phrase also plays an important role and influences the likelihood of production as well as the acceptability of utterances as actually representing instances of the CMC. The relation between verbs and PPs within the CMC is investigated in more detail in Section 4.2.

First, we will turn to an empirical testing of Goldberg's intuitive findings about the prototypicality of fully instantiated constructions as well as the validity of the hierarchy of relations between verbs and constructions. I will test whether the findings are borne out when looking at frequency data.

4.1.1 The relation between verbs and constructions: An empirical evaluation

So far the hierarchy of relationships between verbs and constructions as proposed by Goldberg (1997) has not been tested empirically. From the article, it is not apparent on what basis the hierarchy has been established. Before assuming the validity of the hierarchy and basing further assumptions on it, I will therefore check its soundness against my data set.

The first question is whether fully instantiated constructions constitute the most frequent usage. Second, the validity of the hierarchy of possible relationships between verbs and constructions will be tested. As explained in Section 2.3 of Chapter 2, I predict that frequency of occurrence at least partially reflects the acceptability of utterances. That is, frequently occurring utterance types will generally be judged acceptable since

force-dynamic relation to the construction where the MOTION is a result of the activity described in the verb.
high frequency yields entrenchment. Entrenched patterns are easily accessible, they reflect conventionalized ways of expression (cf. Barlow and Kemmer 1994). In turn, uncommon usages are not very entrenched and it is possible to find disagreement among speakers as to whether such a pattern is acceptable. Goldberg (1997) claims to have established the hierarchy of sense relations on the basis of acceptability. It will now be tested, whether the same kind of hierarchical ordering can be maintained on the basis of frequency data.

In order to confirm that the majority of occurring instances of the CMC are actually fully instantiated, it is necessary to define what exactly constitutes a fully instantiated construction. A straightforward answer is that a construction is fully instantiated if all its syntactic as well as semantic elements are lexically expressed. A problem that arises is to define which verbs actually express MOTION, and secondly which prepositions actually express a dynamic PATH.

In order to deal with the first problem, all verbs occurring in CMCs within my data set have been grouped into different verb classes (see Appendix A). These verb classes are grouped under two major category headings, namely ‘Verbs primarily lexicalizing motion’ and ‘Verbs not primarily lexicalizing motion’. These categories are formed by considering a verb’s meaning outside of the CMC. The interpretation of a verb differs when used in different argument structure constructions. Even though the usage in these constructions at the same time influences the semantics of the single verbs, “there seems to be a growing consensus that it is necessary to distinguish a verb’s “core” semantics from the semantics of the expression when the verb appears in different argument structure arrays” (Goldberg 1997:384).
The classification of prepositions as expressing a dynamic PATH or not is based on a preposition's ID as established in 3.2. Again we have to consider a problem that arises. The ID scale represents a continuum of dynamicity. Each preposition is used in static as well as in dynamic situations and the relative proportion of these usages with respect to each other forms the basis of the continuum. The nature of continua is that they are gradable and reflect differing degrees of the specific quality that is being measured. In order to decide whether a construction is fully instantiated, it is, however, necessary to decide whether a preposition is either dynamic or static, a choice that contradicts the nature of the continuum since it requires an arbitrary partitioning. Realizing this problem, I will for now, nevertheless, draw this arbitrary line. Table 3-3 in Section 3.2 lists all the prepositions included in the investigation and their corresponding ID. It was established that an ID of 1 equals exclusive occurrence in dynamic contexts whereas an ID of 0 equals exclusive occurrence in static contexts. A partitioning that seems justified is to say that prepositions of an ID higher than 0.5 are regarded as mainly dynamic whereas prepositions of an ID lower than 0.5 are regarded as mainly static. This partitioning renders the following prepositions as mainly dynamic (in descending order): through, onto, into, to, under, toward, out, out of, from, over, by, along, across. The following prepositions are mainly static according to this division: between, in, at, outside, inside, on.

Based on the classification of the verbs and the division of the prepositions into more dynamic and more static ones, we can now check each instance in the data set for full elaboration of MOTION and PATH and with that test whether the CMC is fully instantiated in the majority of its occurrences. In my data set, the total number of
occurring CMC instances is 958. According to the criteria established above, 753 are fully instantiated. That equals a percentage of 78.6%. This result allows us to claim that it is indeed the case that there is a clear preference to fully instantiated the CMC. At the same time the result shows that in 21.4%⁴ of the cases, the speakers left specific semantic elements to be filled in by the constructional semantics rather than expressing them lexically. This result confirms the claim that constructions can be used to fill in missing semantic components in order to yield comprehensible utterances.

The second task was to test whether Goldberg’s hierarchy about the possible relationships between verbs and constructions can be confirmed empirically. In order to test this, the occurrence of verbs expressing the different kind of relationships is quantified. With respect to a relation of elaboration, it needs to be noted that this relation is not equivalent to the cases of fully instantiated constructions. This time we are only interested in the semantic content of the verb. The verbs patterning with more static prepositions are thus included in this count. The results of the count of the number of occurrences of verbs expressing the different sense relations is illustrated in Table 4-1.

⁴ 27 utterances of these 21.4% are instances of the Caused-Position Construction which will be introduced in Chapter 6. The percentage of not fully instantiated constructions is thus 18.6%.
<table>
<thead>
<tr>
<th>TYPE OF SENSE RELATION</th>
<th>FREQUENCY OF OCCURRENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elaboration</td>
<td>85.1% (815)</td>
</tr>
<tr>
<td>Force-Dynamic</td>
<td></td>
</tr>
<tr>
<td>Means</td>
<td>8.4% (81)</td>
</tr>
<tr>
<td>Instrument(^5)</td>
<td>3.5% (34)</td>
</tr>
<tr>
<td>Result</td>
<td>4.1% (39)</td>
</tr>
<tr>
<td>Denial</td>
<td>0% (0)</td>
</tr>
<tr>
<td></td>
<td>16.1% (154)</td>
</tr>
<tr>
<td>Precondition</td>
<td>1.0% (10)</td>
</tr>
<tr>
<td>Co-occurring activity</td>
<td>0.8% (8)</td>
</tr>
</tbody>
</table>

**Table 4-1: Testing the hierarchy of sense relations empirically**

Table 4-1 illustrates that a relation of elaboration is clearly on top of the hierarchy. With respect to the force-dynamic relation we can state that the intuitive findings are also confirmed by the data in that, taken together, they form the next highest group. However, the internal structure of the hierarchy of force-dynamic relations is not supported. According to my examples, the internal hierarchy should be of the following order: means > result > instrument > denial. Preconditions clearly fall in place behind force-dynamic relations and it is also the case that a relationship in which the verb states a co-occurring activity to the on-going motion event is the least frequent sense relation.

In conclusion, it can be stated that except for the internal ranking of the different force-dynamic relations, the corpus data support the intuitive findings introduced by Goldberg (1997). We have seen that fully instantiated constructions are clearly the preferred structure. It can therefore be expected that less prototypical verb relations are

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\(^5\) Verbs expressing an instrument are counted twice thus skewing the total percentage. Unlike Goldberg, I see verbs like *truck, pump, paddle* etc. as lexicalizing *motion*. The number of verbs that belong in this category are therefore counted as instances of elaboration as well as instances of the instrument category. In Section 7.3 of Chapter 7, it will be discussed in more detail, why verbs predicated the instrument are actually counted as verbs of motion.
balanced out by highly dynamic prepositional phrases, a hypothesis which is the topic of the next section.

4.2 Co-selection restrictions between verbs and prepositions

**HYPOTHESIS 1:** Constructions can add semantic elements not lexicalized in a given instantiation; however, constructions are at the same time constrained in their ability to influence the interpretation of lexical elements. The CMC cannot add both MOTION and PATH and still yield a dynamic interpretation.

Hypothesis 1 implies that speakers are generally restricted in their choice of preposition once they have deviated from the constructional template in their choice of verb. To say it in other words, if the verb does not lexicalize MOTION then the probability that the speaker selects a highly dynamic preposition increases. By the same token, we can also state that if the verb does lexicalize MOTION, then the speaker can select a more static preposition. It should, hence, be difficult to find examples of the CMC with non-motion verbs and non-dynamic PPs. This hypothesis is based on the observation of sentences (4-2) to (4-4) in which non-motion verbs pattern with dynamic prepositions. I predict that there is a cline of actually occurring utterance types with respect to the expression of MOTION and PATH within instances of the CMC. This hierarchy is likely to be of the following order:

MOTION-verb + dynamic PATH-PP > non- MOTION -verb + dynamic PATH-PP > MOTION-verb + non-dynamic PP > non-MOTION-verb + non-dynamic-PP.
Table 4-2 illustrates the implications of this cline, namely the frequency predictions as well as the predictions for interpretational biases for the use of semantically different verbs and prepositions within the CMC.

<table>
<thead>
<tr>
<th>VERBS</th>
<th>PREPOSITIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOTION</td>
<td>HIGH ID</td>
</tr>
<tr>
<td></td>
<td>high frequency, dynamic motion interpretation with no ambiguity</td>
</tr>
<tr>
<td>NON-MOTION (BUT METONYMICALLY RELATED)</td>
<td>intermediate frequency, dynamic motion interpretation with low ambiguity</td>
</tr>
</tbody>
</table>

Table 4-2: Frequency and predicted interpretational biases of different utterance types within the CMC

The following examples illustrate each utterance type of Table 4-2. Sentence (4-5a) illustrates an example of an utterance containing a verb lexicalizing MOTION that patterns with a high-ID preposition; (4-5b) shows a non-motion verb with a high-ID preposition; (4-5c) illustrates the case of a motion verb together with a low-ID preposition; and lastly (4-5d) shows a non-motion verb that patterns with a low-ID preposition.

(4-5)  

a. The men then **dragged** his daughter, Vicki Lehman, **through** the house in a search for money and guns.

b. The servers **slice** slabs of meat right **onto** your plate.

c. Cox said the truck drivers **threw** water **on** the boy, but the effort was in vain.

d. As they sped through the city center, the driver, an immigrant from the West African state of Guinea, **rammed** a police car **on** the Place de la Nation.

The examples support the entries in Table 4-2 above in that sentences (4-5a to c) all receive a dynamic, translocational interpretation. However, for (4-5d) it is hard, if not
impossible to conjure up a dynamic scene that would involve the moving of the police car onto the Place de la Nation by virtue of it being rammed.

With respect to the corpus analysis, Hypothesis 1 predicts that a search of instances of the CMC based on prepositions will yield the highest number of instances of the CMC with highly dynamic prepositions. High-ID prepositions represent the prototypical use of the CMC and are fully sanctioned by the constructional schema (cf. Langacker 1987 for the notion of sanctioned schemas). Just like verbs expressing a relation of elaboration are used most frequently in instances of the CMC we can therefore expect that prepositions expressing a relation of elaboration, i.e. high-ID prepositions, are equally frequent. Remember that the ID, i.e. the index of internal dynamicity, is based solely on the preposition’s internal distribution of occurrences in dynamic versus static usage events. It is not tautological to claim that the most dynamic prepositions should also be used most frequently in instances of the CMC. The CMC forms only a subpart of a preposition’s usage in dynamic context. It is not self-evident that any subpart should mirror the distributional preference of the whole category.

Table 4-3 illustrates the exact distributional patterns regarding the co-occurrences of verbs and prepositions within the CMC and the results confirm the predicted hierarchy.
<table>
<thead>
<tr>
<th>Utterance Type</th>
<th>Frequency of occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motion verb + Dynamic PP</td>
<td>78.6% (753)</td>
</tr>
<tr>
<td>Non-motion verb + Dynamic PP</td>
<td>14.6% (140)</td>
</tr>
<tr>
<td>Motion verb + Non-dynamic PP</td>
<td>6.3% (60)</td>
</tr>
<tr>
<td>Non-motion verb + Non-dynamic PP</td>
<td>0.4% (5)</td>
</tr>
<tr>
<td>Total</td>
<td>100% (958)</td>
</tr>
</tbody>
</table>

**Table 4-3: Frequency distribution of utterance types within the CMC**

The results further confirm Hypothesis 1 in that only in 0.4% of the corpus data we find a non-motion verb patterning with a non-dynamic prepositions. In all the other cases, there is only one semantic component left to be filled in by the construction. However, one question remains to be answered and that is why there should at all be any examples of CMC instantiations that combine non-motion verbs with low-ID prepositions.

4.2.1 Non-motion verbs patterning with low-ID prepositions in the CMC

The five examples occurring in the data set that allow a translocational interpretation in spite of the use of a non-motion verb and a non-dynamic preposition are listed in (4-6) below.

(4-6)  

a. He pulled me tighter, then pressed his lips against mine and **forced** his tongue **inside** my mouth.  
b. In the 52d minute, Bebeto and Romario both sprinted behind the Netherlands’ defense, and Bebeto launched a cross from the left flank to a steamrolling Romario, who beat Valckx and **punched** the ball on one bounce **inside** the right post, leaving goalkeeper De Goeij flatfooted.
c. The near future came in five days, in the 52nd minute against the Netherlands, when Bebeto launched a perfect cross from the left wing to a chugging Romario, who deftly fielded the pass like an infielder on the short hop and punched the ball inside the right post for a 1-0 Brazil lead.

d. After the ceremonies, the veterans of World War II were invited inside the perimeter of the 205th Army’s military command base here, where lunch was ladled out from huge enamel pots.

e. Storr wasn’t set when Varvio spun around and snapped the puck over Storr’s stick, off his leg and inside the left post.

First of all, it is interesting to note that, at least in my data set, the preposition inside is the only one that occurs together with verbs that do not primarily lexicalize motion within the CMC. It was noted in Section 3.2.3 when discussing the characteristics of both inside and outside, that these two prepositions are special in that even though they have a very low ID they are nevertheless frequently used in dynamic contexts. Remember that both inside and outside are two of the prepositions with a high discrepancy between their ID and their ED (compare Section 3.2.1), that is, they are used most frequently in non-dynamic contexts which determines their ID since the ID puts in relation the frequency of occurrences in dynamic versus non-dynamic contexts. However, they are also found in numerous dynamic usages which is indicated by a high ED. The two most important reasons given for the possible dynamic use were (i) a high degree of landmark incorporation which motivates the frequent particle use, (ii) high endpoint salience due to the lexicalization of boundaries. Both characteristics hold true for inside as well as outside. Nevertheless, it is only inside that occurs with non-motion verbs within the CMC. What motivates the use of inside, and what distinguishes it from outside? These two questions are now treated in turn.
The use of *inside* as opposed to its dynamic correlate *into* is probably motivated by the speaker’s desire to highlight the endpoint of the *PATH* and at the same time the interior of the *GROUND*. In sentence (4-6a), for instance, the use of *inside* underlines the perspective of the speaker, who is the victim of the event described. The use of *inside* brings about an extremely strong idea of a violation of integrity and additionally invokes a strong perception of resistance. This very resistance, that is expressed in the utterance, involves an inherent directionality to overcome that resistance. The verb *force* expresses a directed force and thus evokes a dynamic *PATH*. Without the lexical predication of either *MOTION* or *PATH*, the utterance thus provides enough conceptual clues for a possible translocational *MOTION* interpretation. This at the same time shows that the predicted interpretational biases in Table 4-2 should be understood as tendencies only. The context and described scene can always override this tendency.

We will now turn to the question why *outside* is not used in the CMC with verbs not lexicalizing motion even though in 3.2.3 the same properties of landmark incorporation, boundary salience and the resulting endpoint salience were said to hold true for *outside* as well. An important difference is that *outside* defines a negative space, that is, and this is almost too self-evident to mention, *outside* basically means ‘not inside’. The lexicalized boundaries do not refer to the space where a potential moving *FIGURE* ends up. Instead, they define the region in which the *FIGURE* is not or no longer included. The meaning of *outside* is thus far less certain with respect to the *FIGURE*’s final location. It could be anywhere within an unspecified reference radius that includes the profiled container-*GROUND* in its center. Further, an event of caused motion that is described using the preposition *outside* does not necessarily involve the crossing of the
boundaries which would conceptually supply additional PATH information. The sentences in (4-6) all involve the actual crossing of boundaries, but compare this with (4-7).

(4-7) Shaken and grieving, other fans laid flowers outside Selena's clothing shop, which sells women's accessories and bustiers designed by the slain star.

In (4-7) the FIGURE (the flowers) is not moved from inside the GROUND (the clothing shop) to the outside. Instead, the GROUND merely functions as a reference point and could perfectly well be substituted with a preposition like in front of that profiles a point configuration.

To sum up, outside, unlike inside, does not necessarily involve the crossing of boundaries which conceptually adds PATH information. The preposition defines a negative space and is therefore not as endpoint-salient as inside. What is missing is the notion of 'fixity of location' that Johnson (1987:22) refers to with respect to containers. These factors can be seen as motivating the fact that outside does not pattern with non-motion verbs in the CMC. The lack of PATH salience does not allow for this specific use.

A final remark needs to be made about the role of contextual information in the examples listed under (4-6). There is no question about the fact that it is not only the verb, the preposition and the construction that add to the conceptualization of the scene described in an utterance. We already noted the relevance of implied dynamics in (4-6a). A similar inherent dynamics can be encountered in (4-6 b, c, e). The entire frame of competitive ball games brings about a dynamic, directional interpretation. We know that it is the striving of the participants in such a game to get the ball, or the puck for that matter, into the goal, the ultimate endpoint in this case. The other team protects this goal
which again brings about an implied resistance and a notion of directionality. This implied directionality and inherent dynamics guides the reading of the utterance and easily brings about a caused-motion interpretation even though neither \textit{MOTION} nor \textit{PATH} are lexicalized. A further factor that merits mentioning is that \textit{punch} and \textit{snap} are force-dynamic verbs that typically cause the motion of projectiles.

In this section I have shown that speakers generally prefer to produce fully instantiated CMCs. I further illustrated that there is a hierarchy of utterance types representing not fully elaborated instances. Another important finding of this section has been, though, that context and the nature of the described scene can also bring about a translocational motion interpretation in the absence of lexical predication of any of the relevant semantic components. Though relevant, this is not the main focus of this work. I will, however, always return to such scene-inherent dynamics in order to explain the motivation for specific verbal or prepositional choices. In the next section, I will further investigate the nature of the posed hierarchy and show that it is internally complex in that more static prepositions only occur with specific verb types within the category of motion verbs, whereas more dynamic prepositions co-occur with numerous types.

\textbf{4.3 Restricted patterning between motion verbs and low-ID prepositions}

This section investigates a further hypothesis which elaborates on Hypothesis 1, which states that a construction is limited in its ability to influence the interpretation of the instantiating lexical items. I now restrict this further and claim that due to the possible ambiguity between translocational and non-translocational motion, a dynamic \textit{PATH} has to be lexically expressed even if the verb lexicalizes \textit{MOTION}. In the case of
low-ID prepositions patterning with motion verbs, the only place to lexically express a
dynamic PATH is in the verb. The prediction is thus that in the CMC, low-ID prepositions
typically pattern with verbs that conflate MOTION and PATH. There are consequently only
a few verb classes that could pattern with low-ID prepositions, which also accounts for
the low number of occurrences of motion verbs with more static prepositions since PATH-
conflation is only a minor lexicalization pattern in English (Talmy 1988). On the other
hand, high-ID prepositions should occur with all kinds of different verb classes, first of
all because they represent the prototypical usage and will thus be frequently employed,
and secondly because they add necessary PATH information that a speaker might consider
indispensable should she already have deviated from the constructional template in the
use of the verb. The Hypothesis 2 can thus be formulated as follows:

**Hypothesis 2:** The necessity lexicalizing sufficient PATH information for an
unambiguous decision between translocational and non-
translocational motion will yield a correlation between the ID of a
preposition and the number of co-occurring verb classes within the
CMC.

In the following, it will first be investigated whether there is indeed a correlation
between the number of verb classes and a preposition’s ID. Following that, the kinds of
verbs patterning with low-ID prepositions will be looked at.

**4.3.1 Correlating the ID with the number of co-occurring verb classes**

Low-ID prepositions are restricted in their patterning with different verb classes.
What is going to be determined now is, whether there is a correlation between the ID of a
preposition and the number of verb classes it can collocate with.\textsuperscript{6} We use Kendall's $\tau$ (see Chapter 3) to find out if a statistically significant correlation can be established. In this case, the correlation is between the following two variables: (i) a preposition's ID, and (ii) the rank order based on how many different verb classes a preposition collocates with in the CMC. In Table 4-4 these the prepositions are listed according to their ID value and the number of co-occurring verb classes is shown in Column 3.

<table>
<thead>
<tr>
<th>PREPOSITION</th>
<th>ID</th>
<th># of verb classes</th>
</tr>
</thead>
<tbody>
<tr>
<td>through</td>
<td>1</td>
<td>16</td>
</tr>
<tr>
<td>onto</td>
<td>2</td>
<td>40</td>
</tr>
<tr>
<td>into</td>
<td>3</td>
<td>34</td>
</tr>
<tr>
<td>to</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>under</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>toward</td>
<td>6</td>
<td>27</td>
</tr>
<tr>
<td>out</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>out of</td>
<td>8</td>
<td>29</td>
</tr>
<tr>
<td>from</td>
<td>9</td>
<td>15</td>
</tr>
<tr>
<td>over</td>
<td>10</td>
<td>16</td>
</tr>
<tr>
<td>along</td>
<td>11</td>
<td>9</td>
</tr>
<tr>
<td>across</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>between</td>
<td>13</td>
<td>2</td>
</tr>
<tr>
<td>in</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td>at</td>
<td>15</td>
<td>3</td>
</tr>
<tr>
<td>outside</td>
<td>16</td>
<td>4</td>
</tr>
<tr>
<td>inside</td>
<td>17</td>
<td>15</td>
</tr>
<tr>
<td>on</td>
<td>18</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 4-4: Correlating a preposition's ID and the number of co-occurring verb classes

\textsuperscript{6} All verbs occurring in the data set have been grouped into different verb classes. This classification was based on the semantics of the verbs outside of the CMC. It needs to be added that there are other possible ways of classifying the verbs in question. However, it is very likely that a different classification would not have much of an effect on the correlation of the ID with the number of verb classes.

For the sake of readability of the text, the different tables that concern the co-occurrence of verbs and prepositions are listed in the appendices. The classification of the different verbs into classes is shown in Appendix A. In this appendix all prepositions that occur with each single verb class are additionally listed. Separate tables in Appendix B show all verb classes and the respective occurring verb types for each single preposition.
The $\tau$ value we get from the above table is 0.46518, which yields a $z$ value necessary to test the significance of the $\tau$ value with 2.695855; $p=0.007021$, a value of statistical significance. It is therefore possible to state that the $ID$ of a preposition positively correlates with the number of verb classes the preposition collocates with. Or to say it in other words, the more dynamic the preposition, the more different verb classes it will pattern with in utterances expressing concrete dynamic spatial configurations.

With this result, Hypothesis 2 is clearly confirmed. We can state that there is a statistically significant correlation between a preposition's $ID$ and the number of co-occurring verb classes. More static prepositions combine with a significantly lower number of different verb classes. This result illustrates once more the restrictedness of low-$ID$ prepositions within motion constructions. We will now look at the kind of verb classes which non-dynamic prepositions typically collocate with, and this will allow us to link the first and the second hypothesis.

### 4.3.2 Verb classes patterning with low-$ID$ prepositions

As noted in Section 4.2.1, the only low-$ID$ preposition also patterning with non-motion verbs is $inside$. Apart from $inside$, all other low-$ID$ prepositions pattern similarly. It is noticeable when looking at the data that the six least dynamic prepositions in the data set, i.e. $between$, $in$, $at$, $outside$, $inside$, and $on$, all occur with verbs of putting and positioning (compare Appendix B). The special status of verbs of putting and positioning within the CMC is the topic of Chapter 6. At this point, I will therefore not go into too much detail and only discuss the aspects relevant for the two hypotheses.
Verbs of putting and positioning, like for example *place, plant, position, lay* or *sit*, not only lexicalize *motion*, but they have at the same time a very salient *path* component. All of these verbs profile an *agent* that causes a *figure* to move along a *path* to a *ground*, whereby the endpoint of the *path* is particularly salient (as we will see in Chapter 6). Important for the present purpose is the fact that these verbs incorporate both *motion* and *path*. With respect to Hypothesis 1, it can therefore be claimed that again, there are sufficient semantic elements lexicalized in order to yield an acceptable utterance. Since the verb already lexicalizes a dynamic *path*, it is unnecessary to additionally express it in the prepositional phrase.\(^7\)

Other verb classes that pattern with non-dynamic prepositions are verbs of receiving (*get*), verbs of throwing (*hurl, throw*), verbs of caused motion by dropping (*drop*), verbs expressing caused motion by holding (*take* with reference to inanimate objects), and verbs expressing an instrument (*wheel*). This does not include the verbs patterning with the preposition *inside*, which, for the reasons discussed in 4.2.1, is less restricted in its co-occurrence patterns. Except for the verb *wheel*, which occurred with *outside*, the other verbs all lexicalize *cause* and all strongly evoke a dynamic *path*, even though *path* is not lexicalized. However, all verbs express a specified directionality that is mostly goal-oriented. In the case of *get*, there is movement of the *figure* towards a *recipient*, verbs of throwing inherently profile a trajectory of the *figure* away from the initial *cause* of the motion towards the *ground* which is in the relational profile of the

\(^7\) The fact that in most cases the expression of a dynamic *path* in the prepositional phrase with verbs of putting and positioning is in most cases even unacceptable will be discussed in Chapter 6.
preposition, a motion caused by dropping something necessarily involves a downward path towards the GROUND, and finally the verb take is once more inherently directional.

It is thus noticeable that except for inside and outside no other low-ID prepositions pattern with verbs that only lexicalize MOTION without additionally including a PATH or at least a CAUSE component. The low number of verb classes that collocate with low-ID prepositions, as well as the fact that these verbs in the majority of the cases express PATH, supports Hypothesis 1 which states that constructions are restricted in their ability to influence the interpretation of lexical elements. In Section 5.1 of the next chapter, we will return to this problem and discuss it in more detail.

4.4 The recoverability of PATH—the role of verbal profiling

The objective of this section is to develop a third hypothesis which will then in turn be the basis of the following two chapters. The hypothesis to be developed is based on the simple observation that motion verbs are of very different kinds and that it is to be expected that they behave differently within the CMC. First of all, to establish a commonality among different motion verbs, we can contrast them with non-motion verbs. Apart from the obvious fact that the first group lexicalizes MOTION whereas the other group does not, an important difference that results from this simple fact is that non-motion verbs are typically not conceptually linked to a motion event frame (Talmy 1996a). According to Talmy, this motion event frame includes the following four components: FIGURE, MOTION, PATH, GROUND. The claim is that the different elements of the frame generally co-evolve each other. By virtue of the motion event frame, it is thus the case that any motion verb predicating motion through space evokes a schematic
This is not the case with non-motion verbs, for which the recoverability of PATH crucially and singularly depends upon the construction as well as the dynamicity of the prepositional phrase. We have seen that this is why low ID-prepositions are generally not combined with non-motion verbs in the CMC. The construction cannot supply both MOTION and PATH information if these are not lexically expressed. This is different with verbs of motion. As mentioned above, verbs of motion are linked to the more abstract motion event frame and thus evoke a schematic PATH. To illustrate what it means for a verb to include an unspecified, schematic PATH in its semantic scope, we can look at Lindner’s discussion of motion verbs.

Lindner (1981) argues that bare motion verbs allow a maximal profile with respect to the scope of PATH. That is, used in an utterance, they can profile any subportion of the scene described by the verb. One example she uses is the verb *jump*.

*Jump* profiles a stretch of functional assembly which may include a preparatory phase, departure from the ground, motion through the air and some resolution phase. Importantly, versions of this predicate may profile virtually any substretch of this functional assembly (1981:218f).

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8 Motion verbs that describe internal movement of a FIGURE, such as *shiver, vibrate, shudder, tremble, etc.* are excluded from this generalization.

9 In Section 7.4 of Chapter 7 different degrees of PATH-salience in different types of motion verbs as well as in non-motion verbs will be examined. To take a short outlook on the discussion, I will mention here that it will be argued that even verbs that are typically not seen as lexicalizing MOTION, will nonetheless link up to the motion event frame when they are frequently used in contexts expressing motion events. On the view of the structure of our conceptual system taken here, the contexts words are used in changes their semantic profile. To take verbs of sound as an example, it can be noted that even though they are always taken as a prime example of non-motion verbs that can be used in motion event constructions, it will be argued that they can no longer be viewed as not predicing MOTION at all. Through their frequent usage in motion event constructions, it is more than likely that speakers have built some weak connections between verbs of sound frequently occurring in motion constructions and actual structures for the conceptualization of motion events. This usage-based expectancy of semantic change through frequent occurrence in specific environments is probably the reason for the differences in classification that was noted before in Footnote 3 in Section 4.1.1 for verbs expressing the instrument of motion.
She goes on to argue that only in context and together with either a verb-preposition construction or a verb-particle construction, is the profile narrowed to a specific subportion of the scene. This view is similar to the one proposed by Talmy in his paper on the windowing of attention (1996). In this paper, Talmy analyzes the possibilities of windowing our attention on selected portions of complex scenes. In his discussion on the motion event frame, he focuses on the element of PATH and notes that we can choose to highlight only specific segments of the complex PATH schema, which consists of source, trajectory and goal. Talmy’s example is the following complex sentence:

(4-9) ‘The crate that was in the aircraft's cargo bay fell out of the airplane through the air into the ocean (Talmy 1996a:241).

The verb *fall* includes the whole scene as described in (4-9) in its profile. However, Talmy argues that it is possible to leave out any of the three segments of the PATH description, thus gapping its content.

Both Talmy and Lindner thus agree that motion verbs include PATH in their profile. Motion verbs schematically evoke a PATH that can then be specified through the PATH description in the prepositional phrase. There is, however, one important aspect that needs to be considered especially when investigating the relation between verbs and prepositions in motion constructions. Even though verbs potentially have this broad profile and may, via the connection to the motion event frame, evoke the entire PATH schema, verbs nevertheless exhibit clear preferences as to which portion of the scene they typically profile in a given utterance (see Stefanowitsch and Rohde 1999 for
preferences of verbal profiling and the suggestion that it is not necessarily the case that every verb evokes the entire motion event frame).

The internal profiling of verbs is obvious in such cases as for example *enter* or *exit*. These verbs that Talmy (1985) terms 'PATH-conflating' typically do not take spatial PPs but encode their respective PATH window as a direct object complement. This is illustrated in (4-10) for the verb *enter*.

(4-10) Several times the barges *enter* murky tunnels, where thick mists suggest you may be lost in time.

Other verbs cannot take locational direct object complements, but they are nevertheless similarly explicit about the PATH window they profile. These are verbs like *remove, eject, insert,* or *put,* which typically take PPs specifying the same PATH segment already highlighted in the verb. This is illustrated in (4-11).

(4-11) a. En route to Bosnian government lines, the Serb *removed* 36 men ages 18 to 60 *from* buses, including 13 wounded, and arrested all as prisoners of war.

b. Studies show that homosexual teen-agers are more likely to commit suicide than their non-homosexual peers. Almost routinely, they are *ejected from* their homes by angry parents, set adrift into what can become lives of desperation.

c. Trained technicians will *insert* a catheter *into* the inmate’s arm.

Verbs like the ones illustrated in (4-11) lexicalize a specific PATH segment and they are extremely biased towards additionally expressing this same segment in their prepositional complement. In Section 5.2 of Chapter 5, it will be shown that a conflict between the internal profiling of a verb and the choice of a prepositional phrase that does not express the same PATH segment can result in unacceptable utterances. The semantic
of the verbs considerably influences the possible choices of prepositions following the verb and thus determines to a high degree the likelihood of production of an utterance.

The internal profiling of verbs further interacts with the recoverability of PATH in a given utterance. A verb solely profiling a specific portion of PATH apparently does not, or only to a minimal degree, evoke the complete PATH schema. Unrestricted verbs like *run, drive, wander* etc. can pattern with any PP even though they might have preferences for specific PATH windows. Unlike those, verbs that inherently profile a specific PATH segment can generally not pattern with a PP not expressing the same window if this is the only PATH segment that is lexically expressed. For example, a verb like *remove*, which profiles the source or starting point of a PATH, can generally not pattern with a PP expressing the goal if this is the only PATH segment specified. Only if a source-expressing preposition is additionally present, is it possible to include the goal. This is illustrated for the verb *remove* in (4-12).

(4-12) a. After they reach “meal” size, a water vacuum system will *remove* the fish from the barrels **onto** boats to transfer to shore for cleaning and sale.

b. After they reach “meal” size, a water vacuum system will *remove* the fish **from** the barrels to transfer to shore for cleaning and sale.

c. ???After they reach “meal” size, a water vacuum system will *remove* the fish **onto** boats to transfer to shore for cleaning and sale.

The original sentence from the corpus, which includes a source as well as a goal specification, is shown in (4-12a). (4-12b) illustrates that it is possible to solely highlight the source which corresponds to the internal profiling of the verb. (4-12c) further shows that it is generally not possible to only express the goal without first specifying the starting point of the motion event.
It is interesting to note that verbs internally profiling the goal can generally not even include a source specification when a goal specification is additionally present. Verbs like *put, position, place* or *plant* exclusively include the endpoint of a *PATH* in their relational profile, a phenomenon that we will return to in Chapter 6. The unacceptability of source PPs in combination with these verbs is illustrated in (4-13).

(4-13) a. Generally, when foreigners have reason to travel out of Pyongyang, the government *puts them in* a car or train leaving the city after nightfall, so they pass through the countryside in darkness.

b. "??Generally, when foreigners have reason to travel out of Pyongyang, the government *puts them from* the hotel into a car or train leaving the city after nightfall, so they pass through the countryside in darkness.

In order to explain these profiling restrictions, we have to approach the problem from two different angles. First, they can be explained in terms of the conceptual recoverability of *PATH*. Verbs like *remove* or *put* are very schematic motion verbs in that they do not specify the means or the manner of motion. As illustrated by Talmy (1985), cross-linguistically motion verbs mainly conflate *MOTION* and *MANNER* or *MOTION* and *PATH*. There seems to be no language in the world that has verbs conflating *MOTION, MANNER* and *PATH.* The verbs in question are *PATH*-conflating verbs in that they inherently specify a certain *PATH* segment and they do not specify the way in which the *FIGURE* moves with respect to the *GROUND*. In this context it is important to mention a distinction made by Talmy (1996a). As pointed out in Chapter 1, he distinguishes

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10 In Chapter 7 it will be argued that this apparent dichotomy should be treated more like a continuum. There are for example some motion verbs in English that, even though they are *MANNER*-conflating, strongly evoke a *PATH* image, e.g. *meander, dash, fall.*
between intra-dependent relationships and non-intra-dependent relationships; that is relationships of elements mutually entailing one another and relationships in which the different elements do not entail one another. It was noted that he states that there is no entailment relation between the different elements of PATH. This implies that since there is no entailment relationship between source, trajectory and goal, the expression of any earlier segment will not automatically include information about subsequent stages. This implies that when a speaker chooses to encode the source or trajectory of a motion event, she will also have to lexicalize any subsequent stages if she wants the listener to know about those: they are not given.

Before coming back to the co-occurrence restrictions of spatial PPs with PATH verbs, we need to introduce the second line of the argumentation necessary for a full account of the phenomenon. Apart from looking at the properties of PATH, we further have to consider the differences inherent in the verbs. The distinction between MANNER, and PATH-conflating verbs generally involves a further difference, namely one in aspectual class. Traditionally, three basic event types have been recognized which are expressed through different verb types: state verbs, process verbs, and transition verbs (cf. e.g. Vendler 1967, Pustejovski 1992). Verbs conflating MOTION and MANNER can be classified as process verbs. They typically refer to a homogeneous process of indefinite length and prepositional phrases can be used to delimit this process or to highlight specific subportions of the process. Spatial prepositional phrases are thus unconstrained when used with these verbs and can be used to refer to the starting or the endpoint of the described process or to its medial portion. The use of a spatial prepositional phrase with a process verb results in a change in event type. Once the process is bounded, as, for
example, through the use of a goal-expressing PP, the description of the process turns into that of a transition. Verbs conflating MOTION and PATH typically predicate transitions all by themselves, that is, without a bounding PP\textsuperscript{11}. Unlike MANNER verbs, they do not predicate a homogeneous process but an event that is internally structured. The transition predicated in PATH verbs is that of a change in location of the profiled FIGURE. PATH verbs are thus similar to MANNER verbs that occur in combination with a particle or prepositional phrase. Note Pustejovsky’s account:

In certain constructions, when the verb denotes a process (e.g. run, push), and there is a phrase present which denotes a function from process to transition, then the event type of the entire verb phrase (VP) is construed as a transition. Notice that this is the same structure carried by lexically specified transitional verbs such as build (1992:63).

An important difference between PATH verbs and MANNER verbs with PP constructions, is that MANNER verbs keep their unrestricted profile. That is, they are not restricted to profiling only one of the PATH segments but can in one sentence profile all three segments of PATH. This is where we can combine the two lines of the argumentation.

Talmy argues that PATH is a non-intra-dependent relationship. A verb that predicates PATH, typically profiles one specific segment of PATH. This segment does not, by virtue of the intra-dependent relationship, also evoke the other segments. That is, a verb like place that predicates the endpoint of PATH does not at the same time evoke the source. Since the source is not part of the relational profile of the verb, and since it is not even co-evoked through the presence of the goal by virtue of belonging to the same

\textsuperscript{11} There are some exceptions, like for example the verb pass. Even though it conflates MOTION and PATH, pass can at the same time easily be used to predicate a process as in John passed along the streets.
abstract PATH schema, it cannot be expressed through a prepositional phrase. Only the profiled segments of PATH can actually be included in an utterance. Since PATH verbs express transitions and not processes, they do not profile a homogeneous activity which could be segmented arbitrarily. The non-intra-dependent relationship among the different segments of PATH thus occasions the non-recoverability of other than the profiled PATH segments in the case of PATH-expressing verbs. Other segments are not recoverable conceptually since the verb does not include them in its profile and since the different segments do not co-evolve each other.

MANNER verbs, on the other hand, profile a schematic PATH in its entirety. Thus, a phrase including a MANNER verb that changes from expressing a process into expressing a transition by virtue of an added prepositional phrase is not subject to the same restrictions as a phrase expressing a transition by virtue of including a PATH verb. The MANNER verb itself still refers to an unbounded activity that schematically includes all segments of PATH in its relational profile. If this were not the case, a sentence like (4-13a) could never be complemented with a trajectory or goal-expressing PP, which is certainly possible as illustrated in (4-13b).

(4-13)  

a.  As the Boeing 727 was pushed back from the gate, smoke began coming from an overhead storage bin.

b.  As the Boeing 727 was pushed back from the gate past the other aircrafts and onto the runway, smoke began coming from an overhead storage bin.

If MANNER verbs, i.e. process verbs that in combination with a delimiting prepositional phrase now predicate a transition, were subject to the same restrictions as PATH verbs, the PATH elaboration expressed in (4-13b) should be unacceptable as is (4-13b).
We are finally in a position to formulate the hypothesis that constitutes the basis for the next two Chapters 5 and 6. It was noted in Footnote 10 of this chapter that the classification of verbs into MANNER and PATH conflating should be regarded more as a continuum than as representing two dichotomous classes. It was further noted at the beginning of this section that MANNER verbs exhibit clear preferences as to which portion of a scene they typically profile in a given utterance. I will argue that these internal profiling preferences, which we can suppose for all kinds of verbs used in motion event constructions, interact with the recoverability of PATH. That is, it is conceptually probably more difficult to construe a scene when the lexical material in the utterance does not correspond to the expected pattern. For a verb that is typically used with goal-expressing PPs the combination with a source-expressing PP constitutes a marked usage that might even be judged as unacceptable. We will see examples of this in Chapter 6. The hypothesis can be formulated as shown below:

**HYPOTHESIS 3**: The recoverability of PATH determines to a high degree the selectional freedom of verbs and prepositions in the CMC.

A further important implication of Hypothesis 3 is that verbs with a source or a trajectory bias should not be able to coerce a more static preposition into a dynamic reading. That is, we do not expect to find source or trajectory oriented verbs in instances of the CMC that are not fully instantiated with respect to the expression of a dynamic PATH. These verbs should counteract a construction's ability to coerce non-dynamic preposition into a dynamic reading since this is only possible in utterances with endpoint focus (Goldberg 1995:159). The validity of this claim is investigated in Section 5.1 of Chapter 5.
4.5 Summary of results

Before proceeding to the next chapter and the investigation of the implications of Hypothesis 3, the findings of this chapter are briefly summarized. For the first hypothesis, which states that constructions are limited with respect to their ability to influence the interpretation of the instantiating lexical elements, we can list the following implications: (i) the CMC is typically fully instantiated, (ii) the CMC is subject to a cline of occurring utterance types with respect to the combination of motion versus non-motion verbs with high-ID prepositions versus low-ID prepositions, (iii) the combination of non-motion verbs with low-ID prepositions typically yields a static interpretation.

The second hypothesis is based on the first one and predicts a correlation between the degree of dynamicity and the number of different verb classes. This prediction was borne out and signifies a further confirmation of the first hypothesis.

Finally, the third hypothesis implies that (i) the semantics and the internal profiling of the verbs generally determine the choice of preposition, and (ii) that this internal profiling can yield unacceptable combinations between verbs and prepositions even for verbs that are not PATH-conflating. Further (iii), it is to be expected that verbs not biased toward the expression of a goal undermine a construction's ability to coerce more static prepositions into a dynamic interpretation.
5 ANALYZING DIFFERENT VERB CLASSES WITHIN THE CMC

The objective of this chapter is to investigate Hypothesis 3 formulated in Chapter 4, which states that the recoverability of PATH determines to a high degree the selectional freedom of verbs and prepositions in the CMC. In order to examine the hypothesis, the implications noted in the end of Chapter 4 are tested for their validity. We will mainly be concerned with testing whether it is true that the semantics of verbs and specifically their internal profiling with respect to preferred PATH windowing influences possible co-occurrence patterns between verbs and prepositions within the CMC.

One of the most striking facts when considering the use of more static prepositions in the CMC is not only their generally rare occurrence but even more so the restricted number of verb classes these prepositions collocate with. It was noted in 4.3.2 that in my data set the highly static prepositions at, between, in, and on together only occur with four different verb classes (not yet considering verbs of putting and positioning, which will be the topic of Chapter 6). These restricted occurrence patterns raise the question of why other verb classes do not generally pattern with non-dynamic prepositions. Goldberg does not identify any restrictions regarding these prepositions, since all of them can be used to predicate the endpoint of PATH. According to the view of coercion within the CMC as put forth by Goldberg (1995), the endpoint requirement is satisfied as long as the preposition is endpoint profiling. This implies that any verb should be licensed and there should not be any restrictions on co-occurrence patterns between verbs and prepositions. We would thus expect prepositions like at, between, in, and on to occur at least occasionally with more different verb types within the CMC.
In this chapter, we will investigate possible reasons why other verb classes do not, or at least very rarely, pattern with more static prepositions. Special emphasis will be placed on selecting verb classes that profile different segments of PATH, and furthermore verb classes that lexicalize semantic components other than MOTION, PATH, or CAUSE. In 5.1, we will look at verb classes that profile the source of PATH. 5.2 deals with a specific class of source verbs, namely release verbs like free, unleash and release. These verbs are not verbs of motion but can be and are frequently used in motion constructions. In 5.3, some goal-oriented verbs will be examined and in 5.4, verbs predicing the manner of motion and their use in the CMC are investigated. In 5.5, the last section of the chapter, the overall implications of the findings with respect to the restrictedness of the CMC regarding coercion are summarized; and the general constraints that are presented in this chapter with respect to the possible co-occurrence patterns of verbs and prepositions within the CMC are summed up.

5.1 Verbs profiling the source and their use in the CMC

In order to investigate the behavior of source-oriented verbs in the CMC, three verbs were picked from the data set that, based on their semantics, seem source-oriented. The verbs in question are scrape, shoo, and remove. In order to test if this intuition-based decision that these verbs are source-oriented is true, the NAN corpus was searched for the prepositional co-occurrence patterns. Table 5-1 shows the results of this search.
<table>
<thead>
<tr>
<th></th>
<th>SOURCE PP</th>
<th>TRAJECTORY PP</th>
<th>GOAL PP</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>scrape</td>
<td>77.4% (32)</td>
<td>2.3% (1)</td>
<td>23.3% (10)</td>
<td>100% (43)</td>
</tr>
<tr>
<td>shoo</td>
<td>63% (17)</td>
<td>14.8% (4)</td>
<td>22.2% (6)</td>
<td>100% (27)</td>
</tr>
<tr>
<td>remove</td>
<td>96.8% 242</td>
<td>0% (0)</td>
<td>3.2% (8)</td>
<td>100% (250)</td>
</tr>
</tbody>
</table>

Table 5-1: Distribution of PPs for scrape, shoo and remove

In the count, all utterances expressing concrete motion through space are included, i.e., no difference was made between transitive or intransitive motion or any specific constructions. The different PPs are classified as to whether they specify the source, the trajectory, or the goal of the motion event described in the utterance. The results of the corpus search support the more intuitively based hypothesis that the verbs *scrape*, *shoo*, and *remove* are generally used with source-expressing prepositions. Some typical usages of the three verbs are illustrated in (5-1).

(5-1) a. When workers recently *removed* marble wainscoting *from* the lobby of the Washington Monument, they found the meticulously carved declaration of a 19th century graffiti artist on the wall beneath.

b. Some might imagine up to 17 layers of paint and wallpaper were *scraped off* the walls to remove grisly evidence of some ghastly deed that occurred in the house.

c. The contractors who were *shooed from* Palisades Park by the police are back, for the most part, at least for some days.

The source-orientedness of *scrape* and *shoo* is further illustrated by the fact that almost all of the uses of these verbs in verb-particle constructions describing concrete motion,

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1 The total number of occurrences of *scrape* was 44. One example is not included since it was a more complex PATH description that included the source and the goal. In the case of *shoo* and *remove* there were no cases of more elaborate PATH descriptions.

2 For the verbs *scrape* and *shoo* the listed occurrences equal the total number of occurrences of these verbs in descriptions of concrete spatial motion in the NAN. The number of analyzed instances of the verb *remove*, the latter being a more frequent verb, was limited to 250.
are also with source particles rather than particles referring to the goal of the depicted motion. In the case of *scrape*, we find 52 verb-particle constructions, 48 (=92.3%) of which are with source particles. In the case of *shoo*, we even exclusively find source particles (28 =100%), namely *away* (23), *out* (2), and *off* (3). It is interesting to note that *remove* exclusively collocates with *from* and *to* and there are no instances of verb-particle constructions.

Before turning to test whether the CMC has the power to coerce non-dynamic prepositions patterning with the three verbs into a dynamic interpretation, the semantics of the verbs are discussed in turn. This will help us in understanding why the verbs display such a strong tendency to take source complements and why there are no co-occurrences with low-ID prepositions in dynamic contexts in the corpus.

The verb *scrape* typically describes the repetitive moving of an instrument across a surface in a way that the surface is affected by the force exerted upon it. Typically, it is the case that the scraping causes parts of the surface to come off as in (5-2a) and that what is coming off did not originally belong there as in (5-2b).

(5-2) a. The cooked pumpkin then can be *scraped from* the skin and mashed or pureed along with spices or sweeteners, according to your recipe.
   b. Wes Grimm *scraped* gritty goop *from* the insides of smelly sewage holes.

The verb *scrape* is virtually never used to describe the application of a substance onto a surface. (5-3) is, therefore, a very odd sounding sentence.

(5-3) '??Wes Grimm *scraped* gritty goop *onto* the insides of smelly sewage holes.
When the verb is used to express dynamic motion, then it is thus almost always motion away from something. In the rare case of co-occurrence of *scrape* and a goal PP, the source is either established in previous discourse as in (5-4a), or it is integrated into the utterance as in (5-4b). Note that in the latter example the participant in the object slot is not actually the FIGURE. Instead, the plates constitute the source, which is used metonymically to stand for the things located there.

(5-4)  

a. I had to go down there and scrape all that grit from the bottom of the sump holes. I’d kneel down as low as I could get and scrape the grit into a bucket and then someone would pull it up over my head.

b. Instead of scraping plates into trash can—juices and all—they can be rinsed off and scraped simultaneously into the colander, allowing the liquid to drain into the sink.

Even though a goal PP is included in the two utterances, it is not profiled by the verb. In fact, leaving out the goal phrase would yield an utterance that does not predicate translocational motion at all as in (5-5).

(5-5) A ranger said that when the bison are mating, as they are now, the males become very aggressive — scraping their hooves in the dirt and charging intruders.

(5-5) shows clearly that *scrape* is not a motion verb. It does generally not express translocational motion when used with non-dynamic PPs and it does also not express motion when used without a PP altogether, i.e. *He was scraping the plate* does not entail that something is actually moving off the plate, though it is also not incompatible with it.

The verb *shoo* is similar to the verb *scrape* in that it also only predicates the initial cause of possible subsequent motion. *Shoo* expresses an action that is performed by an AGENT with the intention of making somebody else leave. The verb *shoo* does not
imply physical contact with the moving FIGURE and it is not a motion verb. The fact that the FIGURE moves away is merely a consequence of the predicated activity. It is, however, implied that the FIGURE actually starts moving away from the AGENT. Due to this implicit assumption (5-6) is a questionable utterance.

(5-6) 'Another Palestinian officer who witnessed the incident said the guard *shooed* children *away from* his military jeep by loading his gun *but they did not leave.*

In case that no subsequent motion takes place, it has to be specified that the AGENT was only trying to make the FIGURE move away as illustrated in the original corpus example.

(5-7) Another Palestinian officer who witnessed the incident said the guard was apparently trying to *shoo* children *away from* his military jeep by loading his gun, which misfired.

Even though subsequent motion is implied, the scope of the verb does not extend further than the source of the PATH taken by the FIGURE. The ensuing PATH is not controlled by the causal force expressed in the verb. This lack of control also comes about through the fact that by virtue of not expressing physical contact between the AGENT and the FIGURE, the verb *shoo* is exclusively used with animate FIGURES. Animate FIGURES, however, are of course able to leave in any possible direction. Thus, even though it might be established that the FIGURE started to move, nothing is known about the actual path taken.\(^3\) We will see later in this chapter that this lack of control over the directionality of the PATH is an important aspect that influences the possible use of low-ID prepositions.

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\(^3\) Verspoor et al. (1999) claim that the ‘goal-over-source principle’ is even stronger for animate than for inanimate FIGURES. That is, speakers tend to encode the goal when talking about animate, self-propelled motion, whereas the goal is not as important in case of inanimate, caused motion. This fact is easily
The verb *remove* is different from the verbs *scrape* and *shoo* in that it actually lexicalizes *motion*. Yet, in spite of the inherent motion component, the scope of the verb does not include the complete *path*, since the action of removing is terminated once the *figure* is taken from its original location. As Levin and Rappaport express it, "the *remove* verbs lexicalize neither means nor a resultant state. Rather these verbs mean roughly 'cause an entity not to be at a location'" (1991a:132).

In the following, I will discuss why we should expect a limited capacity of the CMC to coerce non-dynamic prepositions into a dynamic interpretation when the co-occurring verb is source-oriented. Then we will look at some of the data to test whether the prediction about the changed constructional import holds true.

It is not immediately apparent why the source-orientedness of specific verbs should interfere with a construction's strength of coercion. Sources as well as goals are heterogeneous concepts. Both imply a resting state as well as a phase of dynamic motion away from or towards a *ground* respectively.\(^4\) Sources and goals thus both evoke boundaries within the internal structure of the profiled event, which renders the profiled event conceptually dynamic in that a boundary constitutes an intermediate point that has to be passed and that provides information on the trajectory. Source-oriented verbs are thus not less dynamic than goal-oriented verbs (this is unlike trajectory-profiling verbs,

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explained by the higher degree of path determinacy in case of inanimate motion. Once set on a course of motion inanimate *figures* cannot change their trajector of their own accord. The goal is thus predictable, which reduces its information value. Yet, in case of animate motion the goal is generally not predictable. The expression of the source alone does, therefore, not inform the hearer about the entire *path*.

\(^4\) Note also that other linguists have even subsumed sources and goals under one category. For instance, Gruber (1965, 1976) classifies sources as negative goals, and Jackendoff (1990) operates with the category *bounded paths*: "The first class, *bounded paths*, includes source-paths, for which the usual prepositions is "from," and goal-paths, for which the usual prepositions is "to." In bounded paths, the reference object or place is an endpoint of the path—the beginning in a source-path and the end in a goal-path."
see Section 5.3). In principle, a dynamic motion verb used within the CMC should supply enough semantic information for a successful conceptualization of the event even if it occurs with a highly static preposition (see Hypothesis 1 in Chapter 4). The virtual non-occurrence of more static prepositions with these verbs is therefore not due to a lack in dynamicity of the depicted event. I claim that rather than a problem of lacking dynamicity, it is a question of profiling that precludes source-oriented verbs from occurring with more static prepositions. Preferably, the verbal profiling should match the prepositional profiling in order for speakers to use non-dynamic PPs in the CMC. It is not enough for the PP to profile the endpoint. Instead, both the verb and the preposition should exhibit the same internal profiling in order to facilitate the process of coercion.

Turning now to look at the data, it needs to be noted that these are not typical usages of the verbs. In (5-8), the verb *scrape* is shown in its usage with a goal-expressing PP. In fact, these are the only two examples with goal-expressing PPs. That is, these are the only two examples that we can use to test whether the more dynamic preposition is interchangeable with a more static one without losing the translocational motion interpretation. The only other preposition that is used in goal-expressing utterances with *scrape* is *against* as illustrated in (5-9).

(5-8) a. I'd kneel down as low as I could get and *scrape* the grit *into* a bucket and then someone would pull it up over my head.

   b. Add butter and pecans. Chopped vegetables can be *scraped* right *off* the cutting board *into* a frying pan, for instance.

(5-9) The assembly, known as a truck, was apparently dragged along the crossties and *scraped against* the rails long before the rest of the train left the tracks, officials said.
It is interesting to note that for (5-10a) we find inter-speaker variation with respect to a possible dynamic interpretation.

(5-10) a. "I'd kneel down as low as I could get and scrape the grit in a bucket and then someone would pull it up over my head (on the interpretation that the grit is scraped into the bucket).

   b. Alternative: Add butter and pecans. Chopped vegetables can be scraped right off the cutting board in a frying pan, for instance.

For three speakers the scraping had to be going on within the bucket. That is, they described it as an action that involved the scraping of the grit off the bucket's sides. Two speakers got a translocational interpretation of the grit being moved into the bucket by scraping. However, both of them added that they would strongly prefer the use of into.

In (5-10b), a replacement of into with in is unacceptable since the PATH description also includes a source specification. In English it is not possible to use non-dynamic prepositions in complex PATH descriptions (cf. Gruber 1976).

In the survey, the following sentences with scrape were included.

(5-11) a. She scraped the plates inside the trash can before rinsing them in the sink.

   b. She scraped the plates in the trash can before rinsing them in the sink.

24 speakers claimed they got a non-translocational interpretation upon hearing the sentence (5-11a). 16 speakers preferred a translocational interpretation. This is different in (5-11b). The preposition in has a higher ID than inside and this difference is clearly

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5 For ease of calculation, results are treated as binary values. That is, in the questionnaire speakers had the choice between saying that only one interpretation is possible or that both interpretations are possible. In case they said both are possible they had to state which one came to their mind first. In the evaluation now, the preferences for one interpretation are all counted together in order to obtain binary and easily comparable values.
reflected in the results. Only 10 speakers still got a non-translocational interpretation. The results show that the CMC does not bring about an unambiguously directional interpretation. A high number of speakers favor a non-translocational reading even though we would expect the CMC to coerce the preposition into a dynamic reading.

Examples (5-12) and (5-13) serve to test coercion with the source verbs shoo and remove used in the CMC. When replacing prepositions, care is taken to ensure that they predicate the same final configuration between FIGURE and GROUND. That is, for into we can use in, and for to we have to substitute at.

(5-12) a. On a second launch, he shooed the reluctant dove into the air with the text of his speech.
   b. I remember being shooed into the kitchen to eat during big family dinners and hearing the grown-ups in the dining room talking about the war.

(5-13) a. Remove cooked fish to paper towels to drain and cover with aluminum foil to keep warm.
   b. Officials said 65 bodies had been recovered, including at least 53 that had been removed to the morgue.

(5-14) and (5-15) show the examples with the corresponding more static preposition.

(5-14) a. ?On a second launch, he shooed the reluctant dove in the air with the text of his speech.
   b. ?I remember being shooed in the kitchen to eat during big family dinners and hearing the grown-ups in the dining room talking about the war.

(5-15) a. *Remove cooked fish at paper towels to drain and cover with aluminum foil to keep warm.
   b. *Officials said 65 bodies had been recovered, including at least 53 that had been removed at the morgue (on the dynamic reading that the bodies were removed to the morgue).
Again, the same five speakers were asked to interpret the sentences in (5-14) and (5-15). In the case of (5-14a), all of them agreed that the sentence describes a dynamic scene in which the figure (the dove) is caused to enter the ground (the air). Though, again all speakers mentioned that they would definitely prefer the use of into and that though interpretable, the sentence sounded odd. For (5-14b), there was again agreement among all five speakers. All of them agreed that the utterance has to be dynamic in that the person is shooed into the kitchen, however, at the same time all of them said that they could definitely never say it and considered the sentence highly questionable.

The sentences involving the verb remove with the non-dynamic preposition at also received clear evaluations. All considered (5-15a) to be outright wrong. Sentence (5-15b), on the other hand, was accepted by all speakers, though the interpretation given was non-translocational. The prepositional phrase was not seen as constituting a path description, but as specifying the location at which the event was taking place.6

It is not surprising that we encounter inter-speaker variation in the evaluation of the above sentences. In fact, we might expect variation among speakers whenever something occurs very rarely within a corpus. That is, patterns of low frequency are expected to yield inter-speaker variation and possibly also intra-speaker variation since

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6 In the survey, only one sentence was included with the verb remove: After they reach “meal” size, a water vacuum system will remove the fish from the barrels on the boats. The example contains a complex path description which was probably the reason for the almost unanimous result (39 non-dynamic versus 1 dynamic). Whereas the utterance does thus not allow us to make claims about the use of remove co-occurring with low-ID prepositions in the CMC since it is obviously other factors that determine the result, it nevertheless allows to formulate one further restriction. The CMC cannot coerce non-dynamic PPs into a dynamic reading that are part of a complex path description. A low-ID preposition following a source, or trajectory preposition is necessarily interpreted as referring to a location.
people tend not to judge constantly over time. This variation comes about through the low degree of entrenchment of the particular pattern.

The different examples and their evaluations open the discussion for two different aspects that need to be considered in order to account for the differences in interpretation. 5.1.1 deals with the question why the verbal profiling of the source interferes with directional interpretations when more static prepositions are used. Further, it will be investigated which other factors influence the interpretation. Since all sentences were judged rather differently, we need to account for the occurring variation. In this section we will further account for the fact why even highly dynamic prepositions which express the endpoint of a PATH are extremely restricted in their use with source-profiling verbs. In 5.1.2 we will turn to an account of the differences of the use of *at* in dynamic motion events as opposed to a preposition like *in*. *At* has a special status since it evokes a static scene more than any other preposition.

**5.1.1 Source-biased verbs and their interaction with goal prepositions**

The preceding sections have shown that source-oriented verbs by their very nature are very rarely used with goal-expressing prepositions. However, the possibility of using goal-expressing prepositions at all should at the same time open up the possibility for using less dynamic goal-expressing prepositions. Within the theory of Construction Grammar, we would expect these more static prepositions to be coerced into a dynamic interpretation. However, it was shown that coercion is only possible to a limited degree with these kind of verbs. In the corpus there are no examples whatsoever of these verbs
with more static prepositions in dynamic contexts and in the native speaker judgments sentences of this kind were frequently interpreted non-translocationally.

This non-occurrence coupled with a tendency to non-translocational interpretation of this specific patterning can be accounted for when taking the profiling preference of the verbs into account. It was noted in Section 3.4 that Lindner (1981) claims verbs of motion to have full scope over the entire conceptual entity PATH. Only co-occurring particles or prepositions are seen as narrowing down this wide scope. This is, however, different with verbs like the ones we are looking at. As illustrated above, the semantics of the verbs strongly limit the possible PATH scope.

That PATH is not profiled in its entirety leads to the extremely low number of occurrences of goal-expressing PPs with these verbs. To explain the incompatibility of source-oriented verbs with low-ID prepositions we need one additional step in the analysis. As mentioned in Section 4.4, it has been established by Talmy (1996a) that PATH is a non-intra-dependent relationship. That is, the different segments of PATH do not mutually entail one another. In sentences in which a source-oriented verb combines with a highly static endpoint preposition there is thus a conceptual gap which is not filled by any of the lexical material. This conceptual gap lies between the source and the endpoint of the depicted motion event. Since the verb exclusively profiles the source and the preposition exclusively profiles the endpoint of the PATH, there is no element in the sentence that could possibly combine the two different ends of the PATH. A lexical elaboration of the process of motion from the starting point to the final goal is missing. Neither a highly source-oriented verb nor a low-ID preposition lexicalize the ensuing
PATH. Moreover, the verbs do not lexicalize a continuous process that could be conceptualized as carrying on until a goal is reached.

The combination of a source-oriented verb with a non-dynamic goal PP is comparable to the combination of a source preposition with a non-dynamic goal PP in a complex PATH description. It was noted before that in English the expression of a complex PATH requires the use of high-ID prepositions. Consider (5-16a) and (5-16b).

(5-16) a. According to eyewitnesses, thousands of enraged mourners at the Omari mosque in Gaza City jostled Arafat so roughly that they knocked his trademark black-and-white checked “keffiyeh” from his head, then pushed him out of the mosque into a rainstorm.

b. *According to eyewitnesses, thousands of enraged mourners at the Omari mosque in Gaza City jostled Arafat so roughly that they knocked his trademark black-and-white checked “keffiyeh” from his head, then pushed him out of the mosque in a rainstorm.

Using a verb that strongly profiles the source has an effect similar to that of including a source PP in a complex PATH description in an utterance containing a more PATH-neutral motion verb. The same imbalance is created when the goal is not expressed by a dynamic PP. It leaves the profiled source of the PATH conceptually unconnected to the predicated end of PATH. This unconnectedness is referred to in the term conceptual gap.

It seems the construction is only free to coerce non-dynamic prepositions into a dynamic interpretation when the profiling of the verb and the prepositional PATH window match up. If they do not match, i.e. if the verb profiles a segment other than the goal, then the preposition has to be dynamic in order to be able to link the different segments of PATH. Dynamic prepositions not only profile their specific spatial configuration but at the same time a dynamic PATH that leads to or away from the predicated configuration.
This extra bit of lexical information then renders it possible to combine source-biased verbs with prepositions that profile segments of PATH different from the verb.

So far, the present account does not allow for any differences in the acceptability of the sentences. Yet we have seen that (5-14a) was more readily accepted than any of the other sentences that included the low-ID preposition in. As it stands, the general hypothesis is that verbs profiling the source need to pattern with high-ID prepositions when the PP profiles a different PATH segment. It is, however, necessary to consider factors other than the inherent profiling of verbs and prepositions. I will argue that in the case of (5-14a), it is the nature of the GROUND that motivates the unanimous directional interpretation. We will encounter the same phenomenon in 5.2 when discussing verbs of release and delay the discussion until then.

5.1.2 At and to and their use with source-oriented verbs

When comparing examples (5-17) and (5-14) to (5-16), the question arises why the use of the preposition at does not warrant a dynamic interpretation. Unlike in and on which can at times substitute for the more dynamic into and onto (see specifically 5.3), the preposition at cannot be used to replace to in the expression of directional motion with source-profiling verbs. This is in spite of the fact that the relationship between at and to is comparable to that between the pairs in/into and on/onto. Each prepositional pair displays identical landmark configurations, that is, point, container, and surface respectively. And each pair consists of a dynamic goal preposition and its more static counterpart. It could therefore be expected that the preposition at is comparable to in and
on in its use in dynamic caused-motion events. However, we have seen that at does not lend itself to a dynamic interpretation in (5-16).

A second related observation will help to shed light on the problem. It was noted in the beginning of this chapter that the verb remove, in its few occurrences with goal-expressing PPs, exclusively patterns with the preposition to. Further, it was mentioned in Section 4.4, that the verb remove can only be used with goal-PPs if a source-PP is additionally present. These two observations obviously contradict each other and we have to specify what kind of goal-expressions are not licensed with the verb remove without the further specification of the source. What seems to be at issue is that it is not possible to express anything more specific than a point configuration. The generalization formulated in 4.4 thus has to be specified in the following manner: If the ground profiled by a goal-referring preposition that occurs with the verb remove is more specific than a point configuration then a source-PP needs to be additionally present.

In Section 3.3 of Chapter 3, I noted that point configurations are indeterminate with respect to dimensionality and that their spatial extension does not figure in the conceptualization of event descriptions containing these kinds of configurations. This observation is important in order to account for the fact why remove cannot occur with any other goal prepositions than to as the only lexically expressed PATH window.

Remove is highly source-oriented. In Table 5-1 it ranks far higher with respect to source-orientedness than either shoo or scrape. In 96.8% of the occurrences, remove patterns with a source-referring preposition. This number clearly expresses the profiling bias of the verb and substantiates the claim that the verbal scope does not encompass any other segments of PATH. In the few cases that the goal is actually lexically predicated in
the utterance, the endpoint configuration is not overtly specified. FIGURE and GROUND are merely schematically linked in a point configuration as in (5-17).

(5-17) **Remove** cooked fish to paper towels to drain and cover with aluminum foil to keep warm.

Since the profile of the verb does not extend to include the goal, a specification that includes information about the final positioning of the FIGURE with respect to the GROUND would be placing too much emphasis on the final stage of the motion event. The effect is an asymmetric relation within the utterance which is apparently not acceptable in English. At least, there are no occurrences of this kind in the corpus. To counterbalance this asymmetry between a source-oriented verb and a goal-expressing preposition, the specification of the final configuration must be as schematic as possible.

Having accounted for the use of to with the verb remove, we can now turn back to the question why *at* cannot receive a dynamic interpretation when substituting *to* in instances of the CMC. *At* can be used in dynamic contexts, but only with verbs of positioning and verbs that inherently profile a goal-oriented PATH like for instance verbs of throwing. In both cases, the preposition merely contributes a rather schematic endpoint specification. The hierarchy of landmark configurations established in Section 3.3 places point configurations at the bottom end of the hierarchy. That is, point configurations when specifying the landmark in an utterance do not enhance the dynamicity of the conceptualization. This is unlike surface or specifically container configurations in which the crossing of the boundaries supplies an additional element of dynamicity (see Section 4.2.1). The indeterminacy of a point configuration does not
allow for the conceptualization of a dynamic PATH in the case of a low-ID preposition patterning with verbs that do not specifically profile the reaching of a goal. Since *at* profiles static locatedness with respect to an indeterminate landmark any event that is related to such a landmark configuration is necessarily interpreted as being confined to that location rather than as a dynamic reaching of that location. The fact that point configurations are one-dimensional precludes a possible conceptualization of the FIGURE's moving into the realms of the GROUND. Whereas the use of prepositions like *on* and *in* at least possibly refers to a dynamic process of entering the respective GROUND, the preposition *at* allows for no such construal. Any event thus either ends at the predicated GROUND or goes on at that location. The endpoint reading, however, has to be motivated by the verb.

5.2 Release verbs and their use in the CMC

According to one of the basic claims of this thesis, we cannot only look at the general relationship between verbs and constructions. Instead, we have to closely examine the semantics of the verbs in question, and we further have to integrate the nature of the prepositional phrase into our investigation. The necessity to consider both, the verbal semantics and the nature of the prepositional phrase, can be illustrated with an example from Goldberg. She uses the sentence in (5-18) to illustrate that, according to her hierarchy of sense relations between verbs and constructions, the expression of a precondition (cf. 4.1 above) is generally less acceptable than, for example, a force dynamic relation. Goldberg points out that speakers generally disagree on the acceptance of sentences like (5-18 a-b) (1997:394):
(5-18) a. *The warden freed the prisoner into the city.
b. *Pat unleashed the dog into the yard.

Looking at the sentences in (5-18), I want to make the claim that a lot of the semantic oddity is due to factors other than a general lesser degree of acceptability of sentences expressing a precondition. Instead, it will be shown that the claimed low acceptability is mainly due to the violation of conventionalized co-occurrence patterns between the verbs and the prepositions which result from the semantics of the verbs. We can see this when replacing free with release in (5-19).

(5-19) *The warden released the prisoner into the city.

(5-19) is already a much better sounding sentence, even though it still expresses a precondition and should therefore be low on the acceptability scale. The same can be shown for sentence (5-18b). (5-20) shows a corpus example in which the verb unleash is used in a perfectly acceptable instantiation of the CMC.

(5-20) After a winding, six-year journey through the solar system, the spacecraft Galileo Thursday unleashed a probe toward Jupiter—the first of several crucial steps heralding the start of its two-year study of the largest known planet.

We see one more time that an important fact that has to be taken into account when constructing and analyzing examples is the inherent directional bias of the verb. Free as well as unleash are both source-oriented verbs. Free implies that somebody is liberated from an enclosure. The warden freed the prisoner from his cell, an utterance that construes the GROUND as the source of motion is much more acceptable than (5-18a)
which construes the GROUND as goal. The same holds true for the verb *unleash*. *Unleash* refers to the taking away of a restraint that impedes free motion of an entity. Motion might be a natural consequence of removing the restraint but the verb itself semantically focuses on the removal of the barrier. In the case of subsequent motion, this barrier, or the location of the barrier, functions as the starting point. A prepositional phrase combined with the verb can thus not profile the goal and additionally specify the final configuration (cf. 5.1.2) as in (5-18b).

The obvious question now is of course, why the verb *release* can be used with a goal-expressing PP though it seems to be a source-oriented verb just like *free*. To be able to answer this question, we have to look at the semantics of the verbs *free* and *release*. These two verbs might seem semantically very similar, but a closer analysis reveals important differences that motivate the different patterning with PP complements.

Before turning to the semantics of the verbs, I will first introduce an explanation that Goldberg offers in order to account for various unacceptable examples of the CMC and that will help us to gain further insights. Above, it was mentioned that she uses the examples in (5-18) to illustrate the lesser acceptability of sentences expressing a precondition. In a different context, the scope of the expressed PATH is limited. The expression of PATH is seen as being dependent on the causal force expressed in the verb. Two different types of onset causation are distinguished:

The first type is that in which the causing event determines the entire path of motion, even though actual physical contact is not maintained over the entire path. This is the only type of onset causation which is acceptable in caused-motion expressions. The second type of onset causation is that in which the causing event initiates motion but does not itself determine the full subsequent path (1995:173).
These two different types of onset causation lead her to formulate the following generalization: *Generalization 5: the path of motion must be completely determined by the causal force* (ibid). This generalization goes well with her established hierarchy of related verb senses. Since the expression of a precondition generally does not completely determine the path, it follows naturally that sentences predicating a precondition should only be marginally acceptable. Yet, neither explanations accounts for the occurring differences regarding frequency of production and also acceptability among different verbs that express a precondition. We will therefore now turn to the semantic difference between *free* and *release*.

### 5.2.1 Semantic differences between *free* and *release*

The verb *release* is similar to *unleash* and *free* in that it also predicates the removal of a constraint so that subsequent motion becomes possible. Like the other two verbs, it is thus semantically source-oriented and should be restricted in the same way with respect to co-occurring goal-expressing PPs. Yet, apart from (5-19) there are other examples that illustrates the possible co-occurrence of *release* with goal-expressing prepositions. Note that (5-21), though in the passive voice, is similar to the constructed example shown in (5-19) thus supporting the claimed well-formedness of the latter.

(5-21) In the past, many of these aliens would be released onto the streets.

To investigate into the semantic differences of *free* and *release*, a corpus search was conducted and 250 instances of each verb were extracted that occur in descriptions of concrete event types that include a PATH-expressing PP. Again, this count will help in
determining the degree of source-orientedness of each verb. The results in Table 5-2 show that even though at first glance *free* and *release* seem semantically very similar, they differ considerably with respect to their internal PATH profile.

<table>
<thead>
<tr>
<th></th>
<th>SOURCE PP</th>
<th>TRAJECTORY PP</th>
<th>GOAL PP</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>free</td>
<td>99.2% (248)</td>
<td>0% (0)</td>
<td>0.8% (2)</td>
<td>100% (250)</td>
</tr>
<tr>
<td>release</td>
<td>77.2% (193)</td>
<td>0.4% (1)</td>
<td>22.4% (56)</td>
<td>100% (250)</td>
</tr>
</tbody>
</table>

**Table 5-2:** Distribution of PPs for *free* and *release*

Basically, there are two questions that need to be answered. First, what are the semantic differences that motivate the occurrence of goal phrases with *release* and their virtual non-occurrence with *free*? Second, how can we account for the fact that *release* patterns with goal-PPs even though it predicates a precondition and even though the verbal scope does not encompass the goal, i.e. the causal force does not determine the entire PATH when goal PPs are used. The second question leads us back to the importance of the nature of the GROUND and will be treated in 5.2.2.

To start out with what is similar between the verbs *free* and *release*, we note that both of them force-dynamically express the removal of a barrier. This removal is the precondition for possible subsequent motion. The verbs themselves neither predicate MOTION nor PATH as can be seen in (5-22a) and (5-22b).

(5-22) a. All the hostages were released unharmed.
   b. "Many people do not realize the enormity of the injuries of the people who survived," said Dr. J. Andy Sullivan, who had to amputate the leg of one woman before she could be freed from the rubble.
Unlike *free*, the verb *release* is essentially dynamic in that it contains the implicit idea that the **figure** has "bottled up energy". This difference between the two verbs can be observed in (5-22). In (5-22b) there is no implication of subsequent movement whatsoever. In (5-22a), on the other hand, there is an implicit assumption that the hostages, once released, will start to move away from where they have been detained. In fact this is characteristic for the verb *release*. Animate **figures** are typically conceptualized as being impatient, waiting to be set free, and basically building up strength to get away once released as illustrated in (5-23).

(5-23) While I was fighting the 7-footer, Fraser and our partner, professional baseball player Jerry Goff, each hooked, landed and released 5- and 6-footers, the fish jumping, sprinting and bulldogging, all at once, out of control.

Inanimates are similarly seen as being under pressure from whatever device is constraining them and as containing a lot of energy that will burst free once released as in (5-24).

(5-24) The river setting was all the more interesting to us because my husband and son recently took a little canoe trip of their own--on The Brazos Wild. It was supposed to take two hours, but because the water wasn't released from the dam upriver until late afternoon, it took them twice as long.

Turning now to the status of the barrier, we note that in the case of *free* it is the actual liberation that is semantically salient. That is, *free* puts into profile the fact that the **figure** was held in an undesirable condition, i.e. it refers to a state as in (5-25).

---

7 I thank Michel Achard for pointing this out to me.
(5-25) It was a far cry from the jubilation of June 1990, when 100,000 people jammed Harlem’s Africa Square to hear an attack on South Africa’s government by revolutionary political leader Nelson Mandela, just freed from 27 years in jail.

_Release_, on the other hand, is typically used to refer to the liberation from a temporary condition and to correct a state of unwrightfully bundled energy. The verb _release_ focuses much more on the removal of an impediment for future action rather than on the past state of affairs. (5-26) illustrates a typical usage of the verb.

(5-26) But the favorite in the race is Sergei Mavrodi, the mysterious boss of the MMM financial pyramid, who was released from jail to run and who can stay out of jail by winning the seat.

This difference between the two verbs gives a clue about why _release_ is used more often with goal phrases than _free_. Even though the verb profiles the removal of a intentional hindrance, due to its more dynamic character, it at the same time puts into focus the ensuing action and implies the possibility of subsequent motion.

A further important semantic difference is that in the case of the verb _free_ the _AGENT_ in the event often is an external force. It is possible that the _AGENT_ is both the restraining force as well as the force that sets the _FIGURE_ free as shown (5-27) where the Israeli militia fulfills both roles.

(5-27) The Israeli-allied militia in south Lebanon freed 20 prisoners Monday from a jail it runs, security sources said.

However, typically the restraining force and the liberating force are not identical. To use Talmy’s (1988a) terminology, we can state that the _ANTAGONIST_, that is the force restraining the _AGONIST_, does not surrender the force. Instead, it is either the _AGONIST_
himself that overcomes the force of the ANTAGONIST as in (5-28a), or an external force that helps the AGONIST in overcoming that force as in (5-28b).

(5-28) a. The doctor said the man was lucky the bullet went through his neck and he was able to free himself from the burning tires, suffering second degree burns over 20 percent of his body.
b. Two fugitives sought in a plot to free a Puerto Rican nationalist from prison with a helicopter and powerful explosives have surrendered after more than nine years on the run, the government said Tuesday.

This is very different in the case of release. The verb release expresses that the ANTAGONIST himself surrenders the force as shown in (5-29).

(5-29) Bosnian government troops have released a Dutch U.N. military observer they detained in central Bosnia Friday, the Dutch defense ministry said Saturday.

The difference between the verbs free and release with respect to the role of the ANTAGONIST can further be illustrated using utterances in which neither the ANTAGONIST nor a possible external force is lexically predicated.

(5-30) a. Thirteen hostages have been freed from a hijacked plane in southern Russia.
b. Thirteen hostages have been released from a hijacked plane in southern Russia.

In (5-30a) there is a strong implication that the hostages were freed by some external force. i.e. the army or police. Yet, in (5-30b) this interpretation is not possible. Instead, it is necessarily the case that the hijackers themselves decided to let the hostages go.

The fact that release does not imply an external AGENT has consequences for its use in the CMC: The predicated AGENT is easily construed as functioning as both, the
former ANTAGONIST and now as the AGENT that causes the FIGURE to move as was illustrated in (5-19) and (5-21). The verb *free*, however, is more complex when used in the CMC. AGENT and ANTAGONIST are typically not identical, and this semantic difference has repercussions on the possibilities of expressing PATH with the two verbs and explains why *free* is almost exclusively (99.2%) used with source-referring prepositional phrases. The fact that the verb *free* implies an external AGENT that overcomes the force of the ANTAGONIST, precludes the possibility of using goal-referring PPs with *free*. In the CMC, the AGENT exerts the force necessary for the FIGURE to move. We know that the PATH the FIGURE takes needs to be fully determined by the causal force. However, the causal force in the case of *free* is directed towards a third participant, namely the ANTAGONIST. It is not directed towards the FIGURE. The FIGURE is merely left with the possibility of free motion once the restraint has been removed. Note that in the only two cases in my data set in which the verb *free* is used with goal-referring prepositions the AGENT is actually identical to the ANTAGONIST, see (5-31).

(5-31) a. Israel was due on Friday to *free* nearly 250 Palestinian prisoners to Jericho.
   b. Two years later, scientists want to *free* 16-year-old Keiko to his lost family off the coast of Iceland.

In (5-31) *free* is used like the verb *release* in that AGENT and ANTAGONIST are identical. This makes the PATH more predictable or to say it in other words, the causal force once more controls the PATH. Since the AGENT is at the same time the ANTAGONIST, it can choose to surrender the force that holds the AGONIST or FIGURE in a way that the FIGURE has to move along a prepared PATH.
5.2.2 The relevance of the nature of the GROUND

Even though the verb *release* inherently implies a certain dynamicity and the possibility of future motion, it still remains a verb expressing a precondition. It also still remains a verb that profiles the removal of a barrier and with that, only the starting point of possible motion. Nothing in the verb determines a future PATH. The causal force lexicalized in the verb is onset causation as explained by Goldberg (1995) and introduced before by Talmy (1988a). Even though, we can generally classify the FIGURE in an utterance containing the verb *release* as an AGONIST with a tendency towards motion (cf. Talmy 1988b:54f), this is nothing but a tendency.

The need for the PATH to be completely determined by the causal force still leaves the question why *release* can be used with goal PPs. Goldberg leaves a back door open when saying that “which paths count as being “completely determined” is in part a matter of pragmatics” (1995:173). I want to argue, however, that we can maintain the generalization about the PATH having to be determined by the causal force even without reverting to a rather general explanation such as the influence of pragmatics. We can maintain the claim if we take a closer look at the type of GROUND that is typically predicated in goal-expressing PPs used with *release*. In the examples (5-19), and (5-21) above and, in fact, in 92.9% of the goal-expressing PPs with *release* of the sample from the corpus search, the GROUND is some kind of vast open space with only very unspecified boundaries. The examples under (5-32) illustrate some typical usage events.
(5-32) a. To celebrate, and to draw attention to the administration's efforts to strengthen and extend the Endangered Species Act, officials released a 10-pound female eagle, her broken wing repaired, into the wild.
b. Environmental groups protest burning the dioxin, fearing more dioxin will be released into the environment by the incinerators.
c. As a symbol of the PRD's pacifism, he released a dove into the skies above the square that was joined by hundreds of other birds frightened out of their nooks in the old buildings overlooking the square by the thunder of firecrackers.
d. "The Russian army also released tons of chemicals into the soil, including solvents and training napalm," he added.

The important issue is that even though we have a goal-expressing PP, the PATH of the FIGURE is nevertheless unspecified. The GROUND predicated by the prepositional phrase is not an endpoint in the sense that the FIGURE comes to rest at that location. Instead, it merely constitutes a bounded area in which the FIGURE, by virtue of being released, is now able to move. The direction of the motion is not influenced by the causal force once the FIGURE has entered the predicated GROUND. The preposition merely expresses that the barrier was removed in such a way that it allowed for free passage of the FIGURE into the designated GROUND. Note, however, that there is no lexically predicated information about the PATH of the FIGURE within the circumscribed area, though it is understood that the FIGURE's motion carries on within the boundaries of the predicated GROUND. Yet, the PATH is still a mere possibility and might in fact never be realized. Note that the utterance in (5-33) entails no contradiction.

(5-33) Officials released a 10-pound female eagle, her broken wing repaired, into the wild. The bird, however, having gotten so used to the comfortable life decided not to leave.
The conceived nature of the GROUND is decisive for the acceptability of goal PPs with the verb *release*. The GROUND needs to be construable as an area big enough for the FIGURE to move around in. The importance of the nature of the GROUND for the acceptability of goal-expressing PPs with *release* can further be seen in the unacceptability of the following sentence in (5-34).

(5-34) ’??The warden released the prisoner into his car.

Here the GROUND is too confined to allow further motion within. That a car is a potential means to carry out further motion is conceptually two steps removed from the event described in the verb and does not influence the acceptability of (5-34). However, it is possible to construe a scene in which even an utterance like (5-34) would be acceptable. If the car were, for example, a caravan in which the prisoner lived the utterance would again be acceptable. This shows one more time the importance of motion within the GROUND and with that the importance of a conceived continuance of the PATH beyond the mere crossing of the boundaries into the predicated GROUND. The nature of the GROUND thus has to be of a conceptually bounded area large enough to allow for the possibility of future unrestricted motion.

**5.2.3 Release verbs and low-ID prepositions**

As shown in the preceding sections, release verbs are non-motion verbs. According to the predictions made in Table 4-2 in Chapter 4, we would expect these verbs not to pattern with low-ID prepositions in utterances describing translocational
motion. The use of a low-ID preposition together with a non-motion verb is hypothesized to weigh against the constructional import thus yielding a non-directional interpretation.

To test this claim, we can obviously not use the verb *free* since other factors than the low dynamicity of the preposition would influence the interpretation. Yet, the use of the verb *release* should, according to the rather general account of coercion as put forth by Goldberg, be interpretable when combined with a low-ID preposition to refer to a dynamic scene. The following examples in (5-35) illustrate some corpus sentences that originally included the dynamic preposition *into*.

(5-35) a. *The retrovirus released the healthy gene in the cells, which were then multiplied by the billions in a laboratory and dripped into the girl’s veins.*

b. *...he didn’t kill the spiders he captured in the house, but released them in his garden.*

Both (5-35a) and (5-35b) are much more likely to be interpreted as referring to non-translocational motion. In fact, the five consulted native speakers all agreed on an interpretation that construes the event as occurring within the predicated GROUND.

The analysis shows that the CMC is restricted in its ability to add missing semantic components. If the instantiated verb is already missing one of the necessary components, i.e. *MOTION* or *CAUSE*, then the construction’s strength to additionally coerce a more static preposition into a dynamic reading is considerably reduced. I predict that an additional factor is the fact that release verbs are highly source oriented. A non-motion verb or a non-causative verb that profiles the endpoint of *PATH* supposedly yields more acceptable utterances when combined with low-ID prepositions. This possibility is one of the topics of the next section.
5.3 Verbs profiling the goal and their use in the CMC

In this section we are concerned with goal-oriented verbs and their possible co-occurrence with low-ID prepositions within the CMC. Dynamic goal prepositions are exchanged within utterances so that the use of high-ID prepositions can be contrasted with the use of low-ID prepositions. First, the behavior of motion verbs is tested in 5.3.1 before turning to non-motion verbs in 5.3.2.

5.3.1 Goal-oriented motion verbs patterning with low-ID prepositions

Table 5-3 illustrates the goal-orientedness of the three verbs drop, move, and ship.

<table>
<thead>
<tr>
<th></th>
<th>SOURCE</th>
<th>TRAJECTORY</th>
<th>GOAL</th>
<th>OTHERS</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>drop</td>
<td>14%</td>
<td>4.4%</td>
<td>74.8%</td>
<td>6.8%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>(35)</td>
<td>(11)</td>
<td>(187)</td>
<td>(17)</td>
<td>(250)</td>
</tr>
<tr>
<td>move</td>
<td>8.4%</td>
<td>7.2%</td>
<td>66.8%</td>
<td>17.6%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>(21)</td>
<td>(18)</td>
<td>(167)</td>
<td>(44)</td>
<td>(250)</td>
</tr>
<tr>
<td>ship</td>
<td>10%</td>
<td>6%</td>
<td>60.8%</td>
<td>23.2%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>(25)</td>
<td>(15)</td>
<td>(152)</td>
<td>(58)</td>
<td>(250)</td>
</tr>
</tbody>
</table>

Table 5-3: Distribution of PPs for drop, move and ship

The distribution pattern of PP complements shows that the selected verbs have a tendency to take goal PPs rather than prepositional complements predicating any other segment of PATH. We will now start the analysis with the verb drop.

(5-36) a. First she drops a washer onto each bolt, then rubber grommets, then another washer, a metal spacer, a washer and more grommets.

b. Ray Lyman, pulled his van over and dropped a surfboard into the water as a flotation device, perhaps saving the mother.

As is illustrated in (5-37), the originally used prepositions can be substituted with more static ones without loosing the sense of dynamic motion.
(5-37) a. 'First she drops a washer on each bolt, then rubber grommets, then another washer, a metal spacer, a washer and more grommets.
b. 'Ray Lyman, pulled his van over and dropped a surfboard in the water as a flotation device, perhaps saving the mother.

It was to be expected that the prepositions should be interchangeable, since among the 250 extracted utterances containing the verb drop, we already find numerous instantiated CMCs with low-ID prepositions. Some examples are listed in (5-38).

(5-38) a. Forty-nine years ago this weekend, the United States dropped an atomic bomb on Hiroshima and then another on Nagasaki.
b. Voters did not bother to fold ballots before dropping them in the transparent boxes.
c. Prosecutors contend he dropped it on a path in a walkway while rushing back from the murder scene.
d. “With the tear-off tabs, there was a concern that people would drop them on the floor, and animals and things like that might put them in their mouths and digest them,” says Nardelli.
e. At the front, a worker hefts a concrete boulder or chunk from the remaining pile, hands it down the queue and the last person drops it in a front-end loader.

These sentences once more confirm the formulated hypothesis that verbal profiling has to match the prepositional profiling in order for coercion of low-ID prepositions to be possible. However, it needs to be added that also a highly goal-oriented verb like drop leaves room for ambiguity if the context does not give enough clues as to how an utterance is to be interpreted. Consider the slightly altered example in (5-39).

(5-39) 'Prosecutors contend he dropped it on a path.

(5-39) is ambiguous with respect to a translocational motion. Note, however, that only one of the five consulted native speakers first thought of the non-translocational
interpretation in which the prepositional phrase modifies the subject rather than the direct object. We can thus detect a clear cline with respect to the possible use of low-ID prepositions in dynamic contexts that depends on which segment of PATH is most salient in the co-occurring verb.

There are other goal-oriented verbs like move, that pose more of a problem and are not as clearly usable with low-ID prepositions. Comparing the two examples listed under (5-40), it is obvious that the preposition can be replaced easily without altering the translocational motion interpretation.

(5-40) a. Every week during good weather, Kemen carefully moves every one of the statues onto his center walkway so he can mow his lawn, then places them back in the grass again for all his neighbors to see.

b. 'Every week during good weather, Kemen carefully moves every one of the statues on his center walkway so he can mow his lawn, then places them back in the grass again for all his neighbors to see.

The problem becomes obvious, though, once we take out the contextual information that facilitates the dynamic interpretation. Compare the sentences illustrated in (5-41).

(5-41) a. 'Every week during good weather, Kemen carefully moves every one of the statues onto his center walkway.

b. 'Every week during good weather, Kemen carefully moves every one of the statues on his center walkway

For (5-41b) the survey yields a very obvious result. Thirty speakers claim that only the interpretation that Kemen moves the statues around on the walkway, i.e. a non-translocational reading, is possible for (5-41b). These thirty speakers do not even consider a possible dynamic reading of the utterance.
Before discussing these findings, the use of the verb *ship* is examined. In the data set, the verb *ship* is never used with low-ID prepositions. In fact, the verb has a very limited distribution when it comes to the patterning with different prepositional phrases. Out of the 152 examples displaying goal PPs, 146 are with the preposition *to* and the remaining six examples are with the preposition *into*. The preposition *to* can in no case be substituted with the preposition *at*. As has been shown in 5.1.2, *at* can only be used in dynamic context with a very restricted set of verbs. In all other uses, an utterance containing the preposition is always interpreted as a static event. We can therefore only test the examples containing the preposition *into* if the preposition could be substituted with the more static *in* without losing the directional interpretation. Only two of the six utterances are CMCs. These are illustrated in (5-42).

(5-42) a. But he emphasized that his agency, Haiti’s oldest with 40 years of experience, has shipped the same chemical combinations into Port-au-Prince in the past.

    b. Already this year we have shipped about 150 cars into Mexico, which might not sound like a lot, but in the bulletproof-car and armored-car business, that’s a tremendous volume.

In (5-43) the same sentences are shown with the low-ID preposition *in*.

(5-43) a. ṬBut he emphasized that his agency, Haiti’s oldest with 40 years of experience, has shipped the same chemical combinations in Port-au-Prince in the past.

    b. ṬAlready this year we have shipped about 150 cars in Mexico, which might not sound like a lot, but in the bulletproof-car and armored-car business, that’s a tremendous volume.

First of all it has to be noted that unlike with the utterances containing source-profiling verbs, the utterances in (5-43) were all judged as fully acceptable sentences by all five
speakers. Second, all five preferred a translocational interpretation of the examples and claimed that this is the reading that came to their mind first. They further added that for (5-43b), it is easier to also get a non-translocational reading in the sense that the cars where shipped around within Mexico though they did not really like this interpretation. For (5-43a), three of the five speakers claimed that a non-translocational reading was not possible.

What these data have shown is that for the verbs *ship* and *drop* it is certainly the case that their distributional biases with respect to prepositional phrases facilitates coercion. The distributional bias naturally depends upon the semantics of the verb. If a verb is semantically goal-oriented, then it profiles the endpoint more than any other segment of PATH. The verb *drop* is straightforward in that respect. Due to the laws of gravity, anything that is dropped will end up on a surface below the starting point. The motion described by the verb *drop* is thus necessarily always a bounded event that is terminated at some definite location. This inherent endpoint specification allows for the use of more static prepositions since the directionality is generally pre-determined. Neither of these semantic components needs to be lexically specified by the preposition since the verb *drop* leaves not much room for ambiguity.

This is similar with the verb *ship*. There are no natural laws that determine the motion predicated by the verb, yet, there is certainly a clear expectancy that goods are shipped from one location to a specific target. It is our general experience with the way goods are shipped that we expect the prompt reaching of a terminal point. That is, a non-dynamic interpretation that does not include the profiling of an endpoint but rather the shipping around of goods within the designated GROUND simply goes against experience.
This is different with the verb *move*. Even though it is a goal-oriented verb, this goal-orientedness is not due to any inherent verbal semantics. The verb *move* is highly schematic and can in principle be used with any kind of prepositional phrase. The goal-orientedness is brought about through our general preference of encoding goals rather than any other segment of PATH (cf. Verspoor et al. 1999, Bourdin 1987, Ikegami 1987 as well as Freeman et al. 1981, and Farwell 1977 for evidence for the same claim but from the perspective of language acquisition. But see Stefanowitsch and Rohde 1999 for the view that this so-called 'goal-bias' is more a tendency than a matter of principle and highly influenced by the semantics of the verb).

What this suggests is that we have to distinguish two different kinds of verbs. Verbs that are goal-oriented due to their internal semantics and verbs that are fairly neutral with respect to PATH but which mainly pattern with goal-expressing PPs because of our general tendency to encode goals. Only verbs which inherently profile other segments of PATH, like for instance *remove* and *escape* which profile the source or *cruise* and *roam* which profile the trajectory, are excluded from this general preference to express goals. The verb *move* is a PATH-neutral verb. Consequently it does not in and of itself profile the endpoint. However, the data show that verbs need to semantically profile the endpoint in order to be used with low-ID prepositions in dynamic utterances.

To test once more whether this conclusion is correct, one other fairly PATH neutral verb is examined. As illustrated in Table 5-4, the verb *drive* also exhibits a slight tendency to pattern with goal-PPs though semantically it does not specifically profile a specific PATH segment.
<table>
<thead>
<tr>
<th>SOURCE</th>
<th>TRAJECTORY</th>
<th>GOAL</th>
<th>OTHERS</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>drive</td>
<td>17.6% (44)</td>
<td>27.6% (69)</td>
<td>35.6% (89)</td>
<td>19.2% (48)</td>
</tr>
</tbody>
</table>

**Table 5-4: Distribution of PPs for drive**

Examples (5-44) and (5-45) illustrate that stripped of contextual clues, the same ambiguity that we have seen for the verb *move* arises with the verb *drive* with a preference for a non-translocational interpretation.

(5-44) a. Andrew J. Hood, 41, *drove* his gray Mercedes *onto* the property Friday, insisting that some of the Branch Dravidians had sought out his leadership and that God had directed him to offer it.

   b. *Andrew J. Hood, 41, drove* his gray Mercedes *on* the property Friday, insisting that some of the Branch Dravidians had sought out his leadership and that God had directed him to offer it.

(5-45) a. *Andrew J. Hood, 41, drove* his gray Mercedes *onto* the property.

   b. *Andrew J. Hood, 41, drove* his gray Mercedes *on* the property.

What these examples illustrate is that even though it is possible to either use the more dynamic *onto* or the more static *on*, the likely interpretation for (5-45b) is that Hood drove his Mercedes up and down on the property rather than entering the property while driving. Sentence (5-44b) is more ambiguous in that respect since it is simply more likely that he entered the property in order to fulfill his mission. Notwithstanding this greater likelihood, 15 speakers still thought that the sentence could only express non-translocational motion (though 21 claimed to only get a directional interpretation, and six consider both interpretations possible).

It has been shown that the verbs *drive* and *move*, which are both PATH-neutral verbs, are much more likely to be interpreted as describing non-translocational motion when co-occurring with low-ID prepositions. This holds true even when this co-
occurrence happens within the syntactic frame of the CMC. Only verbs that semantically profile the endpoint of path are actually used with low-ID prepositions in the corpus and are also easily interpretable as describing translocational motion. The hypothesis that the verbal profiling has to match the profiling of the prepositional phrase, i.e. both have to be semantically goal-oriented, is thus confirmed by the data.

5.3.2 Goal oriented non-motion verbs and low-ID prepositions

In order to test the behavior of non-motion verbs that have a tendency to take goal PPs when used in the description of a motion event, the verb *squeeze* is looked at. Table 5-5 illustrates the distributional pattern of prepositional phrases with the verb *squeeze*.

<table>
<thead>
<tr>
<th></th>
<th>SOURCE</th>
<th>TRAJECTORY</th>
<th>GOAL</th>
<th>OTHERS</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>squeeze</td>
<td>10% (10)</td>
<td>23% (23)</td>
<td>64% (64)</td>
<td>3% (3)</td>
<td>100% (100)</td>
</tr>
</tbody>
</table>

*Table 5-5: Distribution of PPs squeeze*

It is noticeable, though not shown in the table, that the verb *squeeze* exclusively patterns with high-ID prepositions in these 100 occurrences. To test whether *squeeze* can be used with low-ID prepositions in dynamic contexts it is once more necessary to exchange high-ID with low-ID prepositions. Consider (5-46) and (5-47).

(5-46) a. Fred Goldman, the father of the dead man, *squeezed* tears *into* a tissue jammed behind his eyeglasses.

b. Each diner can add the fresh herbs and bean sprouts as desired and *squeeze* a slice of lime *into* the broth.

c. When the food arrives, he *squeezes* lime after lime *into* his drink as he talks, amassing a small pile of crushed green wedges.

(5-47) a. "Fred Goldman, the father of the dead man, *squeezed* tears *in* a tissue."
b. "Each diner squeezes a slice of lime in the broth."

c. "He squeezes lime in his drink."

The reaction to these sentences by the consulted native speakers was laughter. This is an interesting reaction since it shows that the first interpretation was a non-translocational one. Due to the semantic content of the sentences this interpretation is, however, weird, to say the least. This suggests that a dynamic interpretation of the utterances is due to the lexical content rather than to the construction.

To further test the use of the verb *squeeze* with low-ID prepositions, the following two examples were included in the survey. Note that they only differ with respect to degree of dynamicity of the respective prepositions.

(5-48) a. "Huey was squeezing lemons in the pitcher."
b. "Huey was squeezing lemons inside the pitcher."

Table 5-6 illustrates the results from the survey in binary fashion.

<table>
<thead>
<tr>
<th></th>
<th>DYNAMIC INTERPRETATION</th>
<th>NON-DYNAMIC INTERPRETATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>(5-48a)</td>
<td>15 (37.5%)</td>
<td>25 (62.5%)</td>
</tr>
<tr>
<td>(5-48b)</td>
<td>35 (87.5%)</td>
<td>5 (12.5%)</td>
</tr>
</tbody>
</table>

*Table 5-6: Survey results testing squeeze with low-ID preposition*

The results of the survey show two things. First of all, they illustrate that in spite of the semantic oddity of the non-translocational interpretation, a great number of speakers are not willing to ascribe a translocational interpretation to the utterances. Second of all, they illustrate that there are still significant differences between the different low-ID prepositions. Only very few speakers accept the preposition *inside* to refer to a dynamic
PP when the verb used is a non-motion verb. This finding contradicts Goldberg’s claim that the sentence *Sam squeezed the rubber ball inside the jar* (1995:158) generally receives a caused-motion interpretation due to the constructional import of the CMC. This result shows that verb inherent windowing biases have no influence on the CMC’s ability of coercion when the verb does not lexicalize MOTION. Once more we see the confirmation of the hypothesis that constructions are restricted in their ability to influence the semantics of the lexical items instantiating them. Too many deviations from the constructional template impede a possible dynamic motion interpretation.

5.4 Usage of intransitive manner of motion verbs within the CMC

In this section we will look at verbs that predicate both MOTION and MANNER. These verbs are typically used in intransitive sentences, however, some of them also lend themselves to transitive usage in the CMC. The objective of this section is, on the one hand, to test generally how primarily intransitive verbs behave within the CMC and, on the other hand, whether there are any differences in behavior depending on whether the different verbs are source, trajectory, or goal-oriented.

It was shown in Chapter 3 that more static prepositions generally do not pattern with verbs of manner within the data set. This finding suggests that the use of these verbs within the CMC does not constitute a prototypical usage. Prototypical usage equals full instantiation. We would expect verb classes that fully instantiate the CMC to be able to pattern freely with any kind of preposition. According to Hypothesis 1, constructions are only limited to a certain degree to add semantic components not predicated in the instantiating lexical elements. It is expected, and it has been shown that the construction
is generally able to contribute any of the major semantic components. The problem with verbs predicking the manner of motion is their high degree of intransitivity. The verb only contributes the semantic element MOTION and does not at the same time predicate CAUSE to the overall semantics of the utterance. Consequently, the construction has to fill in this missing element which means that the verb is coerced into a causative, i.e. transitive reading. Since the construction already contributes one missing element, we would expect its ability to coerce a more static PP into a dynamic reading to be considerably reduced.

In the following, the high degree of intransitivity of manner of motion verbs is established first. Then in a second step, utterances are tested regarding their acceptability once a dynamic preposition has been exchanged with a static one. The final task is to test whether there are detectable differences among the different verbs based on their preferred PATH profile.

5.4.1 Degrees of transitivity in manner of motion verbs

It seems straightforward to claim that in their typical usage, verbs lexicalizing MOTION and MANNER like walk, trundle, march, and sneak are highly intransitive. This can be established by simply looking at the frequency of occurrence of these verbs in either intransitive or transitive environments. The verbs fly, parade, slide and walk are tested by looking at 100 occurrences of each verb in utterances describing concrete

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8 For the fact that transitivity is a gradable rather than an Aristotelian category, i.e. an either or category, see, for example, Hopper and Thompson 1980, Givón 1984.
spatial motion. These 100 examples are then classified as either transitive or intransitive motion. Table 5-7 illustrates the results of the count.

<table>
<thead>
<tr>
<th></th>
<th>TRANSITIVE USES</th>
<th>INTRANSITIVE USES</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>fly</td>
<td>11</td>
<td>89</td>
<td>100</td>
</tr>
<tr>
<td>parade</td>
<td>17</td>
<td>83</td>
<td>100</td>
</tr>
<tr>
<td>slide</td>
<td>13</td>
<td>87</td>
<td>100</td>
</tr>
<tr>
<td>walk</td>
<td>3</td>
<td>97</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 5-7: Transitive versus intransitive uses of fly, parade, slide, and walk

The results clearly substantiate the claim that verbs predicing the manner of motion are typically used intransitively and cannot be seen as lexicalizing CAUSE. They, therefore, do not fully instantiate the CMC but constitute less prototypical uses. The construction has to add the semantic element CAUSE when the instantiating verb lexicalizes MANNER.

Another way to establish the low degree of transitivity is to apply Hopper and Thomson’s (1980) criteria for differing degrees of transitivity. To take the verb walk as an example, the following criteria, which are seen as decreasing the degree of transitivity, apply to its typical usage: Walk has only one argument slot, i.e. it profiles one participant rather than two and it expresses an atelic, non-punctual event.

MANNER verbs predicate the way in which a FIGURE moves. The kinds of movement predicated in verbs like the above demands self-controlled activity of the FIGURE. This, however, goes against the semantics of the CMC. The causal force typically determines the fact of motion and additionally the PATH of motion. Causative

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9 The authors see transitivity as a relationship which holds throughout the clause, i.e. it is a "global property of an entire clause" (Hopper and Thompson 1980:251). When analyzing the degree of transitivity of the verb walk, it is thus the typical usage in discourse that is referred to. The typical usage has been established in Table 5-7.
motion verbs that additionally have a MANNER component like for example *pour*, *stuff* or *toss* express the manner in which the AGENT manipulates the FIGURE and not or only indirectly the way in which the FIGURE then moves. Yet, manner of motion verbs like *walk* and *march* predicate the way a FIGURE moves its limbs, that is, the FIGURE has to actively participate in the process. This implies that the FIGURE is animate (unless of course we talk about robots). However, manipulating the way in which the FIGURE actually moves is difficult and generally requires an inanimate or at least highly controllable FIGURE. This contradiction is probably one of the reasons why these verbs are used so rarely in the CMC. It is instructive to look at the kinds of FIGURES that occur with manner-expressing motion verbs within the CMC. The FIGURE is, in the majority of cases, represented by either non-humans, e.g. typically dogs but also horses for the verb *walk* (as in example (5-49a), or inanimate objects for the verb *parade*, see (5-49b). In case a human FIGURE is involved then this human is in some way subordinate to the CAUSER or AGENT. That is, the CAUSER has the power to control the FIGURE beyond normal human manipulative interaction, e.g. typically soldiers or prisoners for the verb *march*, as in (5-49c).

(5-49) a. He walked Star Standard out of his stall onto the horse van, and headed for New York for one more shot at the Lukas cavalry.
b. The last time we looked, the New York Rangers were parading the Stanley Cup all over Manhattan, letting assorted and perhaps even sordid strangers drink from its sacred rim.
c. More than 50,000 prisoners were marched, trucked or carted away to dozens of locations in Germany.

In the data set, only 13.16% of the FIGURES in utterances containing manner verbs are human. This distribution is not at all typical for the general usage of the CMC. Table 5-8
compares the overall distribution of different figure types in the CMC with figure types occurring with manner verbs.

<table>
<thead>
<tr>
<th>FIGURE TYPES IN CMC</th>
<th>INANIMATE</th>
<th>HUMAN</th>
<th>ANIMATE</th>
<th>BODY PART</th>
<th>NATURAL FORCES 10</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>MANNER VERBS</td>
<td>26 (68.5%)</td>
<td>5 (13.1%)</td>
<td>5 (13.1%)</td>
<td>2 (5.3%)</td>
<td></td>
<td>38 (100%)</td>
</tr>
<tr>
<td>ALL VERB TYPES</td>
<td>488 (50.9%)</td>
<td>385 (40.2%)</td>
<td>41 (4.3%)</td>
<td>32 (3.3%)</td>
<td>12 (1.3%)</td>
<td>958 (100%)</td>
</tr>
</tbody>
</table>

Table 5-8: Figure types with manner verbs and across all verb types

Table 5-8 shows that verbs predicing the manner of motion have a special status within the CMC: These verbs are used with human figures significantly less frequently than is generally the case. This finding once more supports the fact that the verbs are non-causative and that the construction has to add the semantic element of cause. The causal force needs to be stronger when manipulating human beings than when manipulating inanimates. Humans are conscious beings and generally counteract manipulative forces. It is therefore to be expected that descriptions of events that involve the manipulative moving around of human beings include verbs that lexicalize the causative force. Lexically expressed semantic components are more salient in the process of conceptualizing an event than are semantic elements that are merely evoked. The construction's ability to add semantic elements that are not lexically predicated is more an evocation of these semantics rather than equaling lexicalization. That this is the case can be seen in the numerous examples listed throughout this work in which the semantics

10 The category natural forces refers to such phenomena like wind, rain, clouds etc.
of the instantiating lexical elements override the semantics of the construction and thus motivate a different, i.e. non-translocational conceptualization of the described event.

Manner verbs have to be classified as expressing the means by which the causal force manipulates the FIGURE into motion. For intransitive uses this was already noted by Talmy (1985) and also Croft (1991). Goldberg (1997) extends this analysis to transitive uses in the CMC. The classification of manner verbs as expressing the means of motion places these verbs fairly high in the hierarchy of sense relations (cf. Goldberg 1997, and Chapter 4 in this work). This high position suggests that their occurrence in the CMC should still constitutes a fairly frequent and acceptable usage. This at the same time implies that they should still be able to pattern with prepositions that do not fully instantiate the construction. We can expect ambiguities since the verbs do not themselves fully instantiate the constructional semantics but the use should nevertheless be possible and interpretable as instances of translocational motion.

5.4.2 Verbs predicing MANNER and their use with low-ID prepositions

The objective of this section is to test the possible co-occurrence between verbs predicing MANNER and low-ID prepositions. In the data set of 958 CMCs, there is not a single occurrence of a manner verb with a low-ID preposition. Even though this is already striking evidence for a marginal status, it needs to be tested whether this non-occurrence actually means that it is not possible to combine more static prepositions with manner verbs without losing the dynamic character of the utterance.

Three verbs were chosen to test possible co-occurrence. The verbs were selected according to the following criteria: (i) verbs that are typically used intransitively, i.e.
walk; (ii) verbs that are also amenable to a causative, transitive environment, i.e. parade, (iii) verbs that are typically used with human FIGURES, i.e. march. The following sentences in (5-50) show two examples for the verb walk.

(5-50) a. \textquoteleft He used to dress in a tuxedo and walk his Doberman into Beverly Hills at night.\textquoteright

b. Producer Michael Deakins was walking his dog, Bonzo, in the snow.

(5-50b) clearly expresses non-translocational motion in which Deakins is walking his dog around in the snow rather than walking it into the snow. The same interpretation would go for (5-50a) when exchanging the preposition into with the more static in as illustrated in (5-51). The directional reading that he enters Beverly Hill with his dog necessarily turns into a non-directional interpretation.

(5-51) \textquoteleft He used to dress in a tuxedo and walk his Doberman in Beverly Hills at night.

(5-51) was included in the survey and received almost unanimous results. The two paraphrases given were: (i) He walks his Doberman into Beverly Hills, (ii) He walks his Doberman within Beverly Hills. Thirty-six speakers stated that they can only get the reading illustrated in (ii). Only four speakers claimed that both readings are possible, but for them the non-translocational interpretation is also primary. This result clearly shows that the CMC plays no role in the interpretation of the sentence.

The use of parade in the CMC with more static prepositions yields similar effects. Some dynamic corpus examples are shown in (5-52).

\footnote{The original corpus example contained the preposition through. It was changed in order to be able to illustrate the use with low-ID prepositions.}
(5-52) a. Jeff Gwatida, group personnel and training manager of car distribution firm Zimoco, said the company had dismissed Rob Rowley, a workshop reception manager, after a disciplinary hearing confirmed black worker's charges that he had paraded two hairy paws into the facility and asked the workers to compare their hands to them.
b. They occasionally paraded their captive onto the prison roof.

The changed examples in (5-53) once more show the non-dynamic character of the PP when patterning with a manner verb in utterances structurally resembling the CMC.

(5-53) a. Jeff Gwatida, group personnel and training manager of car distribution firm Zimoco, said the company had dismissed Rob Rowley, a workshop reception manager, after a disciplinary hearing confirmed black worker's charges that he had paraded two hairy paws in the facility and asked the workers to compare their hands to them.
b. They occasionally paraded their captive on the prison roof.

The construction does not seem able to coerce the prepositional phrase into a dynamic reading even though the GROUND is easily conceivable as the endpoint of the described motion event. Before discussing the phenomenon, one more example is looked at. In (5-54) the use of the verb *march* is illustrated within the CMC.

(5-54) After the success of "The Myth Man," Sasha suffers a paralyzing case of creative block. To cure it, he *marches* his platoon straight *into* the Amazon jungle, hoping that there they can learn to plumb the deepest wellsprings of drama, a blessed state where art and life are indistinguishable.

In (5-55) the same sentence is shown in its altered form with a low-ID preposition and without the adverb *straight* which clearly biases the interpretation towards a dynamic reading. It was further necessary to leave out the clause with the deictic *there*. Changing it into *here* would enhance a non-translocational interpretation whereas leaving it would
again bias the reader towards a directional reading. It is interesting to note the influence of these contextual clues, however, in order to test the interplay between verbs and prepositions within the CMC, it is necessary to keep the context as neutral as possible.

(5-55) "After the success of "The Myth Man," Sasha suffers a paralyzing case of creative block. To cure it, he marches his platoon in the Amazon jungle.

Again, the same effect is reached. A manner of motion verb with a low-ID preposition within the CMC does not bring about a dynamic PP interpretation. For all the tested sentences, the speakers got a non-translocational interpretation.

One reason for the construction's inability to coerce the PP into a dynamic reading when the verb is MANNER-predicating has already been stated earlier. The verbs lack the element CAUSE and only gain the causative interpretation through the constructional import. According to Hypothesis 1, the construction's strength for coercion is thus already reduced. A further reason why these verbs seem to be specifically resistant against the co-occurrence with low-ID prepositions in dynamic contexts is their low degree of PATH salience. The verbs we looked at are fairly neutral with respect to PATH. They can take any kind of prepositional phrase or they can be used without a PATH complement altogether. Table 5-9 illustrates the general distribution of prepositional phrases complementing the three verbs.
<table>
<thead>
<tr>
<th>Verbs</th>
<th>SOURCE</th>
<th>TRAJECTORY</th>
<th>GOAL</th>
<th>OTHERS</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>march</td>
<td>8.0% (20)</td>
<td>40.8% (64)</td>
<td>43.2% (108)</td>
<td>0% (0)</td>
<td>100% (250)</td>
</tr>
<tr>
<td>parade</td>
<td>0.6% (1)</td>
<td>86.1% (130)</td>
<td>11.3% (17)</td>
<td>2% (3)</td>
<td>100% (151)</td>
</tr>
<tr>
<td>walk</td>
<td>19.6% (49)</td>
<td>38.8% (97)</td>
<td>39.6% (99)</td>
<td>2% (5)</td>
<td>100% (250)</td>
</tr>
</tbody>
</table>

Table 5-9: Distribution of PPs for march, parade and walk

Table 5-9 illustrates that *march* and *walk* occur more or less equally frequently with trajectory and goal PPs, whereas *parade* clearly has a tendency to pattern with trajectory-PPs. Apparently these different windowing preferences do not influence the possible co-occurrence with low-ID prepositions in dynamic contexts. This is a notable difference from the other verbs we have looked at in the preceding sections of this chapter and requires an explanation.

Two factors are important for the non-occurrence of manner verbs with low-ID prepositions. The first factor is the comitative character that verbs of manner obtain when used in the CMC. The second and related factor is once more the nature of the type of GROUNDS occurring with these verbs. These two factors are now explained in turn.

We saw that MANNER verbs are highly intransitive. Generally, they lexicalize the way in which a FIGURE moves. This does not change even in the CMC only that there are basically two moving FIGURES. That is, unlike other verbs that are used in the CMC, manner verbs not only describe the way in which the AGENT manipulates the FIGURE, but at the same time they describe the way in which the AGENT itself moves. The AGENT necessarily needs to accompany the FIGURE throughout the entire motion event. Since

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12 The category 'others' refers to complex path descriptions that involve more than one preposition.
13 The number equals the total number of occurrences of the verb parade combining with prepositional phrases in utterances describing scenes of concrete, spatial motion in the NAN.
manner verbs do not lexicalize causation the only way to perceive of them as describing a causative event is through accompaniment. In that way the relation between the AGENT and the FIGURE is kept active throughout the described event which allows the AGENT to maintain control over the FIGURE. Note that the only possible way of interpreting the sentences in (5-49) through (5-55) is that the AGENT moves along with the FIGURE up to the end of the predicated PATH. The requirement that the causal force needs to determine the PATH implies that there be either direct physical contact between AGENT and FIGURE or at least a relationship of direct though not necessarily physical control. A violation of these basic semantics of the CMC leads to highly questionable utterances as in (5-56).

(5-56) "??The hunter walked the dachshund deep into the fox den.

It is not possible for a human to walk into a fox den which means that the hunter would not maintain control over the dog throughout its passage into the den. In order to express this relation of non-physical causation an analytic causative construction like *The hunter made the dachshund walk deep into the fox den* is necessary.\(^{14}\)

We will now turn to the comitative aspect manner verbs add to the CMC. This comitative interpretation has repercussions on the types of GROUNDS typically used in these utterances. Since human AGENTS need to accompany the FIGURE, the predicated GROUNDS typically refer to large spaces. Human AGENTS are the prototypical case for the CMC. In fact, in 380 randomly chosen examples, the AGENT is human in 353 or 92.89% of the utterances. This high number of human AGENTS once more underlines the

\(^{14}\) For a comparison between the Caused-Motion Construction and analytic causatives see Stefanowitsch 2001, Chapter 8.
semantics of direct and controlled causation that are part of the semantics of the construction.\textsuperscript{15} However, it is not generally the case that the AGENT moves along with the FIGURE. Instead, the AGENT either manipulates the FIGURE in a way that it moves on its own as in (5-57a) or in a way that it is controlled through direct bodily contact with the AGENT but contact that does not require the movement of the entire body as in (5-57b).

(5-57)\hspace{1em}a. \hspace{0.5em}Ishihara called the top construction bureaucrat into his office.
   \hspace{1em}b. \hspace{0.5em}Tom Miller tosses a sheaf of promotional brochures onto the floor of his silver-gray minivan.

These differences between the general usage of the CMC and the way in which manner verbs function within the CMC has repercussions on the PATH interpretation. Since the construction is already adding the semantic element CAUSE when a manner predicking verbs is used, additional coercion of a non-dynamic prepositional phrase would require supplementary contextual clues. These contextual clues are easily given through the nature of the GROUND. A sentence like (5-58) is easily interpretable since it is fairly obvious that the person is not sitting within the bag stuffing other bags.

(5-58) ‘I had stuffed great quantities of smooshed plastic shopping bags inside one such bag on a pantry cupboard shelf.'\textsuperscript{16}

However, the necessary comitative character brought about through manner verbs precludes this kind of contextual clue the GROUND can usually offer. Wherever the

\hspace{1em}_________________________
\textsuperscript{15} That this aspect is even more important when the verb lexicalizes MANNER and not CAUSE is illustrated by the fact that the AGENT is human in 100\% of the utterances with manner verbs in the data set.
\textsuperscript{16} The example is a slightly altered corpus example. The original corpus sentence is the following: My wife not so secretly disposed of great quantities of smooshed plastic shopping bags I’d stuffed inside one such bag on a pantry cupboard shelf.
FIGURE is moving, the AGENT is moving too. This required interpretation naturally limits the possible GROUND types and furthermore makes it highly likely that the event is perceived as occurring within the predicated GROUND.

5.6 Summary of results and some notes on coercion

Coercion has been discussed by Talmy (1977) under the label of accommodation. Croft (1991) as well as Goldberg (1995) use the term coercion. They all refer to the phenomenon of lexical items being pressed, or coerced, into an interpretation different from their conventional use. Goldberg argues, that it is through the semantic import of the construction that this different interpretation comes about. She lists two requirements for coercion to work: (i) “coercion is only possible when a construction requires a particular interpretation that is not independently coded by particular lexical items” (1995:159); (ii) “there needs to be a relationship between the inherent meaning of the lexical items and the coerced interpretation” (ibid). Croft expresses a very similar idea when he notes that in the process of coercion

the conceptualization of the denotation of a lexical item will be imposed by its grammatical context (...). That is, coercion represents the contribution by the grammatical constructions to the semantics (conceptualization) of the lexical item as found in that construction (1991:108).

Whereas I do not want to question the existence and power of coercion, I would like to formulate some further restraints which have so far been neglected.

Goldberg introduces coercion in order to account for the possibility of using static PPs within the CMC even though one of the defining properties of the CMC is a
directional PP. If a static prepositional phrase is used in the CMC the construction is seen to coerce the PP into a directional reading as in (5-59), (Goldberg 1995:158):

(5-59) 'Fred stuffed the papers in the envelope.

In (5-59) the locative in is understood as the endpoint of the motion of the figure (the papers). This endpoint focus is seen as the necessary relation between the lexical meaning of the preposition and the semantics of the construction. It has been shown, however, that it is generally not enough if only the prepositional phrase and the construction have this necessary relation. For coercion to work, the ideal situation is when the verb also shares this relation. That is, the verb also needs to semantically profile the endpoint. Coercion is thus much more restricted than has generally been assumed. At least with respect to prepositions it is necessary to reformulate Goldberg's and Croft's definitions. Goldberg and Croft both attribute the possible reinterpretation of lexical elements within specific constructions to the construction alone. I have shown, however, that the construction is generally not able to bring about a reinterpretation of non-dynamic prepositional phrases.

The fact that the verb has to profile the endpoint in order for static prepositions to be interpretable as expressing the goal in a translocational motion event raises the question if we need the notion of coercion at all. So far it seems that it is not the construction that induces the dynamic interpretation, but the verb. Before making any more general claims about the status of coercion in constructions it is necessary to look at the behavior of low-ID prepositions in the Intransitive-Motion Construction. We will thus return to this question in Section 7.3.1 of Chapter 7.
The most important findings of this chapter are the following: First, it has been shown that the CMC is limited in its ability to supply semantic elements not already lexicalized in the instantiating lexical items. The inclusion of a low-ID preposition has been used as a testing device for the construction’s ability to coerce lexical elements into the required dynamic caused-motion interpretation. It turned out that the lack of an additional semantic element as for example MOTION in the case of verbs like shoo, release, or squeeze, or CAUSE in the case of verbs like march, walk or parade generally results in a non-directional interpretation. Only when additional contextual clues are given, is it possible to maintain a clear translational interpretation.

The second important finding is that the semantics of the verbs influence a construction’s ability to coerce non-dynamic PPs into a directional interpretation even if the verb is lexicalizing both MOTION and CAUSE. It has been shown that in the corpus examples it is only verbs that semantically profile the goal that are used with low-ID prepositions. Verbs that are either neutral with respect to PATH or that profile different PATH segments only occur with high-ID prepositions. It was further shown that utterances containing these verbs and more static prepositions are preferably interpreted as expressing non-translocational motion. This result confirms the third hypothesis formulated in Chapter 4. It was noted that the recoverability of PATH determines the selectional freedom between verbs and prepositions. The point made in Section 5.1.1 is that the co-occurrence of a highly source-profiling verb with a non-dynamic preposition profiling the endpoint results in an asymmetry that renders the utterance unacceptable. Since there is no lexical element that could possibly link the two profiled opposing ends of PATH, the utterance is necessarily interpreted as non-directional. The conceptual gap
between the semantics of the verb and the semantics of the preposition is too great to be overcome by constructional import alone.
6 THE CAUSED-POSITION CONSTRUCTION

In the last chapter, we saw the importance of the verb's inherent endpoint profiling in order for coercion of a non-dynamic PP into a dynamic PP to be possible within the CMC. The use of more static prepositions is generally motivated by the fact that they allow the speaker to place special emphasis on the final configuration of FIGURE and GROUND. Through the use of more static prepositions together with a motion verb, the salience of the PATH is decreased. Instead, it is the state after the moving entity has come to rest that is most salient in the conceptualization of the utterance.

In this chapter, we will look at a class of verbs that almost exclusively patterns with more static prepositions thus specifically highlighting the endpoint of PATH. I will label this verb class verbs of putting and positioning (PaP-verbs). It includes, for example, sit, place, lay, hang, position, and stand. The interesting aspect of these verbs for our investigation is that even though they lexicalize both MOTION and CAUSE, and even though they are used in utterances that are syntactically as well as semantically very close to the CMC, we have to question whether these are actually instances of the CMC. The problem is that it is in the majority of the cases unacceptable to use directional PPs. This class of verbs thus poses a challenge to the current definition of the Caused-Motion Construction, since one of the defining characteristics, namely the necessary inclusion of a directional prepositional phrase, is violated.

In the following, the problem will first be introduced in more detail in Section 6.1. Section 6.2 is an account of the semantics of the specific verbs. Following this, the different goal-expressing prepositions are investigated in 6.3. It is necessary to take a closer look at the different prepositions since there seem to be differences with respect to
frequency of occurrence and degrees of acceptability among them. In 6.4, the interplay of trajectory-expressing prepositions like across and along with PaP-verbs is analyzed. The interesting finding is that these prepositions are overwhelmingly interpreted non-dynamically when occurring with PaP-verbs in question. That is, even though the verb predicates actual motion through space, the prepositional phrase necessarily receives a subjective motion interpretation. In Section 6.5, the necessity to recognize an additional construction, the Caused-Position Construction (CPC), is stated. This construction is related to the CMC. It is similar with respect to its syntax and its semantics of caused-motion. Yet, it differs with respect to the PATH specification. Instead of a directional PATH specification for the oblique, the CPC includes a non-dynamic GOAL POINT specification. Throughout the chapter the argument is mainly based on frequency data obtained from the corpus search. In order to strengthen the argument for the special status of PaP-verbs within the CMC, acceptability judgment data from a survey that included 50 native speakers of English are introduced in Section 6.6.

6.1 Verbs of putting and positioning

In the my data base, the verbs belonging to the class of PaP-verbs that occur in CMC type utterances are deploy, deposit, fit, lay, place, plant, position, post, put, set, set up (compare Appendix A). In the corpus, these verbs very rarely co-occur with dynamic PPs. Additionally, there is a subclass of PaP-verbs with focus on the final configuration that behaves similarly. This group includes the verbs attach, bundle, clot, drape, fold, heap, lodge, pack, pile, stack, stash, stick, and tuck. However, not all the verbs of this subclass yield unacceptable utterances when used with directional prepositional phrases.
There is one further subclass, namely that of PaP-verbs in a specified manner. This verb class includes, for example, *poke*, *pour*, and *stuff*. These verbs are not subject to the same restrictions. In the corpus, we find that even though these verbs inherently profile the endpoint they, nevertheless, pattern with high-ID prepositions. Clearly, there are semantic factors influencing the possible prepositional choices. We will come back to these specificities in Section 6.2 when looking at the semantics of the verbs.

The fact that some verbs of motion are restricted in that they exclusively take more static prepositional complements has been noted by various scholars. Quirk et al. (1985) note in their *Comprehensive Grammar of English* that the preposition *onto* is restricted in that way without going into any detail about possible motivating factors. The example they offer is shown in (6-1) (1985:675).

(6-1)  
  a.  *The mother sat the baby on the chair.*  
  b. *The mother sat the baby onto the chair.*

Levin in her classification of English verbs into different classes observes that what she classifies as ‘put verbs’, namely *arrange, immerse, install, lodge, mount, place, position, put, set, situate, sling, stash*, and *stow* and her class of ‘verbs of putting in a spatial configuration’, namely *dangle, hang, lay, lean, perch, rest, sit, stand*, and *suspend* cannot occur with either source or goal phrases (1993:112ff).

It is intuitively more straightforward why these verbs cannot be used with source phrases. Considering that they all predicate where the figure is going, i.e. they clearly display a goal-oriented profiling, this profiling preference might inhibit the use of a source complement. To be more precise, source phrases are excluded because the verbs
lexicalize the positioning of the moved object. This positioning is done with respect to the goal, that is, the verbs profile the final configuration of FIGURE and GROUND after the moved object has come to rest. The object in the prepositional complement representing the GROUND, therefore, always expresses the endpoint of the motion, which automatically excludes all source phrases. It needs to be added, however, that the medial portion of the PATH, i.e. the trajectory, is also excluded from the verbs profile. That is, prepositions expressing like towards, via, through, past are also excluded form usage with PaP-verbs when they are used dynamically. It is, however, not immediately apparent why goal phrases themselves should also be excluded. Goal phrases profile a dynamic reaching of an endpoint. What seems to be at issue is that the dynamicity lexicalized in prepositions like into, onto, and towards is what motivates the unacceptability. This claim is what will be investigated in this chapter.

Smith in his account of German two-way prepositions, i.e. prepositions that take both the dative and the accusative case, introduces the notion that difference in profiling can distinguish PaP-verbs using some English examples. He notes that

a verb like place, however, does not profile the entire path inherent in the verb’s meaning, but only a subpart of the path which lies within the locative configuration specified by the preposition: i.e., such a verb restricts its profile to the endpoint of an implicit path which is a part of the verb’s base (1995:301f).

Smith rightly observes that PaP-verbs are restricted with respect to the profile they impose on the PATH expressed in the prepositional complement phrase. This restriction is not found, for example, with a verb like run which, like the majority of manner-of-motion verbs, shows a clear tendency to take goal-expressing complements
(Stefanowitsch and Rohde 1999) but is nevertheless open to all different PATH windows. Run can pattern with practically all prepositions expressing spatial relations; PaP-verbs, in contrast, only collocate with prepositions that allow the profiling of the resting state at the end of a PATH.

Langacker (1991b) discusses specific temporal and adjectival uses of verbs that lead to a restriction in profile. Following Langacker, Smith (1995) names the class of verbs that can only pattern with more static prepositions ‘restricted profile verbs’. This label nicely captures the fact that the semantics of the verbs occasion this limited choice of possible prepositional complements. The following examples (6-2) through (6-4) from my data set illustrate the restricted use of some of the verbs in question.

(6-2) a. ‘A yellow rose wrapped in cellophane was laid in her grave.
   b. ‘A yellow rose wrapped in cellophane was laid inside her grave.
   c. ‘??A yellow rose wrapped in cellophane was laid into her grave.
   d. A yellow rose wrapped in cellophane was laid across her waist.

(6-3) a. ‘The only thing to do was balance on the windowsill, draw up the ladder and place it in the room.
   b. The only thing to do was balance on the windowsill, draw up the ladder and place it inside the room.
   c. ‘??The only thing to do was balance on the windowsill, draw up the ladder and place it into the room.

(6-4) a. So far, they have not placed this mass inside patients, choosing instead to keep it in a sterile container and run patients’ blood through the device like a dialysis machine.
   b. ‘So far, they have not placed this mass in patients, choosing instead to keep it in a sterile container and run patients’ blood through the device like a dialysis machine.
   c. ‘??So far, they have not placed this mass into patients, choosing instead to keep it in a sterile container and run patients’ blood through the device like a dialysis machine.
In the above examples, the restricted profile of the verbs *lay* and *place* is illustrated. Neither verb can be used with dynamic prepositions. That is, prepositions displaying a high ID seem to be excluded from collocating with PaP-verbs. Prepositions with a high ID naturally highlight the element of PATH as defined in Chapter 1 in a motion event construction. In a sentence like for example (6-4c), the preposition's dynamic character makes the conceptualizer focus on the dynamic moving of the mass (FIGURE) from the outside of the patient (GROUND) to his inside. Instead of profiling only the final configuration of FIGURE and GROUND, the PATH leading up to that position is also profiled. This, however, contradicts the internal PATH-profiling of the verb *place* and thus renders the utterance unacceptable. The general unacceptability of high-ID prepositions with PaP-verbs is illustrated one more time in (6-5) and in (6-6) also for the verb *hang*.

(6-5)  
   a. **Place** lamb chops on carrots and leeks and pour sauce over.
   b. "??**Place** lamb chops onto carrots and leeks and pour sauce over.

(6-6)  
   a. "In L.A., from what I understand, all you have to do is *hang* a bag of laundry on your porch in the morning, and by afternoon, you’ll have drive-by fashions," he said.
   b. "*In L.A., from what I understand, all you have to do is hang a bag of laundry onto your porch in the morning, and by afternoon, you’ll have drive-by fashions," he said.

In the examples (6-2) to (6-6), we can see that *in, inside* and *on* are all perfectly all right in these utterances. As shown in Chapter 3, these are low-ID prepositions. *In* is ranked at position 15 (out of 19) on the ID scale, *inside* on position 18 and *on* even at rank 19, whereas *into* is at position 3 and *onto* occupies place 2. The ID thus helps us determine if a preposition is likely to be used with these verbs or not. High-ID prepositions seem to
be excluded on the grounds of their dynamicity and path-salience. Of specific interest for our investigation is the fact that it is apparently unacceptable to use PaP-verbs with dynamic prepositions even though the verbs lexicalize caused motion and the utterances appear to be instances of the CMC. As will be shown further below, this apparent unacceptability correlates with virtual non-occurrence of this pattern in the corpus.

Fully instantiated constructions are the prototypical case (Goldberg 1997). A dynamic PP constitutes part of the constructional template. Less dynamic prepositions can still be used since the construction has the ability to coerce more static prepositions into a dynamic reading (Goldberg 1995). Following Goldberg, we would thus expect the construction to also coerce the more static prepositions in the above examples into a dynamic reading. However, it is exactly the added dynamicity that makes the examples questionable. We therefore have to conclude that the more static prepositions do not undergo coercion when patterning with PaP-verbs. In spite of the constructional frame, the verbs seem to block a dynamic PATH conceptualization. This is even more surprising considering Goldberg's claim that "the relationship between the meaning of the locative term and the directional interpretation it receives is one of endpoint focus" (1995:159). More static prepositions are thus only coerced into a directional interpretation when the preposition expresses the endpoint of the PATH. This is definitely the case with inside, in and on in the examples (6-2) through (6-6). Notwithstanding the fact that all factors for possible coercion are given, it does not occur with PaP-verbs. Instead, it is solely the endpoint that the preposition profiles when patterning with this verb type without evoking a dynamic PATH.
The possibility of profiling the endpoint of a PATH without at the same time evoking the entire PATH is of theoretical importance. It was claimed before that the expression of an endpoint increases the overall PATH salience in motion event constructions (compare Section 3.2.3 and 3.3.1). This is why coercion works in the first place. The fact that a specific group of verbs impedes the default conceptualization of a dynamic PATH in the case of endpoint predication strongly suggests the necessity of a separate treatment. In Section 6.5 I will therefore propose to recognize the CPC as a construction that is separate from, though related to the CMC.

There is one further complicating factor that has to be addressed before trying to account for the restriction on dynamic PPs with PaP-verbs. *Onto* does not seem to be as restricted as *into*. In the following examples the directional *onto* and the more static *on* seem to be interchangeable with only slight changes in the semantics of the utterance.

(6-7)  a. At one point, a little girl in neon pink shorts and a T-shirt was allowed to descend from the stands and **place** three red carnations **on** the casket, an act that made many weep and then join in thunderous applause.

   b. *At one point, a little girl in neon pink shorts and a T-shirt was allowed to descend from the stands and place three red carnations onto the casket, an act that made many weep and then join in thunderous applause.*

(6-8)  a. *A yellow rose wrapped in cellophane was laid on her coffin.*

   b. *A yellow rose wrapped in cellophane was laid onto her coffin.*

Three questions follow from the data we have looked at: (i) why can prepositions that express a goal specification and at the same time evoke a dynamic PATH generally not be used in the CMC with PaP-verbs; (ii) why is it that *into* is even more restricted than *onto*;
(iii) what are the implications with respect to the status of these utterances as actual instances of the CMC? We will now seek to answer each question in turn.

6.2 The semantics of verbs of positioning

In this section the semantics of the different types of PaP-verbs are analyzed in more detail. Two questions will guide the discussion: (i) why do PaP-verbs do generally not take dynamic PPs; (ii) what are the differences between the different verbs pertaining to the category? To answer these questions, we will look at the different subcategories in sequence. First, the more general PaP-verbs are discussed with a special emphasis on the verb place (Section 6.2.1). In Section 6.2.2, the verb put as a special case within the category is looked at. Then we will examine manner expressing PaP-verbs (6.2.3), followed by PaP-verbs with a focus on the final configuration (6.2.4).

6.2.1 The semantics of plain verbs of putting and positioning

In the classification of verbs occurring in my data selection, the class of PaP-verbs includes the following verbs: deploy, deposit, fit, lay, place, plant, position, post, put, set, set up. In the following the restricted profile of the verbs, i.e. their emphasized endpoint salience will be illustrated.

The semantic domains most characteristically involved in PaP-verbs are the following: (i) MOTION, (ii) CAUSE, (iii) PATH. The following paraphrase serves to schematically specify their semantic content: ‘causing to move an entity to a specific location’. All verbs of the class are transitive, causative verbs that express directed
motion of an entity. The agent thereby functions as the source of motion (compare Section 7.5.1 of the following chapter) and the profiled ground serves as the endpoint.

To illustrate the special semantics of PaP-verbs, we will look at the verb place, as one representative of the category, in a little more detail. The verb suggests the existence of a preordained location for the entity that is being positioned. That is, unlike the verb put, which is more general and more frequently used with high-ID prepositions (compare Section 6.2.2 below), the verb place implies that the positioned entity belongs and fits into the particular location that is profiled by the preposition. Place and put, though semantically very similar, are not always interchangeable. Since place is so particular about the endpoint specification and the notion of a specific, intended position, a lot of uses of put exclude the possible usage of place. This is illustrated in (6-9)

(6-9)  

a. ‘I would feel comfortable with my family on USAir. If I thought that USAir were unsafe, I would put the entire fleet on the ground.’

b. ‘I would feel comfortable with my family on USAir. If I thought that USAir were unsafe, I would place the entire fleet on the ground.’

The ground is not the intended position for airplanes. We expect them to be airborne since this corresponds to their functional use. The usage of place is thus not appropriate in (6-9b) since the semantic aspect of an intended, preordained place is lacking.

Further evidence for the strict endpoint profiling of the verb comes from the fact that place collocates with low-ID prepositions even when used metaphorically. Generally, in metaphorical usage, motion verbs take a dynamic prepositional phrase. We enter into an agreement, run into trouble, fall into a coma, and are put into a predicament. The verb place, however, maintains a static endpoint configuration even
when the semantic domain is no longer spatial. Consider the examples in (6-10).

(6-10) a. Others say that the restrictions that have been placed on foreign visitors make them all but ineffectual as observers.
    b. This required presidents to get timely congressional approval whenever they placed U.S. troops at risk.
    c. At Russian Beach, the men in the artillery bunker said they were placing their faith in the patroness of Cuban seafarers, the Virgin of Reglar.
    d. The migration crisis has placed Castro and Clinton in paradoxical positions.

Note that in the above examples the use of the respective corresponding high-ID preposition, i.e. onto, into or to, would yield unacceptable utterances. The verb place thus maintains its strict endpoint profiling even in metaphorical usage.

The strict endpoint profiling of the verb place is further illustrated in Table 6-1. The table lists the PPs co-occurring with the verb place in 250 occurrence of concrete spatial motion and in 250 metaphorical uses.

<table>
<thead>
<tr>
<th>PP TYPES</th>
<th>CONCRETE SPATIAL SCENES</th>
<th>METAPHORICAL USES</th>
</tr>
</thead>
<tbody>
<tr>
<td>NON-DYNAMIC</td>
<td>91.2% (228)</td>
<td>96.4% (241)</td>
</tr>
<tr>
<td>SUBJECTIVE MOTION</td>
<td>6.0% (15)</td>
<td></td>
</tr>
<tr>
<td>DYNAMIC</td>
<td>2.8% (7)</td>
<td>3.6% (9)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>100% (250)</td>
<td>100% (250)</td>
</tr>
</tbody>
</table>

Table 6-1: Types of PPs patterning with place in spatial and metaphorical uses

The count illustrates a very clear preference for non-dynamic PP complements in both spatial scenes and metaphorical usage. The non-dynamic uses include the following prepositions in spatial scenes: in (107), on (74), at (14), inside (6), near (5), over (5), between (3), against (2), among (2), behind (2), beneath (2), outside (2), under (2), within (2), around (1). Trajectory prepositions (place: around (9), through (2) along (2), around (1), throughout (1)) in combination with PaP-verbs are interpreted as referring to subjective motion rather than actual motion through space (see Section 6.4). Finally, the
dynamic uses in this sample of 250 utterances only include two different prepositions. One is the preposition to (2). Both times in the phrase place a pistol to the head. The other preposition is into which occurs 5 times.

A simple explanation of the phenomenon that PaP-verbs are almost exclusively used with low-ID prepositions would be that since PATH is already expressed in the verb, it is only normal that the prepositional phrase does not additionally express PATH. Instead, it serves exclusively to specify the final configuration of FIGURE and GROUND. The claim that PATH cannot be expressed redundantly is reminiscent of Fillmore’s claim that each case relation can only be expressed once in a single clause unless linked by coordinative conjunction (Fillmore 1968a). It also fits Talmy’s classification of verbs into either PATH or MANNER-conflating types (Talmy 1985). MANNER verbs combine with satellites in order to express PATH, whereas PATH-conflating verbs encode their respective PATH window as a direct object without an interposing preposition.

There are, however, two problems with these simple explanation. First, PaP-verbs cannot take their profiled GROUND as a direct object. Talmy’s typological treatment of lexicalization patterns was mainly concerned with intransitive verbs and we can thus not directly compare the behavior of the verbs. Second, and regarding the explanation involving Fillmore’s observation, it has to be noted that there are other verbs that also include PATH but that nevertheless collocate with dynamic PPs. Considering example (6-11), it is therefore not possible to generalize this finding.

(6-11) Sultan Zalayev’s corpse, wrapped in a white cloth, was lowered into a grave without a coffin.
This class of verbs allows for and even prefers exactly that—the redundant expression of a dynamic PATH. Levin names this class “verbs of putting with a specified direction” (1993:114) and lists drop, hoist, lift, lower, and raise as members of the class. In my classification they are subsumed under the category ‘verbs of caused-motion along a specified path’. These verbs, even though they clearly express directionality themselves, additionally prefer dynamic prepositions. In my data sample, I have no occurrences of these verbs with more static prepositions and in the entire NAN, there is not one occurrence of lower combined with a low-ID preposition in the expression of concrete spatial motion. Table 6-2 illustrates the distribution of the prepositional phrases collocating with the verb in all occurrences of concrete spatial motion in the NAN.

<table>
<thead>
<tr>
<th>SOURCE</th>
<th>TRAJECTORY</th>
<th>GOAL</th>
<th>OTHERS</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>lower</td>
<td>12.1% (11)</td>
<td>0%</td>
<td>87.9% (80)</td>
<td>0% (0)</td>
</tr>
</tbody>
</table>

Table 6-2: Distribution of PPs for lower

When comparing PaP-verbs with verbs of caused-motion along a specified path, we note that the former profile the endpoint of a PATH, whereas the latter profile the trajectory towards a goal that needs to be specified through the prepositional phrase. What seems to be at issue is that verbs with clear semantic biases as to which segment of PATH they highlight prefer or even demand PPs that express the salient PATH segment. Or to express it negatively: They disallow or disfavor a specification of the non-salient PATH segments. PaP-verbs thus disallow directional PPs that highlight the dynamic reaching of an endpoint and mainly take more static prepositions which highlight the final resting state, whereas verbs of caused-motion along a specified path prefer PPs that highlight the
dynamic PATH taken towards the specified goal. In fact, the use of low-ID prepositions which do not profile a dynamic PATH is generally unacceptable with these verbs, see (6-12).

(6-12) *Sultan Zalayev's corpse, wrapped in a white cloth, was lowered in a grave without a coffin (on the directional reading).

What we can specify so far is that it is not the case as Levin (1993) claimed that PaP-verbs cannot be used with goal phrases but rather that they cannot be used with PPs that express dynamic directionality toward an endpoint. As illustrated in the examples (6-1) through (6-8) it is not the goal phrase itself that is problematic since all of these prepositions specify the goal. What is problematic is the expression of a dynamic reaching of the goal, that is the highlighting of a dynamic PATH.

6.2.2 The status of the verb put as a verb of putting and positioning

The verb put deserves extra attention since even though it is semantically a member of the class of PaP-verbs, it can nevertheless pattern more freely with dynamic goal-expressing prepositions. The following examples from my data set illustrate this.

(6-12) a. Opponents insist that by putting some 300,000 illegal immigrant children out of school and into the streets and by denying them health care, Proposition 187 would eventually increase costs to the state while failing to stem the flow of people who come here primarily to find work.

b. Friday he arrived at Bellevue accompanied by three attorneys, he was put into a wheelchair, and pushed into a guarded ward.

c. Schwenker, 21, told police she pulled the receipts from the cash register together, placed them in a sealed bag, and put it and a deposit slip into a paper Taco Bell bag.
(6-13) a. That plan envisioned putting two NATO battalions onto Bosnian soil within 14 days as the forerunner of 50,000 peacekeeping troops.

b. Kendall was fitted for Roush Racing's backup Mustang on Friday night and put it onto the track for the first time yesterday morning.

c. As chef and owner of Trumps he was fearless, putting caviar onto fried plantains and turning tostadas into dessert.

d. After fleeing the attack scene, Krueger's staff put the flags onto the car as a precaution since the U.S. is not regarded as part of the conflict.

The question is what distinguishes put from verbs like place, position, or sit. Semantically it is very similar in that its semantic content is also schematically paraphrasable with the characterization used before: 'causing to move an entity to a specific location'. Yet, an important difference is that put is much more general in its usage and also less specific with respect to the final positioning of the figure. This becomes obvious when contrasting put with other members of the verb class. It has already been shown that the verb place semantically specifies that the final location of the figure is some kind of preordained, rightful position where the moved object belongs. The verb position is similarly specific. It is a derived verb stemming from the noun position. Thus its origin is a static, timeless, thing-like specification of a location a specific entity occupies, i.e. in the original word no trace of path was present whatsoever. The derived verb expresses the process of coming to occupy this place, the focus, however, remains on the final configuration—a semantic trace inherited from the noun.

A further difference between put and other members of the class is that put cannot be used attributively. Compare (6-14) with (6-15).

(6-14) a. These white women are in much the same boat as comparably placed white men.
b. University astronomers based in Antarctica have used the South Pole Infrared Explorer telescope positioned to monitor Jupiter constantly during the impacts.

(6-15) a. 'These white women are in much the same boat as comparably put white men.

b. 'University astronomers based in Antarctica have used the South Pole Infrared Explorer telescope put to monitor Jupiter constantly during the impacts.

Unlike the other verbs of the class, put lacks a specification of the endpoint configuration. The verb itself does not already specify the FIGURE’s ultimate positioning with respect to the GROUND, a specification that is the chief semantic content of the verbs illustrated in (6-14). The lack of specificity with respect to the endpoint configuration is what motivates the possible use of put with dynamic goal PPs. The profiling of the endpoint is not as manifest as it is with other verbs of the class and this higher degree of schematicity brings about the possible profiling of a dynamic PATH.

Put, along with verbs such as take, come, make, do etc., is one of the most general and most frequent words of the English language both in adult speech (cf. Francis and Kučera 1982) and in child language (cf. Clark 1978). This very generality makes put a semantically extremely unspecified and schematic term. As Ruhl points out, "since common verbs (...) are highly general, they contribute only minimally to the meaning of larger expressions..." (1989:152). Goldberg points out that the fact that these "light verbs" as she calls them are

learned earliest and used more frequently is evidence that this small class of abstract meanings is cognitively privileged. These are the particular meanings directly associated with argument structure constructions (1995:41).
Two assertions in the above quotation from Goldberg are relevant for the present investigation. First, the statement about the semantic generality that is expressed through Goldberg's notion of "light verbs" and directly referred to in the quote from Ruhl. Second, the claim that "light verbs" are directly associated with argument structure constructions. We will now discuss each aspect in turn.

As illustrated above, the schematic character of the verb *put* renders the profiled positioning of the moved *figure* with respect to the *ground* far less specific than other verbs of the same category. In fact, the verb contains no information whatsoever about the actual positioning of the *figure*, a fact that underlines the stated semantic generality. A valid question is, therefore, whether *put* is actually a member of the same category as the other verbs that display such a strong endpoint profiling based on their configurational specification and thus almost exclusively pattern with low-ID prepositions. A corpus search reveals that the verb *put* also strongly prefers low-ID prepositional complements. Consider the results in Table 6-3 that illustrate the distribution of PPs with *put* in 250 randomly selected utterances describing concrete spatial motion.

<table>
<thead>
<tr>
<th></th>
<th>NON-DYNAMIC</th>
<th>DYNAMIC</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>put</td>
<td>83.6% (209)</td>
<td>16.4%   (41)</td>
<td>100% (250)</td>
</tr>
</tbody>
</table>

**Table 6-3:** *Types of PPs patterning with put in concrete spatial uses*

Apart from the fact that the semantics of the verbs are in principal similar, with the difference that *put* is much more schematic, the results in Table 6-3 also strongly suggest
that we should consider *put* a member of the same class as verbs like *place*, *position*, *sit*, *lay*, etc. No other verb class displays such a strong preference for non-dynamic PPs. As shown in Section 4.1.1 of the Chapter 4, CMCs are generally fully instantiated. The inclusion of a non-dynamic PP is clearly the exception.

The second relevant point in the above quote is Goldberg’s claim that the particular semantics of “light verbs” are directly associated with argument structure constructions. Goldberg supports this claim with evidence from language acquisition studies (in particular Clark 1978, Slobin 1985, Bowerman 1989). Her main point is to show that the events expressed through the different argument structure constructions are in some sense basic to human experience. There are, however, other implications in the argument that are worth considering, specifically since the verb she sees as being directly associated with the CMC is the verb *put*.

We have seen that the verb *put* displays a clear tendency to profile a static endpoint configuration rather than a dynamic reaching of this endpoint. However, this characteristic does not correspond to the general semantics of the CMC. If it is correct that the verb *put* is directly associated with the CMC then we need to account for the differences regarding the expression of PATH. I suggest the following possible explanation that reconciles Goldberg’s claim about the status of *put* with the general usage of the verb. According to the ‘verb island hypothesis’ as put forth by Tomasello (1987, 1992), children’s early constructions are lexically specific and are based on the respective structure of the verb (compare Section 1.1.2). That is, at first children are not able to see general organizational properties across verbs but they have to learn the argument structure for each verb individually. Only later, around age 3 they begin to be
able to recognize similarities across verbs by means of cognitive processes such as pattern recognition, categorization and schema formation (Tomasello 1992). Referring to the research of Braine and Brooks (1995) and Bates and MacWhinney (1989), Tomasello notes that their work would "add to this account some notion of entrenchment in which the more a particular word is used in a particular construction the more entrenched this usage becomes" (1989:440). With respect to the verb *put*, we would thus expect it to have a highly entrenched and central status within the CMC since, as pointed out before, it is a high-frequency work in children's speech. What I suggest, in accordance with Goldberg, is that the verb *put* forms the early basis of the CMC. Since it is so frequently used and since it is a very schematic verb, it will facilitate the cognitive processes described in the quote above. We have to consider, however, that the meaning of the verb *put* in child speech does not necessarily correspond directly to its usage in adult speech. Clark (1978) provides the following paraphrase of children's use of the verb *put*: 'cause to be or go in some place'. As yet, there seems to be no preference for either a more dynamic or a more endpoint salient, i.e. non-dynamic, profiling. The tendency to use the verb *put* in order to refer to a static endpoint configuration is thus probably a later development. This view opens up the possibility that the verb *put* in its early usage constitutes the basis for two different, but closely related constructions. It forms the basis of the CMC as well as of the CPC that is posited later in Section 6.5. Within the CMC, the dynamic character of PATH then gains the status of semantically defining part of the construction, whereas in the CPC it is a static endpoint configuration that turns out to be central for the constructional semantics. These semantic differences are further enhanced through the different verbs that also get associated with the respective constructions.
Considering the verb *put* in its early semantics as the basis for both constructions has several advantages. First of all, it reconciles Goldberg’s claim that *put* is the verb most closely associated with the CMC with the fact that this verb displays a strong preference for non-dynamic PPs. Second, it provides a natural explanation why the verb is still considered more acceptable with dynamic PPs than are other members of the verb class of PaP-verbs (compare Section 6.2.2). And third, it demonstrates the natural relatedness and semantic closeness of the two constructions and in this way explains a lot of the variation in judgments among different speakers with respect to the acceptability of dynamic versus non-dynamic prepositional complements (compare Section 6.6).

### 6.2.3 Verbs of putting and positioning in a specified manner

In my data set, manner-expressing PaP-verbs occur more frequently with more dynamic prepositions than with static ones. The verbs found in the selected data set are *poke, pour,* and *stuff.* These verbs also express the caused motion of an object to a specific location; however, they are much less endpoint salient than plain PaP-verbs. Instead, they highlight the MANNER of motion much more than any specific segment of the PATH. Nevertheless, PATH still is one of the lexicalized semantic component. It is not only that the verbs express a specific MANNER of action by the AGENT, but at the same time, they express the FIGURE’s relation to the GROUND which implies a PATH specification. The following examples illustrate the usage of these verbs.

(6-16) a. Baker said he poured 300 gallons of water on the burning vehicle, while other fire engines were arriving.

b. To test for setting, pour a small amount of the mixture onto a cold saucer or an ice try turned upside down.
(6-17)  a. Drawn by the television cameras, a tourist pokes his head inside the Oscar Room of the Hollywood Roosevelt Hotel.

b. "Drawn by the television cameras, a tourist pokes his head into the Oscar Room of the Hollywood Roosevelt Hotel.

(6-18)  a. By that time, authorities believed, Nicole already was dead, her nude body wrapped in the bedsheet on which she was attacked, and stuffed inside a soft-shell suitcase hidden in the bottom of Panah’s closet.

b. "By that time, authorities believed, Nicole already was dead, her nude body wrapped in the bedsheet on which she was attacked, and stuffed into a soft-shell suitcase hidden in the bottom of Panah’s closet.

The examples (6-16) to (6-18) show that the verbs can alternate between static and dynamic prepositions. The semantic difference between the a-examples and the b-examples is very subtle. In keeping with the analysis in Section 3.2.3, I claim that it is one of endpoint salience versus PATH salience, respectively. The fact that it is possible to profile either the endpoint of the PATH or the dynamic reaching of the endpoint comes about through the salient MANNER component lexicalized in the verb. Verbs expressing MANNER are generally PATH-neutral (but see Section 7.4 in the following chapter) and can thus pattern with any kind of preposition. Verbs lexicalizing PATH are more restricted with respect to which prepositions they can take as complements since, in general, the preposition has to profile the same PATH segment as the verb.

Though PaP-verbs in a specified MANNER are primarily MANNER-expressing verbs, they also evoke a PATH specification in that poking typically involves either pointed contact between FIGURE and GROUND in the final configuration (‘poking someone in the ribs’), or it involves some crossing of boundaries as in example (6-17) above. Pouring involves a PATH component through our general world knowledge that the free
fall of liquid substances necessarily involves a downward path towards the ground or into whatever receptacle is specified through the prepositional complement. Finally, stuffing also involves a PATH specification in that the existence of a container with limiting boundaries is a necessary prerequisite for the action of stuffing. Stuffing thus already implies the movement of a FIGURE from outside the boundaries into the confinement of a container. However, these PATH specifications are rather schematic. The presence of the explicit MANNER component in the verbs is not conducive to a more concrete specification of directionality. The verbs thus display a tendency to take more static prepositions and highlight the endpoint of the PATH which is already evoked through the semantics of the verb. Yet, since this endpoint specification is only rather schematic, it is nevertheless possible to additionally profile the dynamic reaching of this endpoint which is done when more dynamic prepositions like into and onto are chosen. Note, however, that none of these verbs can pattern with a preposition expressing the trajectory of the motion event. Prepositions like across, along, past, or through cannot be used dynamically with these verbs, which further indicates that the semantics of the verb require an endpoint specification.

6.2.4 Verbs of putting and positioning with focus on the final configuration

PaP-verbs with focus on the final configuration are similar to the verbs discussed in Section 6.2.1 in that they can generally also be used both with more static and more dynamic prepositions. The crucial difference is, though, that these verbs display a preference for more dynamic over more static prepositions. The following examples illustrate this for some of the verbs.
(6-19) a. Indeed, during one of the middle-of-the-night false alarms when it was believed troops were about to attack, Yeltsin's aides awoke him, dressed him in a bullet-proof vest and bundled him into a limousine, ready to head for the American refuge.

b. "Indeed, during one of the middle-of-the-night false alarms when it was believed troops were about to attack, Yeltsin's aides awoke him, dressed him in a bullet-proof vest and bundled him inside a limousine, ready to head for the American refuge.

(6-20) a. With a few expert flicks of the shovel, the square-shouldered 26-year-old piles more A-grade Bihar coal onto the flames, then clangs the door shut.

b. "With a few expert flicks of the shovel, the square-shouldered 26-year-old piles more A-grade Bihar coal on the flames, then clangs the door shut.

(6-21) a. However, collectors don't put them on envelopes with payments to the power company. They stick them inside clear envelopes, or in albums, and mark their vintage.

b. "However, collectors don't put them on envelopes with payments to the power company. They stick them into clear envelopes, or in albums, and mark their vintage.

The verbs pertaining to this class are grouped together because semantically they all express the final positioning and final configuration of the figure with respect to the ground. However, as illustrated by the marginal status of example (6-19b), the class is not homogeneous with respect to the syntactic patterning of the different verbs.

The preference for dynamic goal-expressing prepositions distinguishes this class from the plain PaP-verbs and with that excludes them from the set of verbs centrally linked to the CPC as introduced in Section 6.5 below. Even though at first glance the two verb classes might seem rather similar there is a semantic difference which brings about the contrast regarding the nature of the prepositional phrase complementing the verbs.
Focusing on the verb *pile* a difference in internal profiling can be noted. Plain PaP-verbs profile the configuration between FIGURE and GROUND, i.e. they express the way in which the FIGURE is situated with respect to the GROUND. The verb *pile*, on the other hand, expresses a change in the internal configuration of the FIGURE which typically is some entity consisting of multiple components like for example coals as in (6-20). That is, the verb does not highlight or only secondarily highlights the positioning of the FIGURE with respect to the GROUND, but rather with respect to itself. That the FIGURE typically undergoes some change of internal configuration can be seen when taking into account the other members of the verb class, namely *attach, bundle, clot, drape, fold, heap, lodge, pack, pile, stack, stash, stick, string, tuck*. Most of the verbs express either a change in the internal configuration of a single FIGURE object like *drape* and *fold*, or they express a specific internal arrangement of a multiple FIGURE object like *clot, heap, pack, pile, stack, stash, and string*. What is semantically most salient in the verbs is thus not the final location of the FIGURE as it was with plain PaP-verbs, i.e. they lack a PATH specification. Instead, the semantically most salient aspect is the changed configuration of the FIGURE. This implies that these verbs typically conflate two different events, on the one hand, they express a FIGURE’s change of location when used with a directional PP and, on the other hand, they express a change of state. I suggest that this double function that motivates the preference for dynamic PPs. The double function is further illustrated by the fact that the verbs are typically denominal and express the transformation into the configuration described by the noun. That is, *pile* means ‘to move something in a way as to produce a pile’. The same goes for verbs like *heap, stash, or pack*. These verbs can therefore be used with a phrase measuring the extent as in (6-22).
(6-22) She ran down to where villagers had piled rocks waist-high in a makeshift barricade meant to stop authorities from passing through on their way to rout peasants who had occupied a coffee plantation further up the road, demanding that the land be divided among them.

A further interesting aspect about (6-22) is the use of the PP in a makeshift barricade. This PP refers to the location where the piling takes place. This kind of interpretation of a PP is not at all possible with plain PaP-verbs. Note that (6-23) can not receive a non-dynamic interpretation. Not even with a lot of imaginative power is it possible to conceive of the utterance as referring to a sitting event taking place inside the pot.

(6-23) I sit the cauliflower in the middle of the pot. (Switchboard Corpus)

The fact that PaP-verbs with focus on the final configuration conflate more than one activity, i.e. MOTION with respect to an endpoint and the internal change of configuration of the FIGURE, PATH is preferably expressed lexically. The verb itself does not contain any PATH information. Even though in a sentence like (6-22), we know that the rocks end up in a pile, this is only information about the endstate, not the endpoint. There is thus no reference to a GROUND that serves as the location for the FIGURE object. A non-dynamic locative is thus easily interpreted as referring to the setting rather than an endpoint.

6.3 Differences between the various dynamic goal-encoding prepositions

In this section, the prepositions to, into, and onto are looked at in order to find motivating factors for the possible occurrence of onto with PaP-verbs. In the corpus this usage is fairly infrequent. However, as illustrated before, when exchanging the use of
non-dynamic on with dynamic onto, speakers generally agree on the acceptability of the resulting utterance. It is therefore necessary to compare onto with both to and into since the same exchanging of prepositions is generally not possible with these the latter two

As noted before in Section 6.2.1., the preposition to only profiles a point configuration as the final positioning between figure and ground. More than focusing on the final configuration, to expresses movement of a figure in the direction of an undetermined ground with subsequent goal achievement. This becomes very clear and is almost too obvious a fact to mention when considering that onto and into are both complex prepositions that consist of a part that expresses a relational endpoint configuration, i.e. on and in, respectively, and additionally the preposition to. That is, these prepositions lexically predicate the final relation between figure and ground as well as the dynamic reaching of that destination. To, on the other hand, only predicates the dynamic reaching of a destination and leaves the nature of the ground completely unspecified. Note that in the examples in (6-24) it is not possible to exchange the preposition to for either into or onto which are both too specific about the spatial relation between figure and ground.

(6-24) a. So Gregory sent a barrage of protest letters to the Flores family.
   b. And he sent Nan to the dictionary to look it up.

Even though to is generally seen to be a goal-encoding preposition (cf. e.g. Levin 1993) it is not at all endpoint-salient. Lakoff points this out when noting that “from allows both path and end-of-path schemas, but to allows only a path schema” (1987:441) (compare also Section 8.1.3 in Chapter 8 on the possible non-dynamic use of the preposition from).
We can thus observe that the preposition *to* gives no information on the final configuration of *figure* and *ground* other than spatial proximity (compare also 3.3.2.). All it expresses is that the *figure* moves towards and reaches a goal.

Comparing *to* to low-ID prepositions like *in*, *on*, or *inside*, which are preferred with PaP-verbs, we note that the latter place more emphasis on the endpoint. They exclusively profile the specific final configuration and with that 'de-emphasize' the dynamic *path* expressed in the verb that led up to the final destination. The fact that *to* does not at all specify the endpoint but instead highlights the dynamic *path*, entirely excludes *to* from being used with PaP-verbs which have a clear bias towards taking endpoint-salient prepositional complements.

The question that remains is why the preposition *onto* is more frequently found with PaP-verbs than *into*. The following examples illustrate the use of *onto* with these kind of verbs.

(6-25) a. An understanding crew turned the craft around and *deposited* her *onto* the plane that took her home to Sarasota, Fla., where she spent the week decompressing.
b. And the printers *lay* ink *onto* the paper in a speedier fashion, so the children aren’t asleep by the time their homework is finished printing out.
c. Seeking to demonstrate impact spatter, for instance, he *placed* several drops *onto* a piece of paper, then banged his hand into it, prompting several jurors to jump or flinch.
d. The victim landed on his feet, was resuscitated, *placed* back *onto* the stretcher and hauled upward with another Ranger beside him to steady the stretcher, the report said.

The use of *onto* with these verbs is not a very frequent occurrence and as illustrated in (6-5) and (6-6), it is not possible to use *onto* in all cases, but we, nevertheless, have to account for the data. There are two possible hypotheses why *onto* can be used in this
way. The first is that in analogy to prototypical instances of the CMC which require a directional PP, PaP-verbs used in a syntactic frame identical to the CMC also start taking a directional prepositional complement. This hypothesis would require looking into historical corpora whether we find PaP-verbs followed by onto already in the historically older language or if this is a recent development. Should it be a recent development with increasing frequency over time, then the language change hypothesis might indeed work out. There is, however, one problem with this hypothesis and that is again the question why it should only be onto and not also into, that patterns this way.

The second hypothesis again involves the specificities of the different goal-expressing prepositions. In a nutshell, the claim is that onto holds the necessary balance between the profiling of a dynamic PATH and the necessary endpoint salience in order to be able to pattern with PaP-verbs. In the following, this hypothesis will be explicated.

We said that to does not include a detailed description of the final configuration of figure and ground. However, into and onto both lexically predicate the final positioning and thus allow the speaker to focus on this semantically important aspect in utterances containing a verb of positioning. This difference accounts for the fact that onto is highly endpoint salient thus taking care of one side of the necessary equilibrium between endpoint salience and dynamicity. This difference between to and onto is illustrated in (6-26).

(6-26) a. At the gate, I stood in line, slid my things onto the moving belt, then set off the metal detector with my silver bracelet.
   b. "At the gate, I stood in line, slid my things to the moving belt, then set off the metal detector with my silver bracelet."
Whereas (6-26a) clearly specifies that the FIGURE (my things) is moved so that in the end it is making contact with the GROUND (the moving belt) and actually horizontally supported by it, (6-26b) contains no such details. (6-26b) merely states that the FIGURE was moved in the direction of the GROUND, but no information about a specific relational configuration is predicated.

The remaining question is what it is that distinguishes onto from into with respect to the profiling of a dynamic PATH. In Section 3.3.2, a hierarchy of landmark configurations with respect to dynamicity was established. It was shown that container-GROUNDS generally yield a more dynamic PATH than either surface or point configurations. Thus even though the endpoint of the MOTION is more salient through the more detailed specification of the final configuration, this very fact at the same time renders a more specific PATH. It was shown in Section 3.3.2. that this higher degree of PATH salience comes about through the specification of boundaries. Any directional motion with respect to a container necessarily involves the crossing of these boundaries. This is not true for surface configurations since the latter do not entail a three-dimensional GROUND. Two-dimensional GROUNDS can be accessed without having to cross boundaries. However, PATH salience is enhanced by the conceptualization of boundary crossing. The boundaries of the container are conceptually part of the trajectory that is taken in order to move into a container-GROUND. They have to be crossed in order for a FIGURE to move from the outside to the inside of a container. The boundaries form part of the profiled PATH thus rendering a more salient PATH description.

Comparing onto with to and into allows us to detect the semantic differences motivating the possible occurrence of onto with PaP-verbs. Whereas to offers an
insufficient specification of the final configuration, the use of into yields a disproportionate PATH salience. On to, on the one hand, specifies the spatial relation of FIGURE and GROUND after the FIGURE has come to rest thus providing sufficient endpoint salience. On the other hand, it does not lexicalize the crossing of a boundary, which would place too much emphasis on the dynamic reaching of the goal. The preposition still places more emphasis on the dynamic PATH than is generally called for with PaP-verbs, but sometimes this slight extra bit of PATH information seems to be semantically warranted as illustrated by the examples in (6-25).

6.4. The expression of non-dynamic directionality

Prepositions that are typically trajectory-expressing, that is, referring to the medial portion of a PATH without profiling the endpoint, are also frequently used with PaP-verbs. Specifically, the prepositions across and along were found in my data set. An example of their usage could already be observed in example (6-2d) above, which is repeated here as (6-27) for convenience.

(6-27) A yellow rose wrapped in cellophane was laid across her waist.

In (6-28) we can further see examples with along.

(6-28) a. The United States posted 250 more border guards along a heavily traveled 14-mile stretch just south of San Diego last October, and officials say almost everyone who tries to cross in that area nowadays is caught.

b. By Thursday, though, 3,000 truckloads of sand had been laid to reinforce the dike on its dry side and plastic sheeting had been laid along some 900 yards facing the Waal River -- part of a huge attempt in many parts of the Netherlands to hold the line against the worst floods for 40 years.
These examples are further evidence for the necessity of positing an additional construction in that the prepositions are not used in their dynamic sense. In the examples, they do not profile a dynamic PATH that the FIGURE traverses. Instead both across and along profile the static orientation of the FIGURE with respect to the GROUND once it has come to rest, i.e., once it is positioned. To take example (6-27), here the waist (GROUND) constitutes the endpoint of the PATH expressed in the verb lay. Nevertheless, it is not the preposition across which profiles the dynamic reaching of that endpoint. The preposition does not function to predicate the directional PATH of MOTION, the function it otherwise fulfills in the CMC. A dynamic usage of across is exemplified in (6-29) for comparison.

(6-29) United Nations peace-keepers will drive the food across the mountain quietly, under cover of darkness.

In (6-29) the preposition predicates the PATH of the motion event expressed in the verb drive. The preposition is thus used dynamically and relates the FIGURE (the food) to the GROUND (the mountains) in a dynamic spatial scene. This is different in (6-27). Semantically, lay expresses the caused motion of a FIGURE along a PATH to a resting position on a GROUND. The prepositional phrase co-occurring with lay is not used to once more lexicalize the dynamic PATH. Instead, it exclusively predicates the final configuration. The preposition thus relates FIGURE and GROUND in a static scene which is very unlike its function in (6-29).

There is one crucial difference between low-ID prepositions such as in, on, or at, which are commonly used with PaP-verbs and prepositions like across and along. The latter prepositions maintain a medial position on the dynamicity scale. That is, they are
used more or less equally frequent in static as in dynamic scenes. However, when used in static scenes, then these prepositions generally express what Langacker (1987, 1991) refers to as subjective motion (compare also Honda 1994; Matsumoto 1996a, 1996b) and what Talmy refers to as fictive motion (1988b, 1996b). We will look at an example to better understand this difference.

(6-30) ‘The hill gently rises from the bank of the river. (Langacker 1991b:157)

The conceptualization process in (6-30) is very similar to the one in (6-27) and (6-28a). In the example, the FIGURE (the hill) is not moving anywhere. Instead, the preposition marks the starting point for the scanning process that the conceptualizer undertakes to follow the hill’s extension from the bank of the river to its top. Langacker explains that for elongated objects the spatial location “does not consist of a single point, but rather the path-like set of points...” (1991:158). Thus in (6-27) as well as in (6-30), the preposition predicates the static extensional PATH of the FIGURE, i.e. its internal orientation, with respect to the GROUND, rather than the FIGURE’S PATH of motion along the GROUND.

(6-28a) is conceptually very similar. It is the same principle of subjective motion that applies though the conceptualization process is slightly different. We will again use a comparable, well-known example to illustrate the point

(6-31) ‘There is a house every now and then throughout the valley (Talmy 1988b:189)

In (6-31) as well as in (6-28a), the subjective motion sense is not caused by the shape of the FIGURE. Instead, the scanning process involves a mental tracing of the GROUND. Instantiations of the FIGURE occur at various positions located along the GROUND and we
mentally move from one instantiation to the next. Talmy refers to this phenomenon as the moving-perspective mode (1988:188).

The interesting aspect about the examples with PaP-verbs is that we have a verb that actually expresses a motion event. The scenes described in the utterances include real motion through space. This is unlike the examples of subjective motion in (6-30) and (6-31). In (6-27) and the examples in (6-28), it is the case that even though the verbs describe actually occurring motion through space, the prepositional phrases express static locatedness and induce a subjective motion interpretation. The combination of a verb that refers to actually occurring motion and a prepositional complement that at the same time refers to subjective instead of actually occurring motion is made possible through the verb's exclusive profiling of the endpoint of the PATH. This restricted profiling of the endpoint de-emphasizes the PATH the FIGURE has to take to end up at that location. A dynamic PATH reading is almost canceled out through the exclusive highlighting of the FIGURE's position with respect to the GROUND.

The fact that prepositions with a dynamic character like across and along, when used with PaP-verbs, are interpreted as referring to subjective motion is a further indicator for the need to posit a separate construction. The subjective motion interpretation is an additional specification which makes these examples deviate from the prototypical CMC. In the next section, the arguments developed throughout this section are evaluated in order to introduce the structure of the suggested CPC.
6.5 The Caused-Position Construction—a construction related to the CMC

Throughout this chapter, it has been established that PaP- can generally not take directional PPs. These verbs were classified as restricted profile verbs which only allow for the highlighting of the final configuration of FIGURE and GROUND. The salience of the endpoint that comes about through the inherent semantics of the verbs motivates the virtual non-occurrence of directional PPs with PaP-verbs as well as the restricted acceptability of utterances of this type. The focus on the endpoint of the PATH cancels a dynamic PATH reading even though caused-motion is encoded in the verb. To sum up, we thus have (i) a syntactic arrangement identical to that of the caused-motion construction, (ii) semantic content of the utterances that is close to identical with the exception of the specification of an endpoint configuration rather than a dynamic PATH.

In spite of the apparent similarity to the CMC, the fact that a directional PP is generally unacceptable with PaP-verbs seems too strong a deviation to disregard. For the instances of the CMC that do not have instantiated directional PPs, it is argued that the construction coerces the more static prepositional phrase into a directional reading (cf. Goldberg 1995:159). That is, the semantic import of the construction, which is described as ‘X causes Y to move Z’, where Z stands for the directional PATH, brings about the necessary directional interpretation. However, it is exactly this directional interpretation that is unacceptable with most PaP-verbs. In fact, PaP-verbs seem to have the opposite effect. As was illustrated in the previous Section 6.4, PaP-verbs used in the syntactic frame in question bring about a subjective motion interpretation for trajectory-expressing prepositions. Further, prepositions like in, on, under, i.e. prepositions that can be ambiguous between static and dynamic interpretations, would be coerced into a dynamic,
directional reading by the canonical CMC. However, when PaP-verbs are used, it could almost be claimed that a coercion in the opposite direction takes place. That is, these prepositions are then coerced into a static interpretation.

These observations make obvious the necessity to establish a further construction, i.e. the Caused-Position Construction.\(^1\) Naturally, this construction is related to the CMC since it is semantically as well as syntactically very similar. Note that the CPC is not a subsense of the CMC but a construction of its own. Subsenses of the CMC as established by Goldberg all involve slight deviations in the semantics of the verbs from the semantics of the constructional template, however, the overall meaning of the construction remains constant. In the case of the CPC, it is not only the verbal semantics that would need to be accommodated with respect to the constructional semantics if the CPC would constitute a subsense of the CMC. Instead, it is the case that the entire PATH specification needs to be altered. In general, the syntactic category OBLIQUE is semantically determined as PATH in the CMC. This category is not further specified, i.e., in none of the subsenses is there a specification of only a single segment of PATH like source, trajectory or goal. However, this is exactly what we need to do in order to account for the behavior of PaP-verbs and this is why it is necessary to postulate a separate construction.\(^2\)

\(^{1}\) Kay (1996) makes brief reference to this construction which he labels the Caused-Location Construction. See also Rohde (in press).
\(^{2}\) The CPC apparently is not a very productive construction. In the CMC it is possible to use different verb types that do not express MOTION or CAUSE. However, for the CPC I can think of no examples of constructional extensions. This begs the question why it is necessary to posit a separate construction. A different solution would be to formulate a more abstract construction that encompasses both the CMC and the CPC. However, even though this is an interesting thought to pursue, it is not within the scope of this dissertation but has to await future research.
To understand the necessity for a different \textsc{path} specification, consider the only
time Goldberg further specifies the oblique semantically. This is when introducing a\n\textsc{cmc}'s ability to coerce more static prepositions into a dynamic interpretation. Here a\n\textsc{goal} specification is necessary for coercion to be possible.

Clearly it is not possible for just any lexical item to be coerced into
receiving a directional interpretation. The relationship between the
meaning of the locative term and the directional interpretation it receives
is one of \textit{endpoint focus} (Brugman 1988). That is, the location encoded by
the locative phrase is interpreted to be the endpoint of a path to that

There is one obvious problem we encounter when simply taking over the \textsc{goal}
specification for \textsc{paP}-verbs. Goldberg uses the \textsc{goal} specification in order illustrate the
reinterpretation process that more static prepositions undergo when used in the \textsc{cmc}.
However, with \textsc{paP}-verbs it is exactly this we have to avoid. We noted that with \textsc{paP}-
verbs it is not an endpoint specification as such that is unacceptable, in fact, this is
exactly what is called for. Instead, it is the expression of a dynamic reaching of that
endpoint. The very effect that the endpoint specification generally has in the \textsc{cmc},
namely the automatic conceptualization of a dynamic \textsc{path} through the semantic import
of the construction, needs to be ruled out. To capture this difference, i.e. an endpoint
specification yielding a conceptually dynamic \textsc{path}, versus an endpoint specification that
is interpreted as referring to static locatedness, we need a specification other than \textsc{goal}. I
therefore suggest that we use \textsc{goal point} as the semantic specification of the oblique
within the \textsc{cpc}. Following Goldberg, the entire specification would then be of the kind
exemplified in Figure 6-1:
The specification of a goal point is relevant not only for PaP-verbs. We will see later in Chapter 8 that for verbs of arrival we also need a goal point specification rather than a dynamic goal category. It will further be shown that for verbs of departure we need the correlate of a source point to be able to account for the fact that with these verbs any dynamic prepositional phrases are unacceptable.

6.6 Correlating frequency data with acceptability judgment data

This section serves to provide more evidence for the special status of PaP-verbs and the existence of the CPC as introduced in the previous section. So far we have based the claim that PaP-verbs are restricted profile verbs that exclusively profile the static endpoint of a motion event mainly on frequency data. In this section intuition data are added as further support thus converging evidence from two different and independent sources.

The nature of the survey has been introduced in Chapter 2. Only the most important information is repeated for convenience. The survey included 50 speakers of English, all undergraduate students from Rice University. The subjects were asked to judge the acceptability of utterances presented to them in written form. They had three

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³ The questionnaire as well as the results of the survey are shown in Appendix C.
possible choices when determining whether they could say a specific sentence in English: yes, no, and maybe.

The comparison of the data will give us nothing more but an impressionistic understanding of how a correlation between frequency data and acceptability judgment could work. The problem we encounter with the present data is that a count of 250 usages of each verb in concrete spatial usage does not suffice as a data base. In order to obtain comparable data it would be necessary to directly compare the frequency of occurrence of a single preposition and the acceptability of that specific preposition in utterances with the same co-occurring verb. Yet, the count of each single preposition is rather low in the corpus data. What I will instead take as a basis of comparison is, on the one hand, the survey results and, on the other hand, the frequency of occurrence of non-dynamic versus dynamic prepositional phrases with the respective verb. Even though, statistically speaking we have to take this correlation with a grain of salt, it is justified in that it is the aim of this chapter to discern the co-occurrence patterns of PaP-verbs with either dynamic or non-dynamic PPs. Table 6-4 illustrates the results of the correlation.
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<th>no</th>
<th>maybe</th>
<th>frequency</th>
<th>median</th>
<th>standard deviation</th>
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<td>243</td>
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<td>1.64</td>
<td>0.72</td>
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</tbody>
</table>

Table 6-4: Correlating frequency data with acceptability judgments using t-score

Only the sentence pairings that are of statistical significance are included in the table. We will turn to those without a statistically significant correlation further below in this section. The acceptability of the verbs *lay*, *place*, and *put* with either dynamic or non-dynamic PP complements is correlated with the frequency of occurrence of these kind of PPs with the respective verbs in the corpus using a simple t-score method. The sentences have almost all been discussed previously in the chapter, the numbering in the first column refers to the number of the sentence in the survey as shown in Appendix C and the number in brackets refers to the numbering within this chapter. The table lists the survey results in Columns 3 to 5, in Column 6 the frequency of occurrence is listed (out of a total of 250 in the case of *place* and *put*, and a total of 102 in the case of *lay*), in
Column 7, the median is listed, in Column 8 the standard deviation, and finally in Column 9 the t-score is listed which determines the statistical significance of the results.\textsuperscript{4} The table is ordered so that the different verbs are treated in sequence. That is, the first 9 rows are about \textit{place}, the next 5 rows are about \textit{lay}, and the last 4 rows are about \textit{put}.

There are two important points about the results shown in Table 6-4: (i) it shows that in most cases there is a correlation of high statistical significance between the acceptability of utterances and the frequency of comparable utterance types in the corpus; (ii) through variation in degrees of acceptability, the judgments reflect the fact that we do find instances of PaP-verbs with high-ID prepositions in the corpus;

On the basis of the usage-based model a correlation as established in Table 6-4 would be predicted. As explained in Chapter 2, one of the basic assumption of the usage-based model is that frequency yields entrenchment and that more entrenched patterns are more easily accessible. Frequently heard and used patterns like that between a verb and non-dynamic PP, will be judged acceptable by a speaker since this pattern is highly conventionalized. Less frequently used expressions have a more marginal status and variation in acceptability among speakers is expected.

The correlation between frequency and acceptability is evidence for the need to posit a separate construction. The majority of speakers judge utterances combining PaP-verbs with dynamic PP complements as unacceptable thus confirming the claims that have so far mainly been based on frequency data.

\textsuperscript{4} The significance of the p-value is measured with 49 degrees of freedom (based on 50 speakers). This yields the following limits for statistical significance for the t-score: \(p<0.5\) if \(t>2.010\); \(p<0.1\) if \(t>2.68\); \(p<0.01\) if \(t>3.5\).
Even though a positive correlation could be established for the majority of the utterances containing the verbs *place*, *lay*, and *put*, there is a noticeable variation among the speakers with respect to the different acceptability judgments. On the one hand, this inter-speaker variation reflects the fact there are some instances of the verbs in question collocating with dynamic PPs in the corpus. It is thus not completely unacceptable to use dynamic PPs, but there is a strong tendency towards unacceptability and non-occurrence. On the other hand, this inter-speaker variation reflects differences in judgments with respect to the different verbs. Even though, all the examples listed are of high statistical significance, there are noticeable differences when considering the t-score value. The highest correlations could be obtained for the verb *lay*, followed with a noticeable gap by *place*, and lastly for the verb *put*. The special status of the verb *put* has been discussed in Section 6.2.2. The lower t-score can be taken as confirming the analysis of *put* not being equally restricted in its profile. The differences between *lay* and *place*, however, merit some explanation since they are indeed considerable. I suggest that this difference in judgment is motivated by the fact that the verb *lay* lexically specifies the exact positioning of the *figure* with respect to the *ground*, i.e. horizontal orientation of the *figure* with the *ground* supporting it along the horizontal plane. The verb thus predicates the *path* as well as the final configuration between *figure* and *ground*. The preposition merely situates the final positioning and is therefore non-dynamic. This heightened specificity of the endpoint configuration and the predicated termination of the event within the verb renders a dynamic preposition even less acceptable than for a more schematic verb like *place*. The latter lacks the specification of the final configuration, a factor which probably increases the acceptability of dynamic PP complements. I predict
that the verbs *stand*, *sit*, and *hang* which are equally specific as the verb *lay* with respect to the final configuration would receive similar judgments.

6.7 Summary of results

This chapter has shown that it is necessary to posit a further construction that is related to the CMC, namely the CPC. Starting out from the observation that in the data set, verbs patterning with low-ID prepositions typically belong to the class of PaP-verbs, this class was investigated in more detail. It could be shown that verbs pertaining to this class are restricted profile verbs that solely profile a non-dynamic endpoint configuration of the FIGURE and GROUND. They generally disallow lexical predication of a dynamic PATH. Differences with respect to the patterning with more dynamic prepositions among the verbs in the overall class have been shown to be semantically motivated. In that way, it could be shown that the verb *put*, as well as PaP-verbs in a specified manner and PaP-verbs with focus on the final configuration do not share the restricted profile of the plain PaP-verbs in equal measure.

The main arguments that led to the positing of the CPC are, on the one hand, the virtual non-occurrence of dynamic PPs with PaP-verbs. Even though the verbs lexicalize caused motion and occur in utterance types syntactically identical to the CMC, the utterances can thus not be counted as proper instances of the construction. This is because the CMC is defined as containing a dynamic PP. On the other hand, I showed

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5 In fact, example (6-6) was included in the survey and received the following rating: For the non-dynamic version of the sentence: 50 yes, 0 no, 0 maybe; for the dynamic version: 4 yes, 45 no, 1 maybe. This result supports the view that verbs like *lay*, *sit*, *hang*, and *stand* which lexically predicate the final configuration are the most endpoint salient.
that trajectory PPs are coerced into a subjective motion interpretation. Even though the verb itself predicates motion, the PP is thus necessarily interpreted non-dynamically.

Finally, the analysis has been confirmed through additional evidence, namely a survey involving acceptability judgments. It was shown that there is a positive correlation of statistical significance between the frequency of occurrence of PaP-verbs co-occurring with either dynamic or non-dynamic prepositions in the corpus and the degree of acceptability of either pattern. This correlation once more underscores the necessity of positing a separate construction independent of the CMC.

Later in Chapter 8, it will be shown that more evidence for the goal point specification that has been put forward in this chapter comes from specific utterance types within the Intransitive-Motion Construction. The analysis will result in the same necessary postulation of a separate construction with a non-dynamic PATH specification.
7 PATH AND THE INTRANSITIVE-MOTION CONSTRUCTION

The Intransitive-Motion Construction (IMC) has as yet not been analyzed in any great detail. Its existence has, however, been recognized by Goldberg (1995, 1996b) who makes reference to Carter (1988). Aske (1989) argues against a polysemous account for verbs like *float* that can be used to express both motion and stationary location. He suggests that “rather than two verbs ‘float’, there is just one activity verb which requires a motion interpretation in this construction with a path NVP [non-verbal predicate]” (Aske 1989:9). Carter in his paper ‘Compositionality and Polysemy’ asks the question whether all meaning comes from the lexicon or whether we can claim that “there is such thing as constructional or grammatical meaning” (1988:170). For Carter, constructional meaning is certainly the exception since he claims that strict compositionality is the unmarked case. He then goes on to argue that for English we can nevertheless detect a deviation from strict compositionality when considering the following sentence (Carter 1988:173):

(7-1) ́The bottle will float under the bridge.

The sentence in (7-1) can be interpreted either in a static way, i.e. the bottle is seen as being afloat in the water that is under the bridge, or it can receive a translocational interpretation, i.e. the bottle moves to a position under the bridge in a floating manner. Carter notes that this ambiguity which, according to him, grows out of the neutrality of both the verb and the preposition with respect to motion, is not possible in French. (7-2) can only receive a static interpretation.

(7-2) ́La bouteille flottera sous le pont.
This observation leads Carter to the conclusion that languages can depart from strict compositionality. Like Goldberg and Aske, he tries to avoid polysemy which leads him to the assumption that it is the grammatical construction rather than the single lexical elements that brings about the motion interpretation in the case of (7-1). It is interesting that he does not claim that the construction actually adds any missing components but rather that it brings out or reassigns elements already present in lexical items.

...but it seems plausible to me that the rule will not so much add a completely new element of meaning, as it will rearrange, so to speak, elements of meaning that are present in the sentence, in the lexical representations of verbs like float (which does, as we saw, involve the notion of movement, in that floating involves non-movement in the vertical axis). The meaning rule specific to English would then allow this element of word meaning to contribute to the meaning of the sentence, so that it would show up in certain entailments (Carter 1988:180).

Carter restricts the kinds of verbs that can be used in the construction. Verbs that lexically predicate MOTION can naturally be used. Other not primarily motion verbs have to be related to the event described. That is, as Goldberg did for the CMC, Carter claims for intransitive motion that a causal connection is required between the event described in the verb and the semantics of the construction. That is why a verb like float can be used in a dynamic utterance, whereas a verb like sleep cannot. Note, that Carter is not claiming that the verb needs to be a causative verb, but only that there has to be a causal connection between a floating event and a dynamic motion event. He comments that

...it seems totally unnatural to encode this causative requirement into either the meaning of the verb or the preposition in (26) [The bottle floated into the cave]. Float is not a causative verb, nor is into a causative preposition. In other occurrences of either lexical item, no such causative element of meaning shows up when they are used together in configurations like that of (26): This seems to be a clear case of an
element of meaning occurring in a sentence which cannot be assigned to any lexeme in the sentence (1988:179).

Carter then proceeds to formalize the construction and offers the following rather sketchy and rule-like constructional schema:

\[ \ldots Vmm + Pn \ldots \rightarrow \ldots Vmm + Pn \ldots \]

This schema is meant to express that a representative of the relevant verb class, Vmm, and a representative of the class of what he calls neutral prepositions, Pn, must be combined in a construction. If they are combined in a construction, then the following interpretation is possible:

\[ \ldots Vmm + Pn \ldots \rightarrow \ldots \text{move Pn...by Vmm-ing} \]

This attempt at formalizing the construction is as yet not very informative. Goldberg, without going into any further detail about the construction, introduces its structure in the way illustrated in Figure 7-1:

![Figure 7-1: The Intransitive-Motion Construction (after Goldberg 1995:160)](image)

Even though there are a lot of interesting insights, Carter’s account leaves a lot of questions unanswered. Goldberg’s formalization also immediately opens up a question. Why is it that she specifies the \textit{PATH} role as goal? In a different article, when briefly referring to the IMC, she notes that the construction “has two arguments, a \textit{mover} (\textit{theme}) and a \textit{path} (1996b:39) thus formulating a broader classification.
It is the objective of this chapter to investigate the nature of the IMC in more detail. To that end, it will be determined what kind of verbs are used in the IMC and which relation they bear to the construction. Parallel to the investigation of the CMC, it will be tested how verbs and prepositions interact within the IMC and how far it is possible to deviate from the constructional template. I will show that the constraints that have been formulated for the CMC are at least equally valid for the IMC, i.e. namely that the construction is restricted in its ability to influence the meaning of the instantiating lexical items and that the necessary recoverability of PATH strongly influences the production and interpretation of utterances. I will show once more that verbal profiling plays a crucial role when it comes to the use of prepositions that do not fully instantiate the construction.

In the following, the usage of the IMC and the interplay of verbs and the construction will be examined first in 7.1. It is the aim of this section to posit a hierarchy of relations between verbs and the IMC parallel to what was done for the CMC in Chapter 5. In Section 7.1.1, I will investigate whether the same correlation between a preposition's degree of dynamicity and the number of collocating verb types is discernable for the IMC. Developing out of the hierarchy of sense relations between verbs and constructions, it is the purpose of Section 7.2 to discuss criteria for classifying specific verbs as either motion verbs or non-motion verbs. To that end, two verb classes are investigated and compared with respect to their status within the IMC and their status as verbs of motion in general. The two verb classes in question are verbs lexicalizing the instrument and verbs of sound. In 7.3 we will turn to the largest class of verbs occurring within the IMC, namely verbs predicating the manner of motion. It will be investigated
whether the same constraints that hold true for the CMC are valid for the IMC. That is, I will test whether the verb and the preposition need to semantically profile the same PATH segment in order for coercion to be possible. This discussion will lead to the topic of Section 7.4. Here I argue that there are different degrees of PATH salience within manner predicing verbs thus refining the dichotomous view that has so far been taken on PATH versus MANNER verbs. In 7.5, the IMC is compared to both the CMC and the way-construction. The IMC displays far fewer instances of not fully instantiated occurrences than the CMC. I will show that one reason for this greater adherence to the constructional template is the higher degree of constructional ambiguity of the IMC as compared to the CMC. I will argue that a further limiting factor for the productivity of the IMC\(^1\) is the existence of the way-construction which has received a lot of attention in linguistic research (cf. e.g. Jackendoff 1990, Marantz 1992, Israel 1996, Goldberg 1996b). Finally, in 7.6 the main points of the chapter are summed up.

7.1 The relation of verbs to the IMC

In this section, I will first test whether the majority of the occurrences of the IMC in the data set are fully instantiated. Full instantiation with respect to the IMC means that the verb has to lexicalize MOTION and the PP has to specify a dynamic PATH. It is not the case that the PP has to predicate GOAL as suggested by Figure 7-1. Instead, the projected structure of the IMC is of the kind illustrated in Figure 7-2.

\(^{1}\) Productivity with respect to construction is measurable by the number of verb classes that can be used felicitously in the construction and if the “construction can be extended to new and hypothetical verb forms” (Goldberg 1995:120).
It is likely that the majority of utterances predicate the goal but certainly dynamic trajectory or source-predicating PPs are equally acceptable. In a second step, it will then be determined what other relations between the verb and the construction are possible apart from full instantiation. That is, what kind of verbs are used within the IMC and what is their ranking with respect to frequency. A hierarchy of sense relations based on frequency of occurrence is established in the end of this section.

The data were selected in analogous fashion to the CMC sample. That is, the same 3000 instances of each of the 19 selected prepositions were searched for all occurrences of instantiated IMCs. In this way, a total of 1358 IMC instantiations were extracted. As expected, the majority is fully instantiated. In fact, if we use the same criteria as for the CMC (see discussion in Section 4.1.1) and again draw the line on the ID scale between the two prepositions *between* and *across* and claim that all prepositions with an ID lower and equal to *between* are to be considered non-dynamic, whereas prepositions with an ID higher than that are dynamic, then 1185, i.e. 87.2% of the occurring IMC utterances are fully instantiated.

Occurrences of not fully instantiated IMCs are of three different types and occur in the following descending order: Motion verbs pattern with non-dynamic prepositions in 81 cases which equals 6.0% of the total occurrences; non-motion verbs pattern with
dynamic prepositions also in 81 cases or 6.0%; and finally there are 11 occurrences of non-motion verbs patterning with non-dynamic prepositions, i.e. 0.8%. These latter eleven occurrences are all of the same type and will be discussed in Chapter 8 since they actually form part of a different construction. From the total 12.8% of not fully instantiated constructions, a fair number has to be taken out of consideration since they all belong to this different construction which I call the Intransitive-Arrival Construction which is the topic of the next chapter. There are 46 occurrences of this construction in the data set. We thus have to subtract this number from the 173 not fully instantiated utterances which leaves us with 127 or 9.4% not fully instantiated utterances.

The fact that 12.8% of the utterances are not fully instantiated is already sufficient proof for the necessity of positing the construction status of the IMC. In the theory of Construction Grammar, a construction is defined as a form-meaning pairing the semantics of which is not strictly predictable from the component parts (cf. e.g. Fillmore 1988; Goldberg 1995). In case of fully instantiated motion constructions, the semantics of the instantiating lexical items exactly mirror the constructional meaning. In the majority of the cases, constructional semantics thus merely have a meaning enhancing or supporting function. More interesting are of course the cases, in which the construction has to actually supply missing semantic elements. It is these cases that prove the existence and the semantic power of the construction.

An observation that we will come back to in Section 7.5 is that the percentage of not fully instantiated utterances is considerably lower for the IMC than it is for the CMC. I already alluded to the fact that the IMC is even more restricted than the CMC when it comes to not lexically predating semantic elements that are part of the construction.
The finding that in the data set only 9.4% of the IMCs are not fully instantiated further supports this hypothesis when considering that for the CMC we found that after having subtracted the occurrences of the CPC there are still 18.6% of not fully instantiated utterances, i.e. almost twice as much.

Turning now to the possible relations between the instantiating verbs and the construction, we note that the most frequently occurring one is once more a relation of elaboration. In the case of the IMC, a relation of elaboration between the construction and the verb signifies that the verb has to lexicalize \textit{motion}. This is the case in 1266 occurrences or 93.2% and thus in the overwhelming majority of the utterances. The remaining 6.8% consist of the following types of verbs\textsuperscript{2}: Verbs of sound emission like \textit{buzz}, \textit{roar}, \textit{rumble}; verbs of substance emission like \textit{steam}; verbs of forceful impacts like \textit{crash}, \textit{punch}, \textit{slam}, \textit{smack}; verbs of exerting force in a specified manner like \textit{blow}, \textit{squeeze}, \textit{break}, \textit{rip}; verbs that express a change in the internal configuration of the \textbf{FIGURE} like \textit{collapse}, \textit{duck}, \textit{sag}; and finally aspectual verbs that express the continuation of an activity like \textit{continue}, \textit{proceed}, \textit{carry on}.\textsuperscript{3}

Regarding the relation of these verbs to the construction, they can be classified in the following way. Verbs of sound and substance emission express a co-occurring activity. There is, in fact, also a type of force-dynamic relation between these verbs and the construction in that the predicated co-occurring activity has to be a result of the ongoing motion (Levin et al. 1997). However, verbs expressing force-dynamic relations

\textsuperscript{2} A full list of all occurring verb types ordered according to verb classes is supplied in Appendix A.

\textsuperscript{3} Verbs predicking the termination of an activity, like \textit{stop} and \textit{conclude}, also occur in the data set. However these verbs are linked to the Intransitive-Arrival Construction which will be introduced in the next chapter.
to the construction all predicate a specific force that brings about a process of motion, not one that predicates an effect resulting from the motion. Thus, it would be wrong to classify verbs of sound and substance emission as predicing a force-dynamic relation since the relation of cause and effect is reversed. Nevertheless, the label of co-occurring activity does not really capture the nature of the relation either since it cannot be just any kind of co-occurring activity. The relation of cause and effect is essential in order for a verb expressing a co-occurring activity to be acceptable within the IMC. A sentence like ??He whistled into the room is not an acceptable utterance since the whistling is not produced by his moving into the room. Instead, it is effectively only a co-occurring activity that is not related to the motion event. Keeping in mind that effect might be a better term for this relation, I will nevertheless use the label of co-occurring activity in order to avoid any terminological confusion (note that Goldberg uses the term for her hierarchy of sense relations). Verbs expressing this kind of relation make up around 1.0% (15) of the total occurrences and 16.3% of the not fully instantiated utterances. An example of this kind of relation is shown in (7-3).

(7-3) What really got my attention on that day was when his loose-fitting, store-bought false teeth slipped from his open mouth in mid-snore and clattered loudly onto the wooden floor.

Force-dynamic relations that result in motion are represented by the categories of verbs expressing forceful impacts, verbs expressing the exertion of force in a specific manner and also by that of verbs expressing a change in the internal FIGURE configuration. Verbs of forceful impacts when used in motion event constructions typically predicate the endpoint of the PATH taken by the FIGURE. They predicate the way in which the FIGURE
makes contact with the GROUND as illustrated in (7-4).

(7-4) The plane traveled another 30 feet before *crashing into* the West Wing of the White House, Jones said.

Even though this is different from the use of verbs expressing the exertion of force in a specific manner, both classes fall under the category of means-expressing relations. In fact, even the class of verbs expressing a change in internal FIGURE configuration belongs in the same category. That is, all these verbs express the way in which the FIGURE acts and exerts a specific kind of force that then results in a motion event. Taken together, this group makes up about 4.6% (62) of the total utterances and 67.4% of the not fully instantiated occurrences. (7-5) and (7-6) illustrate examples of a verb expressing the exertion of force in a specified manner and a verb expressing a change in internal FIGURE configuration, respectively.

(7-5) The other was a mysterious incident last June in the town of Matsumoto, where seven people were killed when sarin fumes *blew through* a residential neighborhood.

(7-6) He sighed, staggered to his corner and *collapsed onto* his stool to await what he had to know was now inevitable.

The remaining class is that of aspectual verbs that predicate the continuance of an activity. This verb class does not occur with the CMC at all. These verbs are highly context dependent. Without already having established the fact of motion, it is not possible to use a verb that refers to its continuance. The relation the verbs bear to the construction is not comparable to that of the other sense relations. The verbs do not themselves predicate an activity. They merely state that whatever activity is going on is
being maintained. It is not a very frequent relation and only makes up about 0.3% (4) of the total occurrences or 4.3% of the not fully instantiated ones. (7-7) illustrate this kind of relation in an instantiated IMC.

(7-7) A few carried on toward Tanzania, determined to sneak past the border crossing.

Only including the actually occurring verb types in the data set, the hierarchy of sense relations that can be established on the basis of frequency of occurrence is of the following kind: elaboration > force-dynamic relations (means) > co-occurring activity > aspectual relations. It is noticeable that some of the categories of Goldberg's original hierarchy for the CMC do not appear. The following relations are missing: From the force-dynamic group, we are missing the instrument, the result and the denial category. Further lacking is the expression of a precondition. Verbs predicating the instrument of motion are counted as motion verbs and make up part of the 93.2% of cases expressing a relation of elaboration. Instrument verbs make up 0.88% (12) of the total usages. I will argue in Section 7.2 that these verbs are to be classified as motion verbs rather than as verbs that express a force-dynamic relation. The other three relations that appear in the CMC but not in the IMC are all relations that are not possible in intransitive usages. A relation of result cannot occur in intransitive events since it is understood that an activity carried out by the AGENT, i.e. for example an activity such as beckoning, results in the motion of the FIGURE. In an intransitive utterance, it is not possible to construe such a relation since AGENT and FIGURE are identical and there is no second participant. That is, a sentence like He beckoned into the room can never mean that he moved into the room as a result of beckoning. Instead, the only possible interpretation is that he was standing
outside the room making a beckoning gesture that was directed at someone inside the room. The same holds true for a relation of denial. Again two participants are required: one that disallows or blocks the motion of the FIGURE and the FIGURE itself. Finally, the relation of expressing a precondition is also not applicable to the IMC. Any precondition would have to be coded as a separate event since the precondition is typically established by a different participant. If it is established by the same participant, then this has to happen prior to the motion event and thus conceptually as well as syntactically separated from the latter.

7.1.1 Correlating the ID with the number of verb classes within the IMC

It has already been shown for the CMC that there is a significant correlation between the ID of a preposition and the number of different verb classes the prepositions collocates with in the construction. If such a correlation can be established for the IMC as well, then this would one more time give support to Hypothesis 2 (compare Chapter 4) and further show that the hypothesis is valid across motion constructions. Hypothesis 2 states that it is necessary to lexicalize sufficient PATH information for an unambiguous decision between translocational and non-translocational motion. This necessity effects a correlation between the ID of a preposition and the number of co-occurring verb classes within the CMC and most likely within the IMC as well. According to the hypothesis, low-ID prepositions can only collocate with verbs that to some degree lexicalize PATH (for degrees of lexicalization see Section 7.4). If the verb itself does not contain any

4 Naturally it is possible that AGENT and FIGURE are actually the same participant in a relation of denial. But this configuration has to be expressed through a reflexive as in He locked himself out of the house.
PATH information, then the utterance is likely to be interpreted as non-translocational, unless, of course, there is sufficient contextual information that renders a lexical PATH specification unnecessary. However, without further contextual clues, the construction alone is hypothesized not to be able to coerce a more static preposition into a dynamic reading. For the IMC, this signifies a relevant restriction. Since the majority of the intransitive motion verbs in English predicate the MANNER rather than PATH of motion (compare Talmy 1985), we would expect the IMC to be severely restricted when it comes to the coercion of non-dynamic PPs.

To find out if there is a statistically significant correlation between the number of verb classes a preposition can collocate with and the preposition's ID, Kendall's $\tau$ is once more applied. Table 7-1 lists the prepositions according to their ID rank and further shows the number of co-occurring verb classes.

<table>
<thead>
<tr>
<th>PREPOSITION</th>
<th>ID</th>
<th># of verb classes</th>
<th>PREPOSITION</th>
<th>ID</th>
<th># of verb classes</th>
</tr>
</thead>
<tbody>
<tr>
<td>through</td>
<td>1</td>
<td>29</td>
<td>by</td>
<td>11</td>
<td>1</td>
</tr>
<tr>
<td>onto</td>
<td>2</td>
<td>37</td>
<td>along</td>
<td>12</td>
<td>14</td>
</tr>
<tr>
<td>into</td>
<td>3</td>
<td>34</td>
<td>across</td>
<td>13</td>
<td>18</td>
</tr>
<tr>
<td>to</td>
<td>4</td>
<td>18</td>
<td>between</td>
<td>14</td>
<td>1</td>
</tr>
<tr>
<td>under</td>
<td>5</td>
<td>4</td>
<td>in</td>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td>toward</td>
<td>6</td>
<td>33</td>
<td>at</td>
<td>16</td>
<td>3</td>
</tr>
<tr>
<td>out</td>
<td>7</td>
<td>2</td>
<td>outside</td>
<td>17</td>
<td>6</td>
</tr>
<tr>
<td>out of</td>
<td>8</td>
<td>25</td>
<td>inside</td>
<td>18</td>
<td>11</td>
</tr>
<tr>
<td>from</td>
<td>9</td>
<td>12</td>
<td>on</td>
<td>19</td>
<td>6</td>
</tr>
<tr>
<td>over</td>
<td>10</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 7-1: Correlating the ID with the number of co-occurring verb types

The $\tau$ value is $-0.37506$ which yields a $z$ value 2.24381 and $p=0.024845$. Again we can

which is again not an intransitive construction.
state a statistically significant correlation between the internal degree of dynamicity of a preposition and the number of verb classes the preposition collocates with. To say it in other words, high-ID prepositions pattern with significantly more verb classes than low-ID prepositions. Note that this is not a necessary outcome that could be predicted based on the fact that the majority of the utterances are fully instantiated. It is true that the higher number of occurrences of high-ID prepositions automatically leads to their co-occurrence with more different verb types. However, a statistically relevant correlation between the ID and the number of co-occurring verb classes would still not be discernable if the low-ID prepositions would freely pattern with all kinds of verbs. What this correlation shows us is that low-ID prepositions cluster around specific verb classes, a result that is not already predictable from the fact that there are fewer occurring low-ID than high-ID prepositions.

Low-ID prepositions are thus very limited in their use in motion event constructions. This outcome is valid for both the CMC and the IMC, a results which allows us to make more general claims about the restricted ability of motion constructions to supply missing semantic elements. Prepositions that do not fully instantiate the constructional template generally only pattern with very limited sets of verbs. When low-ID prepositions are used, then their use is generally semantically motivated by an extreme endpoint profiling of the co-occurring verb. By the same token, verbs that do not fully instantiate the constructional template cannot be used with low-ID prepositions and still express translocational motion. In extreme cases, they no longer express motion at all. It will be shown in the next section that adding a low-ID preposition is, in fact, a possible test to determine whether a verb is a motion verb or not.
7.2 What is a motion verb—the case of instrument and sound verbs

It was noted before that there is disagreement between the way Goldberg classifies verbs in order to establish the hierarchy of sense relations between verbs and the CMC and the way the classification is set up in this work. Goldberg (1997) classifies instrument verbs as being force-dynamically related to the construction but as not themselves lexicalizing MOTION. Contrary to this classification, I have grouped these verbs as motion verbs. In this section, I will argue for this classification. First, verbs predicated instruments are discussed in 7.2.1 and then they are compared to verbs of sound which are classified as not lexicalizing MOTION in 7.2.2.

7.2.1 Verbs predicating the instrument of motion—degrees of motion incorporation

In order to establish why instrument-conflating verbs are treated as motion verbs, we will start out with an argument from Talmy (1996a), who argues for the existence of a motion event frame which he claims to be a pre-linguistic universal (see Chapter 1). This motion event frame consists of the elements MOTION, FIGURE, PATH and GROUND. It is thus no coincidence that these are the semantic elements that are cross-linguistically most often conflated in motion verbs (Talmy 1985). Conceptually, these elements are intimately tied to any perceived motion event, i.e. they are part and parcel of any single motion event. This conceptual closeness motivates the conflation, i.e. conceptual packaging, of the different elements within single lexical items. This is not to say, however, that other types of conflation patterns are not possible. Whereas these are the most common types, there are further close conceptual associations when it comes to different elements that are salient in motion events. Talmy explicitly notes that he does
not look at “every case of semantic-to-surface association, but only at ones that constitute a pervasive pattern” (1985:56). It is clear from this remark that languages might exhibit other minor conflation patterns and I will argue that the conflation of MOTION and INSTRUMENT is one such pattern.

In order to come to an understanding why verbs predicing the instrument should be considered verbs of motion, it is necessary to consider the conceptual integration of constructions and the general motion event frame. Talmy’s notion of a basic motion event frame is clearly on a different level of processing than language-specific syntactic constructions, however, we have to assume that both are linked to one another. We can, following Goldberg’s argumentation, see the relevance of pre-linguistic conceptual units like the supposed motion event frame\(^5\). She ties her notion of constructions into a larger frame of cognitive processing and claims that simple clause constructions are directly associated with semantic structures that “reflect scenes basic to human experience” (1995:5). Like Talmy, who clearly sees language connected to his postulated event frames, she also draws a direct link between these basic, pre-linguistic event structures and language specific ways of encoding in particular syntactic constructions. The relevant point for Goldberg is that these basic scenes are linked to linguistic constructions like the CMC and the IMC, as well as to single lexical items; that is, the motion event frame is linked to whatever conventional linguistic means a language has to express motion and this link naturally enforces the conceptualization of the event.

It is probably safe to assume that there are indeed such basic conceptual

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\(^5\) For a convincing discussion on the existence of such basic event frames from a psychological perspective see Mandler 1992.
structures as introduced by Talmy with his motion event frame. Event frames are abstracted from our experience with the world and are highly entrenched since they are acquired early in life and remain pervasive throughout our conscious experience. These cognitive units are reinforced by and feed back into the respective linguistic constructions. I would like to portray the interconnectedness of these different cognitive units as follows: The pre-linguistic motion event frame is of a very general type and provides a cognitive backdrop, a general framework against which more specific complex scenes are conceptualized. Complex scenes are understood here in the sense of Langacker (1987) as configurations that are not reducible to a single consistent configuration. These scenes are expressed by language-specific constructions. A construction integrates a specific syntactic structure with abstracted meaning components. These meaning components are evoked each time the construction is instantiated, even if the lexical items employed in a given usage event do not themselves contribute these semantic elements. Hence, lexical items used in a motion construction are generally understood as expressing motion even if they do not in and of themselves lexicalize MOTION. Obviously, there are constraints as to what kind of verbs can be used in that way (compare Sections 4.1 and 7.1), however, those that are used felicitously are, in that instance, interpreted as predicing MOTION.

The use of the lexical item in both the construction and the overall event frame will establish a frail first link from the respective verb to these larger units. A consequence of this conceptual linking is a gradual process of semantic entrenchment if the verb is used repeatedly in that same conceptual and syntactic environment. That is, a lexical element that is frequently used in a motion context and furthermore in any of the
motion constructions, will gradually take on the basic semantics of this environment.

At this point, we can turn to verbs predicing instruments. The discussion should have made clear how it is that verbs originally not lexicalizing \textsc{motion} can take on this meaning component when they are frequently used in the respective environment. There are two further reasons why specifically verbs predicing the instrument should be prone to take on an additional motion sense. First, it is the case that these verbs predicate the means of motion (Levin and Rappaport 1991a), that is, they are semantically closely related and connected to the domain of \textsc{motion} anyway. Second, the verbs do not have a further primary sense that is used more frequently and might obstruct the taking on of additional senses or at least relegate this extra sense to a less salient, secondary status as is the case with verbs of sound (see Section 7.2.2).

Before turning to compare the differences in the lexicalization of \textsc{motion} in instrument verbs and verbs of sound, we need to elaborate on the close semantic relation between instrument verbs and the \textsc{motion} domain. The instrument verbs used within the IMC in my data set are the following: \textit{bicycle, bike, catapult, motor, parachute, pedal, pedal-boat, rocket, ship, and skate}. Note that all of these verbs either predicate (i) a kind of vehicle, i.e. bicycles, bikes, ships, boats, rockets and ships; (ii) a device used to move persons or things in a specific manner, i.e. catapults, parachutes and skates; or (iii) a salient part of a vehicle that permits motion, i.e. a pedal and a motor. The instruments in question are all used in order to move people and things around. The nouns that these verbs are zero-derived from are thus typically used in motion event frames anyway. Clark and Clark (1979) note that the formation of denominal verbs from nouns expressing instruments is extremely productive in English and further that a verb derived
from an instrument noun predicates the action typically carried out with the help of the respective instrument. That is, verbs that are derived from vehicle nouns will necessarily predicate a motion event that involves motion with the respective vehicle. When used, they will thus frequently occur in motion event constructions which will further entrench their link to the MOTION domain.

This whole process necessarily implies that lexicalization is a matter of degree. Verbs that are rarely used in a motion context will not build up very strong connections to either the motion event frame or a specific motion construction. However, once a verb starts being used in this contexts more often, it will gradually take on the general semantics of this context and of the construction. It needs to be added, however, that this analysis does not apply to all kinds of instrument-predicating verbs. The type of instrument lexicalized in the verb has to be either a kind of vehicle or other means of transport or a salient part of a vehicle.⁶

### 7.2.2 Comparing instrument conflating verbs with verbs of sound

Verbs of sound are also frequently used in both the IMC and the CMC. In that usage they predicate the sound that results from the motion of some entity. There is, however, one important difference between instrument verbs and verbs of sound that supports the classification of instrument verbs as motion verbs and verbs of sounds as

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⁶ The necessity to predicate a vehicle or a salient part of a vehicle in instrument-conflating verbs that can be considered motion verbs applies in that strict form only to intransitive motion. In caused-motion events, other appliances like, for example, spoons, shovels or pumps can be used to move an entity. Given the kind of instrument, any usage of a zero-derived verb to predicate a process that is carried out with that instrument automatically involves some kind of movement through space. We can thus assume that these verbs also gradually lexicalize MOTION.
non-motion verbs. This difference can easily be observed when looking at the following examples. The sentences in (7-8) illustrate the original corpus examples with (7-8a) showing the use of an instrument verb in the IMC and (7-8b) showing the use of a verb of sound in the same construction.

(7-8)  
    a. In darkness, Army Rangers, their faces blackened, parachute onto the airfield.  
    b. The bus eventually rumbled into the parking lot at Buchenwald, which had closed for the day.

In (7-9) the original examples are shortened to take out any contextual clues and the dynamic PP is exchanged with the corresponding more static prepositional phrase.

(7-9)  
    a. Army Rangers parachuted on the airfield.  
    b. The bus rumbled in the parking lot.

The observable effect is that (7-9a) still clearly refers to a motion event. It might now be considered ambiguous whether the motion is carried out within the realms of the predicated GROUND, i.e. non-translocational interpretation, or whether the motion is carried out in a way that the FIGURE enters the GROUND, i.e. a translocational interpretation. Though the latter is still more likely given the nature of parachuting. There can, however, be no doubt about the fact that the verb predicates that the FIGURE is moving. This is different in (7-9b). Here it is difficult to still conceive of the utterance as expressing a motion event at all. Since the dynamic PATH element is missing in the sentence and since there is not even a lexical element predicking MOTION, the construction’s ability to coerce the lexical elements into a deviant interpretation is considerably weakened. In fact, it is probably safe to assume that the construction is not
even activated since neither the verb nor the preposition corresponds to the
constructional template. Instead, the primary sense, i.e. the most entrenched semantics of
the verb as well as the preposition, is what comes to mind first. In fact, four of the
consulted speakers interpreted (7-9b) as expressing that the bus is standing in the parking
lot with its motor running thus making a rumbling noise. That is, the motion
interpretation of the verb that was still discernable in (7-8b) is lost and with that, the
possible dynamic interpretation of the preposition is equally gone. That one speaker still
perceived of the sentence as expressing a motion event (though non-translocational
motion) is very interesting in two different respects. First, with respect to the stated
hypothesis about the recoverability of PATH. Even though the speaker perceived the
utterance as describing MOTION, the dynamic PATH interpretation was lost. This
phenomenon correlates nicely with the stated necessity of PATH salience either in the
verb or the prepositions. Since the verb in this case has no PATH salience whatsoever and
the preposition is a low-ID preposition, it is to be expected that the described event is
interpreted non-dynamically. A further reason is that the construction alone is not able to
coeerce both the verb into a motion reading and the preposition into a dynamic reading.

The interpretation of (7-9b) as a description of a motion event by one speaker
further supports the claim that lexicalization is, indeed, a matter of degree. Since verbs of
sound are rather frequently used in motion event constructions, some speakers might
start building up a connection between these verbs and the MOTION domain.

This last observation has an important theoretical implication. Goldberg as well
as Carter both argue for constructional semantics in order to avoid lexical polysemy. It
seems that even though this claim seems perfectly sensible for examples like Goldberg's
Frank sneezed the tissue off the table (1995:152), we cannot discount lexical polysemy per se. That is, a verb like sneeze which is hardly ever used in a motion construction definitely has no motion sense. Yet, other verbs that are not only nonce uses but that come to be used in the construction more frequently will eventually inherit part of the constructional semantics. The speaker who conceived of (7-9b) as referring to a motion event can be seen as being on his way to building up a motion sense for verbs of sounds. Though it has to be noted that even that specific individual is still a long way off from a point at which it could be argued that verbs of sound are motion verbs. We have to take into account that the use of the verb without any accompanying PP is never perceived of as referring to a motion event. This is another difference between verbs of sound and instrument predicing verbs. Compare the sentence illustrated in (7-10).

(7-10) a. Army rangers parachuted.
   b. The bus rumbled.

Whereas (7-10a) still refers to a motion event, (7-10b) is now clearly nothing but a description of the noise the bus is making. Without a locative complement, verbs of sound completely lack any motion sense whatsoever. Any possible semantic change that might arise through frequent usage in the construction is still a long way off.

7.3 The use of manner-predicating verbs in the IMC

The majority of IMC instantiations in the data set contain verbs that predicate the

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7 This is a dual process. It is not only the case that verbs inherit part of the constructional semantics. The construction itself in its ontological development inherits its semantics from the most prototypical verbs (Tomasello 1998).
manner of motion. This is no surprise considering the fact that Talmy (1985) noticed that
the major lexicalization pattern for English is the conflation of MOTION and MANNER. In
the majority of the cases, these manner verbs pattern with high-ID prepositions. Again,
this is to be expected considering that constructions are typically fully instantiated (see
Chapter 4). However, there are also some instances of manner-predicating verbs
patterning with low-ID prepositions. It is these that we will turn to in this section.

It was noted in Chapter 5 Section 5.4 that manner verbs used in the CMC have to
be used with high-ID prepositions since the verbs do not predicate CAUSE. I argued that
the constructional import necessary to coerce the verb into a caused-motion reading
motivates the virtual non-occurrence of low-ID prepositions with manner verbs within
the CMC. The construction would not only have to add the causal reading but
additionally a dynamic PATH interpretation. It was concluded that due to this double task
resting on the construction, a manner of motion verb combined with a low-ID preposition
in a CMC-type utterance brings about a non-translocational interpretation. The
constructional import does not suffice to accommodate two deviant lexical elements.

We would expect this to be different within the IMC. Verbs conflating MANNER
and MOTION count as verbs that fully instantiate the construction. It is therefore expected
that these verbs can felicitously pattern with low-ID prepositions since nothing should be
in the way for the construction to coerce these into a dynamic interpretation. However,
even though it is the case that there are more occurrences of manner verbs patterning
with low-ID prepositions within the IMC than we find in the CMC, it is nevertheless true
that without additional contextual clues this utterance type is preferably interpreted as
referring to non-directional motion, i.e. motion within a confined space. That is, even
though the verb fully instantiates the construction and the preposition is the only deviant lexical item, the construction is still not able to bring about a dynamic reading.

The question to ask is one more time what is so special about manner verbs that they bring about a non-translocational interpretation? The reason motivating this favored interpretation has already been alluded to in Section 5.4 and earlier on in this chapter. It is the low degree of PATH salience that makes a dynamic interpretation difficult to conceptualize. If it is indeed the low degree of PATH salience of the verbs that impedes a dynamic motion interpretation then this at the same time means that it is more difficult to additionally supply PATH information through constructional import than it is to supply MOTION information. This possibility is discussed at the end of this section in 7.3.2. First, we will turn to the use of manner verbs with low-ID prepositions in the IMC.

7.3.1 Manner verbs used with low-ID prepositions in the IMC

We will first look at some of the occurring examples in order to see if it is really the case that there are always crucial contextual clues present for the dynamic motion interpretation when a manner verb is used. Then it will be discussed which other possible factors influence the interpretation, and if the lack of these additional clues necessarily leads to a non-translocational interpretation. Some typical examples of motion verbs with low-ID prepositions are illustrated in (7-11) and will be discussed in turn.

(7-11) a. Rodriguez said he hurried from the compound as soon as he could, unsure if the Branch Davidians would allow him to leave, and ran inside the ranch house to telephone his commander.

b. I was here during the Naples uprising in the war when kids leaped bravely on German tanks and some got killed.

c. After the training run, she stepped inside her home, grabbed a drink and
got a perfunctory growl from her dog, Casey.

d. A half-hour after practice, Hurley strolled outside the arena, into the parking lot, where the cloudless sky, mild temperature and low humidity made even this sea of concrete feel like a fine slice of paradise.

e. Every time he walks in the door, the actors love him and the audience loves him.

In (7-11a) it is, in fact, the case that the context supplies all the necessary PATH information. The infinitival phrase following the locative complement expresses a purpose which brings about a dynamic PATH reading. Purposes equal goals in that they stand for future actions that the FIGURE sets out to accomplish. As Radden points out, “there is a structural isomorphism between the domain of purpose and the domain of movement” (1988:382). Based on Lakoff (1987:ch.17) he notes that “the sequence of actions necessary to achieve a final state corresponds to motion along a path” (Radden: ibid). In (7-11a) the placing of the call functions both as a metaphorical goal in the PURPOSE domain and as elaborating on the spatial goal in the MOTION domain. Without the expression of the purpose, the spatial PP alone would be ambiguous with respect to a directional or a non-directional interpretation. Consider (7-12).

(7-12) ‘Rodriguez ran inside the ranch house.

(7-12) is no longer unambiguously interpretable as describing a dynamic scene. In fact, a similar sentence that was included in the survey (see Chapter 2 for details) yielded significantly more non-directional interpretations. The sentence is illustrated in (7-13)

(7-13) ‘The woman ran in the street, screaming.

and the possible interpretations with the respective results are listed below in Table 7-2.
<table>
<thead>
<tr>
<th>PARAPHRASE</th>
<th>NUMBER OF AFFIRMATIVE ANSWERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The woman enters the street running</td>
<td>5</td>
</tr>
<tr>
<td>2. The woman runs down the street</td>
<td>22</td>
</tr>
<tr>
<td>Both ok, I came to mind first</td>
<td>6</td>
</tr>
<tr>
<td>Both ok, 2 came to mind first</td>
<td>5</td>
</tr>
<tr>
<td>Neither</td>
<td>2</td>
</tr>
</tbody>
</table>

**Table 7-2: Results for Sentence 8 in Survey 2**

The results clearly show that speakers prefer a non-directional interpretation for (7-13). It needs to be noted, however, that of the five consulted speakers, three received a directional interpretation from sentence (7-12). This discrepancy between the interpretational bias for (7-12) as opposed to (7-13) highlights one further important aspect. As noted in Chapter 3, the nature of the GROUND is of crucial importance when it comes to the interpretation of ambiguous utterances. Even though in both utterances, the prepositions profile a container-GROUND, there is a clear difference between the two types of GROUND. A house as in (7-12) is a much more delimited entity with clear boundaries, it corresponds better to the basic container schema than a street. A house is therefore more easily conceptualized as GOAL than is a street. We can thus conclude that the preferred directional reading of (7-12) is due to the nature of the GROUND. An utterance containing a less clearly delimited GROUND that is not as easily conceptualized as GOAL (see Chapter 3 Section 3.2.2) receives a non-directional interpretation by the overwhelming majority of the speakers as illustrated in Table 7-2. The construction itself does not seem to add much to the preferred dynamic interpretation of (7-12).

Turning now to sentence (7-11b), we note that, apart from the world knowledge, kids will not be leaping around on German tanks during the war (i.e. a non-directional interpretation), an additional semantic clue facilitates the dynamic PATH reading. The
verb *leap* is a verb that predicates a perfective process (Langacker 1987:ch. 7). Perfective processes are bounded and include the beginning and end of the process within the scope of predication. A natural consequence of this perfectivity is that any unbounded reading necessarily introduces a notion of iterativity since the event is punctual. Manner verbs are typically imperfective but as will be discussed in Section 7.4, manner verbs do not form a homogeneous group and we can detect interesting differences among them with respect to *PATH* salience, which is closely linked to the notions of perfective and imperfective or bounded and unbounded processes. The claim is thus that the dynamic *PATH* reading in (7-11b) is mainly brought about by the verbal semantics. The verb *leap* typically refers to a single instance, a single jump. This can be seen when exchanging the verb *leap* for a verb that is less obviously referring to a single jump. In (7-14) *leap* is exchanged with *bounce* and some of the situational clues are eliminated.

(7-14) 'After the war, Italian kids bounced on German tanks.

Even though it is still possible to interpret (7-14) translocationally, i.e. as perceiving the kids as bouncing onto rather than up and down on the tanks, this reading is much less obvious than it is in (7-11b). Four out of five speakers opted for a non-directional interpretation of (7-14). *Bounce* is also a perfective verb since an imperfective reading necessarily introduces a sense of iterativity. However, the results from the survey additionally illustrate the greater salience of the imperfective reading. Consider the two examples from the survey in (7-15).

(7-15) a. 'Zedillo *bounced on* a stage under a threatening sky one recent afternoon.
   b. 'Finally, the 5-foot-11, 195-pound Runnion said, he "just went berserk,"
knocked down the 5-8, 110-pound Donnelly and bounced on her chest as she gasped “help me, help me.”

The results are illustrated in Table 7-3 below.

<table>
<thead>
<tr>
<th>PARAPHRASE</th>
<th>NUMBER OF AFFIRMATIVE ANSWERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Zedillo bounced up and down while being on stage</td>
<td>19</td>
</tr>
<tr>
<td>2. Zedillo bounced onto the stage</td>
<td>9</td>
</tr>
<tr>
<td>Both ok, 1 came to mind first</td>
<td>7</td>
</tr>
<tr>
<td>Both ok, 2 came to mind first</td>
<td>3</td>
</tr>
<tr>
<td>Neither</td>
<td>2</td>
</tr>
<tr>
<td>1. He bounced up and down while being on her chest</td>
<td>26</td>
</tr>
<tr>
<td>2. He bounced onto her chest</td>
<td>7</td>
</tr>
<tr>
<td>Both ok, 1 came to mind first</td>
<td>6</td>
</tr>
<tr>
<td>Both ok, 2 came to mind first</td>
<td>1</td>
</tr>
<tr>
<td>Neither</td>
<td>0</td>
</tr>
</tbody>
</table>

**Table 7-3: Results for Sentences 10 and 14 in Survey 2**

Again the results show a clear preference for a non-dynamic interpretation of both utterances. That is, in spite of the internal perfectivity of the verb, the constructional import of the IMC does still not suffice to coerce the prepositional phrase into the required directional reading. We can therefore conclude that the use of a low-ID preposition in (7-11b) is motivated by the semantics of the verb *leap*.

A clearly perfective verb can be seen in example (7-11c). The verb *step* generally refers to a single step that is completed once the foot makes contact with the surface predicated by the *ground*. The verb *step* is frequently found with low-ID prepositions which supports the view that it is profiling the endpoint to a high degree. Apart from the semantics of the verb, there are further clues in (7-11c) that bring about a dynamic interpretation of the utterance. The sentence describes a sequence of events with the
motion event as the starting point of the sequence. The embedding of the stepping event into this whole consecutive sequence superimposes a dynamic PATH reading and thus naturally delimits the motion event. That is, the sequential character of the described scene further enhances the perfectivity and temporal boundedness of the verb which at the same time brings about a dynamic endpoint reading. Hence, there are ample clues for a dynamic PATH reading and the speaker was able to choose a low-ID preposition like inside to effect a greater salience of the endpoint. In this case, the choice of the preposition brings about a highlighting of the interior of the house, rather than the PATH into the house. This effect is probably planned since the further course of action takes place inside the house and the speaker this way orients the hearer and already sets the stage for the ensuing development (see Section 3.2.3.1 in Chapter 3 for this effect of using the preposition inside in dynamic motion contexts).

Example (7-11d) is a complex PATH description. The first event described, that is the strolling outside the arena, receives a dynamic PATH interpretation through the described continuance of the path. Without this continued path description, the utterance would be ambiguous with a clear bias towards a non-translocational interpretation. The fact that verbs like stroll or wander which predicate an aimless roaming around are typically interpreted as referring to non-dynamic motion when combined with low-ID prepositions is shown in the survey results of the following sentence.8

8 It is interesting to note that sentence (7-16) receives quite a different result with the preposition inside. Merely 17 speakers claim that only a non-dynamic interpretation is possible while 15 speakers state they only get a dynamic interpretation from the sentence. That is, while there is still a slight majority opting for a non-dynamic interpretation, this difference is to be negligible. This difference brought about by the different semantic import of the preposition inside versus in, can be seen as supporting the analysis in Chapter 3.
(7-16) "Hodzic wandered in a portion of the Serb-held territory that surrounds Sarajevo and was captured and hauled off to a tiny, dark cell.

<table>
<thead>
<tr>
<th>PARAPHRASE</th>
<th>NUMBER OF AFFIRMATIVE ANSWERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Hodzic was wandering around in the territory</td>
<td>24</td>
</tr>
<tr>
<td>2. Hodzic entered the territory while wandering</td>
<td>6</td>
</tr>
<tr>
<td>3. Both ok, 1 came to mind first</td>
<td>5</td>
</tr>
<tr>
<td>4. Both ok, 2 came to mind first</td>
<td>4</td>
</tr>
<tr>
<td>5. Neither</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 7-4: Results for Sentence 7a in Survey 2

Finally, in (7-11e) the more static preposition in is the only possible choice in the given context. In the example, the door functions as an aperture, that is, the ground does not constitute the endpoint of path but instead it is the medium along which the path is carried out. In this usage, the preposition in obtains a trajectory reading directly comparable to that of the use of out in expressions like She threw the bottle out the window. Both into and inside cannot obtain this trajectory reading with the ground functioning as an aperture. The use of the preposition in in this case does thus not touch on the question of constructional coercion.

The examples shown in (7-11) are typical for the usage of low-ID prepositions with manner verbs in the IMC. That is, the choice is not a deliberate one to show that the construction does really not influence the path reading. We can therefore conclude from the analysis that the construction alone is not able to coerce a more static preposition into a dynamic reading if the verb used in the instantiation does not at the same time

---

9 For a similar analysis of out as predicking the trajectory rather than either source or goal see O'Dowd 1998. See Quirk et al. 1985 or Lindstromberg 1997 for the notion of aperture.
semantically suggest a certain dynamic PATH reading. Examples (7-12) through (7-16) show that generally, the combination of manner verbs with low-ID prepositions is, in the absence of further contextual clues, preferably interpreted as non-directional.

Two interesting observations follow from the above analysis. First of all, as has already been mentioned, the semantics of the verbs generally determine whether it is possible to use a low-ID preposition in the IMC. This will be further explored in Section 7.4. At first, we will discuss the second observation that the data suggest the existence of a hierarchy among the different components making up the constructional semantics with respect to their required lexical instantiation. The hierarchical ordering is mainly discernable between the two semantic components MOTION and PATH. The lexical predication of the element of PATH seems more important for the conceptualization of a dynamic motion event than the lexical predication MOTION.

7.3.1 A hierarchy of lexically required semantic elements

It has been shown that the low PATH salience coupled with the general imperfective character of manner verbs requires the explicit lexical predication of a dynamic PATH (Tenny 1995a, Levin and Rappaport Hovav 1991b). Tenny explains that

lexically, they [manner-of-motion verbs] are aspectually underspecified. The optional interpretation introducing a temporal terminus requires the importation of additional material. This additional material may be a goal phrase introducing a bounded path and a definite goal, such as to the river in John walked to the river; or a noun phrase introducing a linear bounded path such as The Appalachian Trail in Mary hiked the Appalachian Trail. Without this additional material, the unbounded reading prevails, and since the unbounded reading is more basic, the additional material is optional (Tenny 1995a:53).
The lexical predication of a dynamic PATH is further necessary since the construction itself has no disambiguating effect. Given that when using a low-ID preposition, the expression of directional motion is structurally identical to that of non-directional motion, the construction is just as ambiguous as the preposition or the verb. This constructional ambiguity coupled with the ambiguity of the lexical items has an important consequence for the IMC. The IMC is able to coerce verbs that do not predicate MOTION into a motion interpretation.

(7-17) Also Wednesday morning a U.S. warship steamed into Port-au-Prince harbor, resting just offshore, while the plane circled lazily overhead and a Blackhawk helicopter flew over the coastline.

As long as the verb is related to the construction by one of the listed sense relations, a motion interpretation is easily achieved. In fact, I would claim that no other interpretation is even possible. It is, however not equally possible to coerce prepositions that do not predicate a dynamic PATH into a dynamic interpretation even if they fulfill the necessary requirement of profiling the endpoint. This is specifically so if the verb is manner-predicating, that is, in the majority of the utterances. The conceptualization of a dynamic PATH thus automatically gives us MOTION if the verb predicates a possible sense-relation. But the conceptualization of MOTION does not also automatically give us a dynamic PATH if the preposition profiles the endpoint. The expression of a dynamic PATH is thus almost always obligatory in the IMC since the majority of utterances contain manner verbs (793 or 58.4% of the total 1358 examples). The construction itself is generally not able to supply the missing PATH information.

It is time to come back to an observation made in Chapter 5, Section 5.6. What is
the role of coercion with respect to prepositions in both the CMC and the IMC? Based on the analysis, it is possible to state that the construction is not in the position to coerce non-dynamic PPs into a dynamic reading. If the verb does not profile the endpoint or if the context is not sufficiently disambiguating, the fact that the construction demands a directional PATH specification does not suffice to bring about this reading. At least with respect to prepositions it can thus be stated that there is no such thing as constructional coercion.

The above observations opens up two different arguments. First, the question whether this applies to all verbs predicating manner or whether there are any differences among this vast class. This question involves what has been noted at the end of the previous section and before in Chapter 5, namely that the semantics of the verb determines the necessary degree of dynamicity of the PP. Second, another question that presents itself is whether there are differences regarding the necessary degree of lexical PATH-inciporporation between the IMC and the CMC. These questions will be the respective topics of the following two sections.

7.4 Degrees of PATH salience in motion verbs predicating manner

Tenny portrays all manner-of-motion verbs as being equally unspecific with respect to a possible bounded reading:

Since in their primary lexical sense, these manner-of-motion verbs are describers of manner, and since the measuring-scale most readily available to them is that of distance, and since the endpoint of a distance is a location, these verbs standing alone cannot encode the temporal terminus required for a bounded event interpretation. (...) manner of motion inherently has no potential terminus included in its meaning
Like Tenny, Talmy (1985) also strictly separates MANNER-conflating verbs from PATH-conflating ones and Levin and Rapoport (1988) and Levin and Rappaport Hovav (1991b) divide motion verbs into two distinct classes: One containing verbs that predicate inherently directed motion, their *arrive* class, and another class of verbs that predicate the manner of motion. Cross-linguistic evidence for this division has been amply supplied. First by Talmy (1985) and after that by numerous researchers who looked for the lexicalization patterns Talmy had distinguished in different languages (among others e.g. Schaefer 1985; Slobin and Hoiting 1994; Schaefer and Gaines 1997). And last but not least, research in the field of language acquisition further substantiates the difference between the two classes (cf. e.g. Choi and Bowerman 1991; Gropen, Pinker, Hollander, and Goldberg 1991).

Levin and Rappaport Hovav (1991b) offer an explanation for this division that is similar to Tenny’s observation. They summarize their own results in a different paper:

We conclude by pointing out an interesting generalization about possible verb meanings that emerges from these studies: there do not seem to be verbs in English that lexicalize both manner/means and result/direction components. Why should these meaning components be in complementary distribution? In Levin and Rappaport Hovav (1991), we suggest that results and directions, unlike means and manners, can be used to delimit the time course of an event. Specifically, the notions of result and direction seem to be closely tied to the notion of telicity (boundedness in time) (...). In contrast, the notions of means and manner appear to be connected to the notion of durativeness. The complementary distribution of these meaning components may reflect the impossibility of having a verb that denotes an event that is both bounded and not bounded in time (Levin and Rappaport Hovav, 1991a:147f).
I noted before in Section 7.2 that lexicalization should be considered a matter of degree. Without wanting to argue against the separation between PATH and MANNER predicating motion verbs, I nevertheless propose that instead of making a binary either/or distinction between these two verb classes we should rather place them at opposite ends of a continuum. The nature of this continuum is one of degree of schematicity with respect to MANNER as well as PATH. The PATH component is practically non-existent in the case of prototypical motion + manner verbs like walk, swim, trudge, or stagger. However, we already perceive more of a PATH idea in verbs like dart, jump, or climb. A verb like meander, on the other hand, does not really have a manner component. It predicates the shape of the PATH a FIGURE takes. Nevertheless, it is clearly seen as referring to an aimless, casual wandering around. Thus people do have a notion of both PATH and MANNER. At the other end of the continuum, we then find verbs like enter or descend which have no manner specification at all.\(^\text{10}\)

To come back to the IMC, we would on the basis of the analysis, predict that manner verbs do not all behave in the same way within the construction with respect to the possible patterning with a low-ID preposition. That is, it is expected that speakers would be more willing to interpret a sentence containing a manner verb with a certain degree of PATH salience combined with a low-ID preposition as expressing directional motion than a sentence containing a manner verb that is completely unspecific with

\(^\text{10}\) It is possible to make this continuum much more complex which is, however, not the aim of the present investigation. Consider a verb like sink. It is clearly a path conflating verb, though at the same time it lexicalizes a schematic GROUND in that sinking is only possible within a liquid. This at the same time includes manner information. Sinking in a liquid is a rather slow process (depending of course on the density of the sinking object), it does not involve the use of limbs, the moving object does not need to exert any force since the process is determined by gravity, etc.
respect to PATH. Before testing this prediction, a further restriction needs to be noted. The constraint that has been formulated for the CMC is still expected to hold true, namely that the internal profiling of the verb and the preposition have to match in order for the preposition to receive a directional reading. The group of verbs for which the prediction should hold true is thus limited to that of manner verbs evoking the goal.

7.4.1 Goal-directed manner verbs and their use in the IMC

To test the prediction made in the previous passage, I chose verbs that seem to semantically imply a certain goal-directedness, namely *dash*, *dart*, *fall*, *drop*, *jump*, and *hop*. These three lexical pairs will now be examined in turn.

Both *dash* and *dart* imply a sudden, short, rapid forward motion. It is not possible to claim that these verbs semantically specify the reaching of a goal. However, the nature of the motion predicated by the verbs clearly favors a directional interpretation. The sudden onset of the motion in both cases suggests either the rushing away from a source of danger or discomfort or the urge to reach a specific location. In (7-18) and (7-19), we see examples that illustrate typical uses of both verbs.

(7-18) a. Early Thursday morning, U.S. Air Force Capt. Scott F. O’Grady, the jet pilot who was shot down and stranded for six days in western Bosnia, darted out of the pine forest where he had hidden and sprinted to a Marine helicopter that had come to rescue him.

b. Darting inside her dimly lit kitchen, she came back with two checks: “A kilo of sugar was 57 centavos, now it’s 45.”

c. Uncertain where the robbers were, Silver darted into the jungle.

(7-19) a. Mourning paramedics were called upon to administer first aid to a visiting firefighter who fainted near the front door and then, halfway through the ceremony, the crew of a rescue truck discreetly dashed from the cathedral, donned its turnout gear and sped off on an emergency call.
b. He parks on Heidelberg Street behind a polka-dotted AMC Hornet, then **dashes inside** a polka-dotted house.
c. They **dashed into** the U.S. Embassy and sought refuge.

As the examples in (7-18b) and (7-19b) illustrate, we find uses of both *dash* and *dart* in the corpus that combine these verbs with low-ID prepositions. Yet, we have to exclude the possibility that the sentences only allow for the use of a low-ID preposition because of the contextual information, hence see (7-20) and (7-21).

(7-20) a. "She **dared inside** her dimly lit kitchen.
   b. "Silver **darted in** the jungle.

(7-21) a. "He **dashes inside** a polka-dotted house.
   b. "They **dashed in** the U.S. Embassy.

All five consulted speakers received a directional interpretation upon reading these sentences. They commented that the sentences also allow for a non-translocational reading but that it would be strange. The perceived strangeness possibly comes about through the sense of intentionality of either getting away from something or getting somewhere. Since both verbs have a sense of suddenness and urgency and also a sense of a need to move away or toward a specific location, a non-directional interpretation goes against the semantics of the verbs. Yet, the distribution of prepositional phrases used with the two verbs that is shown in Table 7-5 might at first seem to go against the above analysis of *dash* and *dart*. 
<table>
<thead>
<tr>
<th></th>
<th>SOURCE</th>
<th>TRAJECTORY</th>
<th>GOAL</th>
<th>OTHERS</th>
<th>TOTAL(^1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>dart</td>
<td>13.6% (16)</td>
<td>40.0% (46)</td>
<td>27.1% (32)</td>
<td>20.3% (24)</td>
<td>100% (118)</td>
</tr>
<tr>
<td>dash</td>
<td>22.9% (27)</td>
<td>17.7% (21)</td>
<td>47.5% (56)</td>
<td>11.9% (14)</td>
<td>100% (118)</td>
</tr>
</tbody>
</table>

**Table 7-5:** Distribution of PPs for dart and dash

Considering the internal semantics of the verbs, it seems strange that they frequently pattern with trajectory prepositions. In fact, for the verb *dart*, trajectory-referring PPs constitute the majority of the utterances. The verb *dash* clearly displays a preference for goal-PPs, however, trajectory PPs are not at all uncommon. Both verbs are thus frequently used to describe motion without any special emphasis on either the starting or the endpoint of the event. The examples in (7-22) illustrate this usage for *dart*.

(7-22) a. He could almost see and hear the bustle of the former military encampment; soldiers trudging along and choppers churning overhead, the "mechanical mules" darting around the red tents and sandbag bunkers.

b. Life with the bridge, Mayor Jack Alter proclaimed, is a litany of unreimbursed costs and misery -- streets clogged in the morning with bumper-to-bumper traffic, motorists darting around side streets looking for quick entry to toll booths, risky crossings for school children, inordinate expense for the police, the courts and road upkeep, and not a cent in return from the authority, the bridge’s tax-exempt owner.

Closer scrutiny reveals that even this use with trajectory prepositions does not go against the above analysis. Considering the examples in (7-22), we note that one specific characteristic about *dart* is that it frequently implies a sort of zigzag motion that goes from one location to the next. As is clearly observable in (7-22b), this kind of motion

\(^{11}\) The total of 118 utterances corresponds to the total amount of concrete spatial descriptions of motion containing PPs with the verb *dash* in the NAN. There are more occurrences with the verb *dart*, however, the same number of instances was looked at since the number of examples suffices to show the preferred distributional pattern of the verb.
does not lose any of the intentionality and purpose-directedness. In the case of *dart*, the use of trajectory prepositions is thus not equivalent to aimless, roaming motion as is generally the case with other verbs that in the majority of uses take trajectory PPs like *wander, roam, or stray*. Looking at the verb *dash*, we can make similar observations.

(7-23) a. During her recent visit, she dashed through a Seattle supermarket, picking out foods she served at her foster daughter's wedding.

b. We watched for a while, then dashed through the rain to breakfast—an appropriately hearty meal that featured stacks of fresh blueberry pancakes.

c. The onlookers in the dozen vehicle caravan shadowing the hunting party were about to turn toward home when suddenly -- dashing across a freshly mown pasture, hellbent for a patch of trees -- bolted a large red fox.

First of all, we note that *dash* patterns with goal PPs in the majority of the cases. Only 17.7% of the occurrences are with trajectory PPs. Yet even in those cases, the motion described does not refer to an aimless roaming. As illustrated in (7-23), the trajectory PPs used with the verb *dash* typically receive an endpoint interpretation.

The frequent occurrence of trajectory PPs with *dart* in particular, but also to a certain degree with *dash*, is thus no argument against the above semantic analysis. Due to their semantics of sudden purposeful movement, both *dart* and *dash* are preferably interpreted as referring to dynamic goal-directed motion. This observation has two further implications. First it is possible to state that these two manner verbs actually evoke a schematic *PATH* specification which guides the interpretation of possibly ambiguous utterances. Second, the understood dynamicity and resulting goal-directedness of the verbs allows them to pattern with low-ID prepositions without losing the dynamic interpretation.

The second verb pair that will be investigated is *fall* and *drop*. Both verbs clearly
have a directional bias with an understood goal specification. As has already been pointed out in Section 4.3.1 for the use of drop in the CMC, both verbs predicate a kind of motion that is determined by the laws of gravity. It is interesting to note, however, that even though these verbs are very similar in that both have a sort of natural goal, they are not comparable when it comes to the patterning with different prepositional phrases.

<table>
<thead>
<tr>
<th></th>
<th>SOURCE</th>
<th>TRAJECTORY</th>
<th>GOAL</th>
<th>OTHERS</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>drop</td>
<td>14%</td>
<td>4.4%</td>
<td>74.8%</td>
<td>6.8%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>(35)</td>
<td>(11)</td>
<td>(187)</td>
<td>(17)</td>
<td>(250)</td>
</tr>
<tr>
<td>fall</td>
<td>36.0%</td>
<td>15.2%</td>
<td>47.6%</td>
<td>1.2%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>(90)</td>
<td>(38)</td>
<td>(119)</td>
<td>(3)</td>
<td>(250)</td>
</tr>
</tbody>
</table>

Table 7-6: Distribution of PPs for drop and fall

Table 7-6 shows a clear preference for goal PPs for the verb *drop*, whereas the verb *fall* is fairly balanced between the number of source and goal PPs. This difference is easily explained when we consider the semantics of the two verbs. The verb *drop* in intransitive usage generally refers to a fairly controlled movement that does not imply a prolonged stretch of free fall. Instead, it is typically a short time and distance during which the FIGURE is, often willingly, exclusively subject to the laws of gravity. This usage of the verb *drop* is illustrated in (7-24a). In (7-24b) another possible use is shown. Here the movement is not a controlled, intended motion since the FIGURE is inanimate. Nevertheless, the actual fall of the FIGURE is again only of a short distance.

(7-24) a. He dropped to his knees to kiss the ground and to pray.
   b. Other sources close to the investigation said it appeared that wheels on one axle of the first car on the train, the mail car, slowly climbed on top of the rail as the train rounded a slight curve, then dropped to the road bed.

What both sentences in (7-24) have in common and what is, in fact, typical for the verb
in its intransitive usage is that the FIGURE does not fall from a specific elevated location but rather from its natural position to the supporting surface below. The FIGURE is typically at all times in contact with the GROUND as in (7-24a). The starting point of the event is thus not very crucial for the conceptualization of the scene as is also evident from the low percentage of source-predicating PPs patterning with the verb. The starting point is typically the default positioning of the FIGURE with respect to the respective GROUND. More important is the final configuration since the movement is generally intentional. That is, the FIGURE drops in order to then carry out a specific activity as illustrated for example in (7-24a). This analysis is supported by the fact that in intransitive usage, the FIGURE is typically animate if not human and thus able to willfully control any motion. In 100 occurrences of the verb drop in intransitive utterances, 83 FIGURES were animate as opposed to 12 inanimate FIGURES.

This is very different with the verb fall. Here we find 44 animate FIGURES and 46 inanimate FIGURES in 100 occurrences. The verb fall implies a loss or general lack of control and is typically an unintentional motion. The verb fall further implies that the FIGURE is actually moving without any support from or contact with the ground. That is, the FIGURE typically passes a certain distance through the air. The goal of this kind of motion is completely predetermined and generally not necessary to mention. It is whatever surface is below the one the person or thing fell off. Considering the free fall, it is of course much more interesting where the event started since that allows us to ascertain the degree of damage suffered by the FIGURE object. This increased interest in the source is expressed in the number of source-expressing PPs that pattern with the
verb. The examples in (7-25) illustrate some typical uses of the verb.

(7-25) a. A little boy falls off a refrigerator and damages his testicles.
     b. The five-story Israel Jewelry Exchange had barely a window intact, and masonry was still falling down from a restaurant whose sign boasted of “Hungarian blintzes --Original -- Strictly Kosher.”

Notwithstanding the difference these two verbs display, both express a motion that is determined by the laws of gravity. The goal is therefore easily recoverable from context if it is not expressed lexically. This further implies that there is clear expectancy we maintain with respect to the path the figure takes. Both verbs are fairly path salient even though they lexicalize the manner of motion. We would thus expect them to be able to pattern with low-ID prepositions in the IMC and still maintain a dynamic path reading. That this is, indeed, the case is supported by the fact that both verbs appear with low-ID prepositions in IMC utterances within the corpus as shown in (7-26).

(7-26) a. The area being worked on should be covered with plastic, so dust falls on plastic and not on other surfaces.
     b. During the Gulf War, Scud missiles fell in this neighborhood.
     d. Moreover, any effort to shoot down such a plane could miss and hit another aircraft landing or taking off at National Airport, or could fall in a heavily populated area.
     e. 200,000 died after the bombs dropped on Hiroshima and Nagasaki.

Even utterances that are more ambiguous are still interpreted as referring to directional rather than non-directional motion. The examples in (7-27) show some original corpus examples with high-ID prepositions. In (7-28), these are exchanged for the

12 A further reason for the high percentage of source prepositions is the fact that with a verb like fall it is not necessary to lexically predicate the goal. With the expression of the source enough information is given to conceptualize the entire motion event since the goal is predetermined (Stefanowitsch and Rohde 1999).
corresponding low-ID ones as well as changed a little to reduce the contextual clues.

(7-27) a. Helmoren Alar, who was on the Cebu City’s sun deck, said he helped push screaming women and children onto the cargo ship before he fell into the oily water.
   b. The berries fall onto a conveyer belt and are carried to a bin.
   c. The helicopter was hit by one shot and fell aflame into a ravine.
   d. The church where Yeltsin was baptized —and, he wrote, dropped into the water and nearly forgotten by a drunken priest — was turned by the Communists into a movie theater and is now being reconverted.

(7-28) a. He fell in the oily water.
   b. The berries fall on a conveyer belt.
   c. The helicopter fell in a ravine.
   d. He dropped in the water.

The sentences in (7-28) were all judged as referring to translocational motion by the consulted speakers which supports the claim that the verbs are inherently PATH salient even though they express MANNER. That the verbs are predicating MANNER rather than PATH is further evident from the fact that both verbs can be used freely with any kind of preposition as illustrated in Table 7-6. That is, we can fall or drop into, onto, through, along, from, out of etc. Note that this is not possible with real PATH predicating verbs in Talmy’s sense. It is for example not possible to *enter out of x or to *arrive into x.

Interestingly, Levin and Rappaport group verbs like fall into their ‘arrive class’. They were probably motivated to do so by the clear directional component in these verbs. However, the goal-directedness comes about through world knowledge, it is not lexically specified. Note that the actual reaching of the ground is not necessarily entailed. It is possible to say He was falling for hours and hours without ever reaching the ground whereas it is generally not possible to say He was arriving for hours and hours without
ever getting there. These verbs thus clearly show that there is a need for establishing a
continuum between the different verb classes from strictly lexicalizing MANNER to
strictly lexicalizing PATH rather than separating them completely.

As an aside, before continuing with the last pair of verbs that we want to look at, I
would like to contrast the above utterances with the one illustrated in (7-29), which was
included in the survey.

(7-29) When she turned around, she saw that the cat was climbing in the tree.

The results are illustrated in Table 7-7.

<table>
<thead>
<tr>
<th>PARAPHRASE</th>
<th>NUMBER OF AFFIRMATIVE ANSWERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The cat was climbing into the tree</td>
<td>1</td>
</tr>
<tr>
<td>2. The cat was in the tree, climbing around</td>
<td>29</td>
</tr>
<tr>
<td>Both ok, 1 came to mind first</td>
<td>4</td>
</tr>
<tr>
<td>Both ok, 2 came to mind first</td>
<td>6</td>
</tr>
<tr>
<td>Neither</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 7-7: Results for Sentence 6 in Survey 2

The verb climb used in the IMC with a low-ID preposition very obviously receives a
non-directional interpretation. It is instructive to contrast a verb like climb with verbs like
fall or drop. The comparison illustrates the need for verb-inherent endpoint profiling in
order for a dynamic interpretation of manner verbs within the IMC to be possible. The
verb climb has no natural endpoint. It is often used to refer to upward motion, but this is
certainly not semantically specified (compare Lakoff 1987 for the possible uses of climb
for horizontal or even downward motion). Thus, even though there might be a certain
expectancy that climb refers to upward motion, the direction is pre-determined as it is
with a verb like fall. Apart from the missing directionality, the aspect that is even more relevant is the missing endpoint profiling. As could clearly be seen in (7-29), there is no expectancy that the predicated ground, the tree, constitutes the endpoint of the motion. If the ground does constitute the endpoint, then this is typically lexically predicated by using a dynamic PP as illustrated in (7-30).

(7-30) In parts of Belgium and Germany, the police reported that flood control efforts were being hindered by “flood tourists” who climb onto sandbags to view inundated areas and even applaud when water overflows a dam or a dike.

Turning now to the last pair of verbs, jump and hop, we note that they are preferably interpreted as goal-referring when used with a non-dynamic, potentially goal-expressing preposition like in or on. This goal directedness can be easily altered when a different preposition is employed. The phrases jumping around or hopping along have nothing goal directed about them. The interpretation then changes from a perfective to an iterative mode depending on the preposition. This iterative reading shows that these verbs do not express an internally homogeneous and unbounded activity which is otherwise typical for manner verbs. The notion of boundedness present in the verbal semantics motivates a possible dynamic goal interpretation in utterances containing low-ID prepositions. Thus, in the corpus, we frequently find the verb hop used with low-ID prepositions in the IMC as shown in (7-31).

(7-31) a. So what did it all amount to, that memorable summer day when Armstrong and Aldrin hopped on the lunar surface, 240, 000 miles from Earth.
   b. Chris hopped in the back of the car, behind Davis, and demanded: “Take me to McDonald’s.”
   c. After a fitful breakfast of fruit, cheese, toast and egg prepared by Jette, I'd
hop on my bike and join the rush-hour bicycle traffic across the bridge to Stroget in the city center.

With the verb jump it is equally possible to use low-ID prepositions.

(7-32) a. Taking up this new mood, Zhelev jumped on a plane to attend Bulgaria's match with Italy in East Rutherford, N.J.
b. Three rail-thin women have jumped on the counter behind his record boxes and shake their hips to the beat that rocks the floors, tables and wall.
c. After the tour to the dismay of spectators in front of the center's playground, Diana skipped the hand-shaking bit, jumped in a navy blue Jag and sped off.

Obviously, these sentences contain a lot of contextual clues. However, even without them, the sentences are preferably interpreted as referring to dynamic motion. Consider the utterances in (7-33) and (7-34) which were all judged as expressing directional motion by all five speakers.

(7-33) a. 'Aldrin hopped on the lunar surface.
b. 'Chris hopped in the car.
c. 'I hop on my bicycle.

(7-34) a. 'Zhelev jumped on a plane.
b. 'The women jumped on the counter.
c. 'Diana jumped in the Jaguar.

Before ending this section, I would like to briefly touch on one further aspect. It could be argued for the sentences in (7-33) and (7-34) that it is the tense form of the verb that motivates a goal reading. A terminated event is more likely to be viewed as goal-oriented since the temporal frame already profiles a final state reading (for the relation between PATH and telicity see for example Tenny 1995b). On the other hand, an ongoing,
imperfective process would rather be perceived as unbounded since neither the beginning nor the end point of the process is in profile in an imperfective event (compare Langacker 1987, ch. 7). The use of the progressive aspect thus de-emphasizes any temporal or spatial boundaries whereas a past tense form bounds an event in time. It is true that the use of the progressive aspect would introduce an iterative reading in the case of the sentences in (7-33) and (7-34) and with that undermine the goal interpretation. However, it is also a fact that whereas the sentences in (7-33) and (7-34) were interpreted as expressing translocational motion by the five consulted speakers, the examples in (7-35) were all interpreted as expressing non-translocational motion.

(7-35) a. 'She paraded in the house.
   b. 'She climbed in the tree.

It is thus possible to maintain that it is the inherent goal salience of the six examined verbs that allows for the use of low-ID prepositions in the IMC rather than the fact that the utterances were mainly in the past tense. The latter is certainly a contributing factor, but as we can see by the interpretation of the examples in (7-35), it is certainly not the only relevant aspect.

A complex picture has emerged. Whereas the last section (7.3) ended with the claim that the IMC cannot coerce more static prepositions into a dynamic reading when the instantiating verb is a manner verb, this section has shown that we have to differentiate between the different manner verbs since there are indeed some that can be used with low-ID prepositions to express dynamic scenes. Verbs that semantically evoke a goal are generally interpreted as referring to translocational motion. Further, verbs that
are preferably interpreted as referring to a bounded activity also allow for the use of low-ID prepositions since the perceived boundedness of the event supports a goal interpretation of the prepositional phrase.

Nevertheless, it is still the case that the majority of the verbs used in the IMC cannot be used with low-ID prepositions to express dynamic motion. That is, we still have to account for the fact that even though manner verbs fully instantiate the construction, the prepositional phrase is generally not allowed to deviate.

7.5 Comparing the three major motion constructions of English

It was shown in the beginning of this chapter, that the IMC is fairly restricted when it comes to the use of either non-motion verbs or non-dynamic prepositions. The IMC is typically fully instantiated and that to a considerably higher percentage of occurrences than the CMC. Not fully instantiated occurrences make up 18.6% of the CMC within the data set, whereas they only make up 9.4% of the total occurrences of instantiated IMCs. In this section I will argue that there are two main reasons for this discrepancy. The first reason involves the internal make up of both constructions. That is, the fact that the CMC has one further participant, the AGENT, that exerts force upon the FIGURE. This external force already introduces a certain directionality into the described scene which the IMC lacks. This finding will be discussed in more detail in 7.5.1.

The second reason for the low percentage of not fully instantiated utterances is the existence of the way-construction. This constructions is highly productive in that an extremely wide array of verbs can be used with it. I will argue in 7.5.2, that the existence of the way-construction limits the degree of creativity of the IMC.
7.5.1 Comparing the IMC with the CMC

The fact that the CMC includes two participants, one of which is the AGENT and one of which is a moving FIGURE, has several consequences that all lead to the conclusion that the constructional ambiguity of the CMC is considerably lower than that of the IMC. It is well known that the notion of the AGENT is closely related to that of SOURCE. This connection has been commented upon within the localist tradition (cf. e.g. Anderson 1971) but also in more functional and cognitive approaches to language (cf. e.g. MacWhinney 1977, Lakoff and Johnson 1999) and it has even been remarked upon as already playing a role in the process of language acquisition (Clark and Carpenter 1993). One example that is often used to demonstrate the conceptual relatedness of SOURCES and AGENTS is the fact that cross-linguistically many languages mark the AGENT phrase in a passive as a SOURCE expression (Ikegami 1986).

Within the CMC, the AGENT functions naturally as a source since the AGENT is the instigator of the expressed motion event. Thinking in terms of the action chain as introduced by Langacker (1987, 1991) this is easily understandable.

An action chain arises when one object makes forceful contact with another, resulting in a transfer of energy; this second object is thereby driven into contact with a third, again resulting in the transmission of energy; and so on indefinitely, until the energy is exhausted or no further contact is made. The initial object in such a chain will be referred to as its head, and the final object, as its tail. Naturally, the simplest non-degenerate action chain is one in which the head and tail interact without intermediaries, so that there are only two participating objects (Langacker 1991:283).

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13 But see Schultz-Berndt (1993) for the coding of AGENTS as locations in some Australian languages and Ikegami (1986) for the marking of AGENTS as goals in Japanese.
14 This is, for example, the case in German: a) Er kam von der Schule nach Hause (‘He returned home from school’); b) Die Tür ist von dem Hund geöffnet worden (‘The door was opened by the dog’).
Thinking of the CMC in terms of the action chain, it is immediately apparent why the AGENT is at the same time the source of the FIGURE's motion in a physical as well as a spatial sense. The energy flow within the action chain originates with the head that makes contact with a stationary object, the tail. This object then starts to move into a specific direction because of the energy transfer that takes place once the primary force comes into contact with the second object. For this moving object, the primary force thus functions as the source of energy but at the same time as the spatial source. Since the object only starts moving once it makes contact with the head, the starting point of the motion coincides with the location of the encounter. Further, the forcefulness of the impact as well as the way in which the contact is made determine the length as well as the direction of the ensuing path. Translated into the CMC, the external force is the AGENT, which thus functions as an energy source as well as the source of the PATH. The FIGURE is the moving object which is set into motion and directed by the AGENT. The PATH is thus determined by the causal force, an important constraint that we could observe for the CMC in Chapter 5.

Most important for the present investigation is the fact that the existence of an AGENT brings about a notion of directionality as well as dynamicity. The structure of the construction thus already supplies a default starting point as well as a default direction. The default starting point for the moving FIGURE is the location of the AGENT. Yet, it is important to note that it is only a default starting point. Naturally, other starting points that need to be lexically specified are possible. Thus it might be the case that the force exerted by the AGENT is not one of direct physical contact as for example in (7-36).
(7-36) For Clinton, who has been heavily criticized by Republicans in Congress and by many in the foreign policy establishment for indecision and softness in foreign policy, the Persian Gulf buildup marks the second time in a month he has ordered the U.S. military into the field.

In (7-36) Clinton, is the energy source, or the head of the action chain, but he does not at the same time constitute the source of PATH. It is only in prototypical CMC examples that the AGENT is at the same time the spatial source.

The default direction, is motion of the FIGURE away from the AGENT and towards the specified GROUND. Within the CMC, it is also possible that the AGENT accompanies the FIGURE. In those cases it is, however, indispensable that the PATH is fully specified, i.e. expressed by a high-ID preposition. (7-37) illustrates this usage.

(7-37) Anybody who has repressed us, we are taking their guns, “declared Jacques Fritz, who led a 200-man mob Tuesday morning into the home of a local police section chief.

Comparing the structure of the IMC to that of the CMC, it is immediately apparent that through the lack of a second participant, there is no sense of internal directedness. That is, there is no energy flow and causal chain between two participants that could influence the interpretation of ambiguous utterances. In the IMC, the single participant is AGENT and FIGURE at the same time. Any directedness of the described motion thus needs to be lexically predicated since the construction itself has no disambiguating effect.

There is one further important observation which ties in with the current argument. The syntactic frame of the CMC is used proportionately less frequently to express non-directional motion events than is the syntactic frame of the IMC. That is, the
manipulation of an object typically results in a directed motion event which is why the syntactic structure NP VP NP PP is mainly used for the CMC. The structure of the IMC which is much less specific and simply NP PP is, on the other hand, also frequently used to refer to non-directional motion since self-propelled motion is not as necessarily directed as is manipulated or caused motion.\textsuperscript{15}

To test whether it is, in fact, true that the structure of the CMC is less often used to express non-dynamic motion than is the structure of the IMC, I conducted another corpus search. The search included four different verbs: Two verbs that typically occur in the CMC and fully instantiate the constructional template and two verbs that typically occur in the IMC and also fully instantiate the construction. For the CMC, the verbs \textit{push} and \textit{throw} were chosen since both verbs can be used to express directional as well as non-directional motion within the syntactic frame. For the IMC, the verbs \textit{run} and \textit{walk} were chosen which fulfill the same criteria with respect to the IMC. For each verb, 100 occurrences of concrete spatial motion were extracted. It was then determined how often these verbs are used in the respective syntactic frame of the corresponding construction to express either directional or non-directional motion. The results of the search are shown in Table 7-8.

\textsuperscript{15} Naturally, both structures are also used for other utterance types that are not about motion at all. However, these do not influence the interpretation of either the CMC or the IMC. It is only other non-dynamic motion events that are of interest since they activate the same semantic domains.
Table 7-8: Dynamic versus non-dynamic usage of selected verbs in the syntactic frame of the CMC and the IMC

<table>
<thead>
<tr>
<th></th>
<th>DYNAMIC</th>
<th>NON-DYNAMIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>push (CMC)</td>
<td>93</td>
<td>7</td>
</tr>
<tr>
<td>throw (CMC)</td>
<td>98</td>
<td>2</td>
</tr>
<tr>
<td>run (IMC)</td>
<td>72</td>
<td>28</td>
</tr>
<tr>
<td>walk (IMC)</td>
<td>64</td>
<td>36</td>
</tr>
</tbody>
</table>

The results clearly show that the intransitive motion verbs are used significantly more often to predicate non-directional motion in a syntactic frame equivalent to that of the IMC than are the transitive motion verbs in a syntactic frame equivalent to that of the CMC. The syntax of the IMC is thus far less specified than the CMC. This further reduces the power of the construction and enhances constructional ambiguity. The lexical elements have to carry the burden of disambiguation to a higher degree than in the CMC. Hence, we find less examples that are not fully instantiated.

7.5.2 The way-construction as constraining the productivity of the IMC

The hallmark of the definition of a construction is that its instantiated utterances are not necessarily fully predictable from its constituent parts (Fillmore 1988; Goldberg 1995). We have seen that this holds true for the IMC whenever it is not fully instantiated which supports its construction status. However, we have also seen that in use, the IMC is almost always fully instantiated. Only 9.4% from 1358 utterances deviate from the constructional template. This percentage includes verbs that do not predicate MOTION as well as prepositions that do not predicate a dynamic PATH. Zooming in on the verbs, we find that we are left with only 7.8% that do not predicate motion as compared to 14.9%
of verbs that do not fully instantiate the constructional template in the case of the CMC.

In this section I claim that the existence of the way-construction blocks potential creative use of the IMC. The way-construction is illustrated in (7-38) (examples taken from Goldberg 1996b):

(7-38) a. He was scowling his way along the fiction shelves in pursuit of a book.
   b. Joe whistled his way out of the room.
   c. He hiccupped his way out of the room.

Goldberg analyzes the way-construction as being an amalgamation of creation expressions like He made a path and the IMC. She argues that

the way construction syntactically and semantically amalgamates these two constructions into a structure with three complements: the creator-theme, the created-way, and the path. That is, the way construction can be viewed as inheriting aspects of both the creation and the motion constructions, but as existing as an independent construction in its own right (Goldberg 1996b:39).

The way-construction is thus closely related to the IMC and it can be expected that we find a lot of semantic overlap. Goldberg distinguishes three semantic constraints that hold true for the way-construction: (i) the verb necessarily predicates a repeated action or unbounded activity; (ii) the motion must be self-propelled and for a lot of speakers even volitional; (iii) the motion must be directed, that is, aimless wandering around cannot be expressed with the construction. These three constraints do not apply to the IMC. Compare the sentences in the following sets of examples which illustrate the unacceptable variants of the way-construction and contrast these with the perfectly acceptable uses of the same verbs in the IMC (The a-examples are all taken from
Goldberg 1996b):

(7-39) a. ∗She jumped her way over the ditch.
b. ∗She jumped over the ditch.

(7-40) a. ∗The butter melted its way off the turkey.
b. ∗The butter melted off the turkey.

(7-41) a. ∗She wandered her way over the field.
b. ∗She wandered over the field.

In turn, the way-construction allows for uses that are not sanctioned by the IMC. If we turn the examples in (7-38) into IMC utterances, the resulting sentences are all unacceptable as shown in (7-42).

(7-42) a. ∗He was scowling along the fiction shelves in pursuit of a book.
b. ∗Joe whistled out of the room.
c. ∗He hiccuped out of the room.

The verbs used in the way-construction predicate what Israel (1996) classifies as ‘incidental activities’. That is, unlike within the IMC, in the way-construction the activity expressed in the verb does not have to be connected in a cause and effect relation to the motion expressed through the constructional import.

Apart from these differences, there is a lot of constructional overlap. That is, both the IMC and the way-construction are equally suited to express a means or a manner relation between the activity expressed in the verb and the constructional semantics. The examples in (7-43) and (7-44) contrast the expression of means in both constructions (a-examples taken from Goldberg 1996b):

(7-43) a. In some cases, passengers tried to fight their way through smoke-choked
hallways to get back to their cabins to get their safety jackets.

b. 'Passengers fought through smoke-choked hallways.

(7-44) a. For the record, Mr. Klein, as lead climber for the Journal team, pushed his way past the others, trampling the lunch of two hikers in his black army boots, and won the race to the summit.

b. 'Mr. Klein pushed past the others.

In (7-45), the expression of manner is shown to work for both constructions (a-example taken from Israel 1996):

(7-45) a. The wounded soldiers limped their way across the field.

b. The wounded soldiers limped across the field.

It is interesting to note an observation made by Israel, namely that it is a fairly recent development that incidental activity verbs made their way into the construction. The way in which he explains this development merits being quoted in full since it will provide a link to the argument why the way-construction blocks the productivity of the IMC.

It is useful, in this light, to consider the construction, in the terminology of Fauconnier and Turner (1994), as an example of a syntactic blend—that is, as a specialized grammatical pattern serving to combine disparate conceptual content of an activity verb with the basic idea of motion along a path. The trend toward verbs coding activities which are increasingly marginal to the achievement of motion thus reflects the construction’s gradually increasing power to blend different types of events into a single conceptual package (Israel 1996:226).

Israel notes a trend of increasing productivity of the way-construction. This trend is not observable for the IMC. As we have seen, the verbs used in the construction are mainly verbs predating MOTION. If they do not predicate MOTION, then the activity expressed in the verb is closely linked to a motion event in that the activity can easily be seen as
resulting in motion. The only other way of deviating semantically is to predicate a co-occurring activity which has to be an effect of motion. If speakers free themselves of the limits of the IMC, then they revert to the way-construction. Israel has shown that, unlike the IMC, this construction steadily increases its productive power. Why this should happen with the way-construction and not with the IMC is explained by considering the role of PATH played in the expression of intransitive motion. Israel notes that the way-construction provides a frame for conceptually packaging two events into a single one. That is, on the one hand, some incidental activity and, on the other hand, motion along a path. We have seen before in Section 7.3.1 that it is more important to lexically predicate PATH than the fact of MOTION. As long as the verb expresses one of the possible sense relations, MOTION is easily added through constructional import. PATH, however, generally needs to be lexically specified, be it in the verb or in the preposition. This observation is supported by what can be observed for the way-construction. Whereas the verbs are allowed to deviate more and more from the constructional template, the PATH-expressing part is fixed. That is, it is part and parcel of the construction to lexically specify an inalienable PATH in the form of a possessive. This path is seen as being created as the FIGURE moves along (Goldberg 1996b). It is further, almost redundantly, necessary to lexically predicate a dynamic PP. Never is the construction used with a low-ID preposition. The inclusion of a dynamic PP is absolutely obligatory. This redundant and explicit PATH specification motivates the use of ever more deviant verbs. Since PATH is so overly specified the conceptualization of motion in the absence of its lexical specification does not require much conceptual effort. An additional factor is that the construction is exclusively used to refer to directional motion. This is a big advantage
when comparing the way-construction to the IMC. As was shown in 7.5.1, the syntactic frame of the IMC is rather frequently used to express non-directional motion thus heightening constructional ambiguity.

I will conclude that the excessive PATH specification of the way-construction as well as the exclusive usage of the syntactic frame of the construction to refer to directional motion are both important aspects that make speakers use the way-construction rather than the IMC when wanting to blend different activities into a single conceptual packaging. The IMC leaves too much room for ambiguity when not adhering to the constructional template. The way-construction, on the other hand, leaves room for creativity since the use of non-motion verbs will nevertheless be easily understood as expressing a translocational motion event.

7.6 Summary and results

This chapter analyzed the IMC and the relation of the construction to its instantiating lexical elements. It was first of all established that the construction, in the overwhelming majority of uses, is fully instantiated. In a second step, a hierarchy of sense relations was established on the basis of the corpus data. The hierarchy brought up the question of how to classify instrument verbs and I argued that they should be considered motion verbs. Among other findings, the discussion showed that frequent usage of verbs not lexicalizing motion will over time bring about semantic change. The reduced polysemy that the recognition of constructions as linguistic units brings about is thus only applicable to verbs that are rarely used within the construction.

In the discussion about manner verbs used in the IMC, it was shown that
generally, manner verbs tend to be interpreted as referring to non-directional motion if the PP contains a low-ID preposition. That is, even though the verbs fully instantiate the construction, the construction is nevertheless not able to coerce the PP into a directional reading. It could be shown that it is, in fact, more important to lexically predicate PATH than MOTION. A lexically underspecified PATH leads to ambiguity that the construction is not able to resolve. Only verbs that are inherently directed towards the goal, i.e. which are endpoint-profiling, or verbs that are inherently bounded and thus support a goal interpretation, can be used with low-ID prepositions. No constructional import is detectable regarding the specification of PATH. This led to the conclusion that with respect to non-dynamic prepositions, it is no longer possible to claim that the construction coerces them into a directional reading. Regarding the expression of PATH, coercion is thus a non-issue. Rather than attributing the possible dynamic reading of low-ID prepositions to the construction, I showed that this interpretation comes about either through the semantics of the instantiating verb or through sufficient contextual clues.

This chapter has further shown that some manner verbs are inherently directional. This insight led to the suggestion of establishing a continuum between PATH and MANNER lexicalizing verbs. So far, they have been treated as two completely distinct verb classes. However, closer semantic analysis reveals that a lot of manner verbs evoke a notion of PATH whereas some PATH verbs also evoke a notion of MANNER.

The observed overall restrictedness of the IMC with respect to not fully instantiated utterances was examined and explained in two different ways. First of all, the IMC was compared to the CMC. This comparison revealed that due to the absence of internal directedness in the IMC, ambiguity cannot be resolved by constructional import.
The CMC was shown to be syntactically more specific in that the specific syntactic arrangement is mostly used to express directional motion. Yet, the structure of the IMC is also very frequently used to express non-directional motion. The construction itself is thus highly ambiguous. Finally, it was argued that one of the reasons for the restrictedness of the IMC is the existence of the way-construction. This construction, which also expresses intransitive motion, displays an excessive PATH specification, a fact, that offers a lot of freedom for the choice of verb.

Based on the analysis of this chapter and on the findings in Chapters 4 and 5, we are now in the position to reformulate the hypotheses posited in Chapter 4 into general constraints that govern both the CMC and the IMC. The Hypothesis 1 maintains that the CMC cannot add both MOTION and PATH and still yield a dynamic motion interpretation. That is, the construction is constrained in its ability to influence the interpretation of lexical elements. This hypothesis has been proven to be valid across both constructions and we can reformulate the hypothesis into what I will call the Lexical Specification Constraint: Sufficient semantic components need to be lexicalized in the constructional instantiations. The constructions cannot supply both PATH and MOTION information.

Hypothesis 2 was concerned with the correlation between a preposition's ID and the number of co-occurring verb classes. This hypothesis has also been verified for both constructions. The correlation could be shown to grow out of the fact that low-ID prepositions mainly cluster around certain verb types. These verb types have one thing in common: they are highly PATH-salient and typically profile the endpoint. The necessary semantic profiling of the endpoint in verbs that can be used with low-ID prepositions in dynamic motion events has been shown repeatedly and was identified as a further
restriction on Goldberg's formulated constraint that non-directional PPs used in the CMC have to profile the endpoint. I will name the constraint the Matched Profile Constraint: Both the verb and the preposition have to profile the endpoint of PATH in order for the construction to be able to coerce a non-dynamic PP into a dynamic reading.

Finally, Hypothesis 3 could also be verified for both constructions. It stated that the recoverability of PATH determines to a high degree the selectional freedom of verbs and prepositions in the CMC. We will call this the Recoverable PATH Constraint which entails that in the absence of sufficient contextual clues, either the verb or the preposition has to inherently specify enough PATH information to allow for an unambiguous decision between non-dynamic and dynamic motion.
8 CONSTRUCTIONS OF ARRIVAL AND DEPARTURE

It was already noted in Chapter 6 that certain verbs that are used within the intransitive-motion construction require a goal-point specification equal to what has been shown for verbs of positioning within the CMC. The verbs in question are what I term verbs of arrival. This class includes verbs like arrive, land, appear, reach, end up. It was further mentioned that we also need a source-point correlate for what I term verbs of departure. This class includes verbs like depart and leave. It is the objective of this chapter to now argue for this necessity of positing both a goal and a source-point specification for verbs of arrival and departure, respectively. Parallel to the treatment of verbs of positioning within the CMC, related constructions will be suggested in order to account for the fact that the two verb classes can exclusively be used with low-ID prepositions that predicate the endpoint or the starting point, respectively. That is, like verbs of positioning, these verbs violate the definition of the IMC. The IMC is defined as containing a dynamic path PP. This specification of a dynamic path is, however, unacceptable with verbs of arrival and verbs of departure.

In the following, verbs of arrival are discussed in Section 8.1. First, the argument is based on the complete non-occurrence of verbs of arrival with high-ID goal-predicating prepositions within the data set. Then, in a second step, it is determined whether this non-occurrence actually corresponds to non-acceptability. In 8.2, verbs of departure are investigated in parallel fashion. In 8.3, the existence of two constructions that are related to each other and to the IMC are proposed, the Intransitive-Arrival Construction (IAC) and the Intransitive-Departure Construction (IDC). Then, in 8.4, after having established the existence of these two constructions, it is shown that there is one
further verb class that has to be classified as belonging to the IAC rather than to the IMC. The verb class in question includes aspectual verbs that express the termination of an activity. Finally, in 8.5, the results of the analysis are summarized.

8.1 Verbs of arrival in the IMC

Verbs of arrival make up the majority of cases of motion verbs patterning with low-ID prepositions within the IMC. Out of the 81 cases of motion verbs patterning with low-ID prepositions within the data set, 47 occurrences include a verb of arrival. The class of verbs of arrival consists of the following verbs: approach, arrive, land, reach, set foot. The following prepositions co-occur with these verbs: from, along, between, in, at, outside, inside, on. It is noticeable that most of the prepositions are highly static. However, from and along do not really fit the pattern. These two exceptions will be looked at in more detail in Sections 8.1.2 and 8.1.3, respectively. First, the use of low-ID prepositions with the predication of the endpoint with verbs of arrival is examined.

8.1.1 The expression of an endpoint with verbs of arrival

In the current data set, there is not one co-occurrence of dynamic prepositions that predicate the reaching of the goal with verbs of arrival. This suggests that this verb class does not allow for a dynamic PATH specification. It will be investigated in the following whether this non-occurrence actually translates into unacceptability. If this turns out to be the case, then it is indeed justified to claim that we need the role of GOAL POINT for

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1 There might be other verbs that belong into this category, however, these are the ones found within the data set.
verbs of arrival. That is, the role PATH, that is generally used within the CMC and the IMC would once more be too broad. Should it turn out that the notion of GOAL POINT is necessary in order to account for the behavior of verbs of arrival within the IMC then this would independently strengthen the analysis of verbs of positioning and their functioning within the CMC that led to the specification of a GOAL POINT in Chapter 6.

The examples in (8-1) illustrate some typical uses of verbs of arrival in the IMC.

(8-1)  

a. But these days, he often shows up at dinners and galas with one of his two young daughters -- Sarah, 11, and Lally, 7 -- on his arm.

b. Two Coast Guard cutters arrived in Haiti Monday with 801 of the boat people who had chosen to return home, marking the largest single-day repatriation of Haitians so far.

c. He could only watch as the ball landed inside the right post for Stoitchkov’s fifth goal of the tournament.

d. Charles Johnson knows no man has yet set foot on the moon.

Verbs of arrival lexicalize MOTION and PATH\(^2\), however, as was shown in Chapter 6 for verbs of positioning, these verbs exclusively profile the endpoint of PATH. They are what has been termed restricted profile verbs. Note the unacceptability of the examples in (8-2) which are the same utterances as in (8-1) with the difference that the preposition has been exchanged for a dynamic one.

(8-2)  

a. *But these days, he often shows up to dinners and galas with one of his two young daughters -- Sarah, 11, and Lally, 7 -- on his arm.

b. *Two Coast Guard cutters arrived into Haiti Monday with 801 of the boat people who had chosen to return home, marking the largest single-day repatriation of Haitians so far.

c. *He could only watch as the ball landed into the right post for Stoitchkov’s fifth goal of the tournament.

d. *Charles Johnson knows no man has yet set foot onto the moon.

\(^2\) It can be argued that the verb land lexicalizes MOTION and GROUND rather than PATH, however it is at the same time highly PATH salient.
From the fact that verbs of arrival cannot pattern with high-ID prepositions, it becomes evident that the verbs exclusively profile a static endpoint and, in fact, focus on the moment when the motion predicated by the verb has come to rest. That is, the preposition's task is to exclusively relate FIGURE and GROUND in a static configuration. The locative complement of verbs of arrival functions to express the new location of the FIGURE, but it cannot at the same time express the dynamic reaching of that location.

The situation is thus parallel to what has been found out about verbs of positioning in the CMC which then led to the introduction of the CPC. Verbs of arrival, even though appearing in a syntactic frame identical to that of the IMC, cannot pattern with dynamic PPs even though a dynamic PP is one of the defining characteristics of the construction. The conclusion to be drawn so far is to once more opt for the specification of a GOAL POINT and to further posit a construction related to the IMC in parallel fashion to the introduction of the Caused-Position Construction. Before drawing this conclusion, it is, however, necessary to look at the use of the other prepositions that show up in the data set in co-occurrence with verbs of arrival, namely along and from.

8.1.2 Verbs of arrival and the use of trajectory prepositions

We find another parallel between the use of verbs of positioning within the CMC and verbs of arrival within the IMC when looking at trajectory-expressing prepositions. Consider the following example:

(8-3) On the perimeter of the former guerrilla stronghold in Chiapas, villagers recounted their Zapatista neighbors' rapid flight Friday as troops approached along the rutted dirt roads.
It is interesting to note that it seems the construal of subjective motion, that was discerned for trajectory predicking prepositions combined with verbs of positioning, is only partial with verbs of arrival. Verbs of positioning used with trajectory expressing prepositions exclusively allow for an interpretation of subjective motion. A dynamic \textit{PATH} interpretation is completely blocked. In (8-3) we can see, however, that instead of a complete blocking of a dynamic motion interpretation, what we find is a sort of blend of both construals. That is, the above sentence evokes a complex image that combines both a dynamic and a subjective motion interpretation. On the one hand, it is understood that the troops move down the roads towards the villages, i.e. a dynamic motion interpretation. On the other hand, there is a possible simultaneous understanding of the troops’ being spread out all over the roads and thus advancing in on the village in a closed phalanx, i.e. a subjective motion interpretation. Four out of five speakers reported that they interpret the sentence in both ways at the same time. In the subjective motion interpretation, the scene is scanned with respect to the positioning of the troops, whereas the dynamic interpretation allows a scanning regarding the troops’ ongoing change of location with respect to the road.

This blended construal can be explained using Fauconnier’s framework of grammatical blends (Fauconnier and Turner 1996; Mandelblit and Fauconnier 1997). The idea developed by him and his co-workers is that a novel, conceived motion sequence of events is blended with the corresponding construction. The blending can be partial which would be the case for verbs or prepositions not fully instantiating the constructional template, or it can be complete in cases of full instantiation. In the case of verbs of arrival, the blending between the verb and the construction is complete, since
the necessary semantic component of MOTION is predicated in the verb. Reaching ahead and positing for now the existence of the IAC, we would expect that in the online processing of an utterance containing a verb of arrival and a trajectory-predicating preposition as in (8-3), both constructions, that is the IMC and the IAC are activated. Both constructions are closely related. This close relatedness makes a co-activation extremely likely. Note that this analysis is further supported by the view taken in Barlow and Kemmer (1994):

...there is an additional aspect to schematicity that we exploit, (...), and that is the sense of a schema as a template or target. On this view, a particular utterance may be modeled on a schema, and yet deviate from it in some manner that is not predictable. The deviation may come about due to a variety of processes, such as interference from other schemas, extensions in the usage of particular lexical or grammatical items, and/or special semantic or contextual factors. (...) If this view is correct, then we would expect to find competition among schemas and blends of schemas (1994:25).

In the process of interpreting an utterance like the one shown in (8-3), we can suppose that the conceptualizer switches back and forth between a mapping of the lexical input onto the IMC and the IAC. This is exactly the kind of competition among schemas suggested by Barlow and Kemmer above. The verb suggests a mapping with the IAC since it corresponds to the semantics of the construction which can be paraphrased with ‘reaching a destination’. The preposition, on the other hand, suggests a dynamic, but non-goal oriented interpretation, thus the IMC seems better suited. A mapping of the utterance onto the IMC then results in a blended space configuration containing a dynamic motion interpretation, whereas a mapping with the IAC contains a static interpretation resulting in a subjective motion reading. This parallel activation of two
different interpretation routes is not unusual. Think of the effect of puns. Puns allow for a two-way interpretation, one of which is unexpected and therefore funny (see Lamb 1999). Once we are aware of both interpretations, we have no problem in switching back and forth between the two. This same switching back and forth between two different mappings is what we observe in the case of example (8-3).

In consequence, the finding that trajectory-predicating prepositions are not exclusively interpreted in a subjective motion sense does not weaken the argument for the necessity of a GOAL POINT specification for the IMC and a resulting related construction. In fact, the argument is even strengthened if we further consider the semantics of the verb *approach* and compare it to other members of the class of arrival verbs. What we see is that *approach* is not a very good representative of the category. The hierarchies of sense relations established for both the CMC and the IMC show that there are verbs that better fit the semantics of the construction and others that only marginally fit the constructional semantics but that can, nevertheless, be used in the construction. Comparing the verb *approach* to the other verbs of the category, it becomes obvious why this verb should allow for this multiple blended construal. Unlike other verbs of the class, *approach* does not semantically predicate the actual reaching of the endpoint. Instead, it merely expresses the approximation of the profiled goal. The verb itself does not imply the conclusion of the expressed activity and the co-occurring prepositional phrase thus merely expresses the envisioned final configuration of FIGURE and GROUND but not the actual arrangement. *Approach* thus appears to be a peripheral member of both the class of possible verbs instantiating the IMC and also of the projected IAC. A further clear indication for the peripheral status of *approach* is the fact
that it generally takes the GROUND as a direct object complement. That is, even though
the verb can take prepositional complements, these have to profile other PATH segments
than does the verb itself. It is not possible for the verb approach to take a goal PP, be it
dynamic or non-dynamic.

(8-4)  a. 'Cedras, 45, appeared wan and tired as he approached the stage to give his
five-minute address.
   b. *'Cedras, 45, appeared wan and tired as he approached onto the stage to
give his five-minute address.
   c. 'Cedras, 45, appeared wan and tired as he approached on the stage to give
his five-minute address.

The sentence in (8-4a) illustrates the typical usage of the verb approach with a lexically
predicated goal, which is to take the goal as a direct object complement. Sentence (8-4b)
is not a possible sentence in English since the verb approach cannot take a dynamic goal
PP. Sentence (8-4c) is once more an acceptable utterance. However, the PP does not
predicate the goal. Instead it can only be interpreted as predicking a location on which
the motion is carried out. The verb is used deictically without a lexically predicated goal.
This shows that the verb approach belongs to a different verb class altogether. Only
when it is used with PPs that predicate PATH windows other than goal, does the verb
match the syntax of the IAC as well as the IMC. It is then that these constructions are
also sufficiently activated to interfere with the semantic interpretation of an utterance as
was shown above. However, in its general usage the verb approach belongs to a different
construction altogether. We will not deal with this construction here. Suffice it to
mention that it is a further motion construction of the English language to which all
motion verbs that can take direct object PATH complements are linked.
To come back to verbs of arrival and the use of trajectory prepositions, it can be noted that these do not bring about the multiple blended construal that has been illustrated for the verb *approach*. Consider the example in (8-5) which is a slightly altered from an example in the corpus\(^3\).

(8-5) "The front of the plane landed relatively intact across a road, the center section was badly crushed and the tail section rammed into the kitchen of an empty house.

In (8-5), a dynamic motion interpretation is impossible, that is, the sentence is only interpretable in the way that the front of the plane is now positioned across the road rather than that it moved across the road while landing. The effect is thus the same as could already be observed for the CPC. Because of the restricted endpoint profiling inherent in the verb, a dynamic trajectory preposition is interpreted in a subjective rather than a dynamic motion sense. This finding together with the non-occurrence of dynamic goal-expressing prepositions with verbs of arrival emphasizes the need to posit a construction with a GOAL POINT specification.

### 8.1.3 Verbs of arrival and the use of source prepositions

Some of the verbs of the arrival class can be used with source prepositions. A fact which seems to go against the posited restricted endpoint profiling of these verbs. Both *approach* and *arrive* can be used with the preposition *from* and *are*, in fact, frequently used that way. The examples in (8-6) illustrate the usage.

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\(^3\) The original corpus sentence is the following: The front of the plane came to rest relatively intact on a road, the center section was badly crushed and the tail section rammed into the kitchen of an empty house
(8-6)  
a. Two cargo planes and desperately needed forklifts arrived Wednesday from Britain, U.N. officials said, as well as a six-man cargo handling team.  
b. Both Chechen leaders and ordinary citizens accused the Russians of launching the strikes to create panic and cause civilians to leave the city, presumably to make it easier for Russian ground forces that are approaching from the north and northwest.

What becomes evident when looking at the examples is that even though the verbs take source expressing complements, they nevertheless still profile the endpoint. Source profiling is additionally possible, but it does not cancel the endpoint profiling. Note that both verbs obtain a deictic reading when the endpoint is not expressed in a prepositional phrase. That is, in both examples, the endpoint has been established previously in the discourse. This possible deictic use is another difference that can be drawn when comparing verbs of positioning in the CMC and verbs of arrival in the IMC. Verbs of positioning cannot be used without a PP expressing the final location. That is, they cannot be used to deictically refer to a location previously established in discourse. Yet, approach and arrive can, be used without any PP as in She was fast approaching or He arrived yesterday. Note that it is not possible to say *She put the cup or *He placed the fork. The deictic character of approach and arrive thus makes the usage with source-expressing PPs possible without altering the endpoint profiling of the verbs.

A problem that arises is that an endpoint specification plus a source specification is generally interpreted dynamically. A dynamic interpretation would, however, violate the non-dynamic PATH constraint necessary for the positing of the IAC. I will therefore argue that the use of source-expressing PPs with verbs of arrival does not violate this constraint. The claim is that from in utterances as illustrated in (8-6) solely profiles a
location, i.e. a SOURCE POINT, and not a dynamic PATH. Two observations support this claim. First of all, verbs of arrival that can take source complements do not occur with the more dynamic source preposition out of. Secondly, it is not possible to use these verbs with a complex PATH description that includes both source and goal in a dynamic PP. These two observations are now discussed in turn.

The preposition out of is more dynamic than from even though they are both source-referring prepositions. The claim is that from can be used to exclusively profile a source point without, at the same time, profiling a dynamic PATH, whereas out of always necessarily profiles a dynamic source, i.e. a source location with an ensuing trajectory. The ID of both prepositions does not vary significantly, i.e. 0.838 vs. 0.802, respectively. Only judging from the ID, it would be necessary to claim that both are fairly dynamic prepositions. This is one case, however, in which we need to revert to the ED, that is the external degree of dynamicity, that was established in Chapter 3. The ED indicates how often a preposition is used in dynamic context in overall count, that is, not weighed against its static uses. With respect to the ED, there is a clear difference between out of and from in that out of is much higher on the cline. Out of the 19 investigated prepositions out of is ranked fifth on the ED scale whereas from is only on rank nine. This shows that out of is much more often used in dynamic contexts than from. A further piece of evidence for a difference with respect to dynamicity between from and out of comes from looking at the number of different verb classes each preposition collocates with. Within the IMC, out of patterns with 25 different verb classes in the data set. From, however, is much more restricted in that respect. We can see in Table 7-1 in the previous
chapter, that within the IMC from patterns with only 12 different verb classes.\(^4\) There is thus a noticeable difference with respect to dynamicity between the two prepositions since it has been established in Section 7.1.1 that dynamicity and the number of different verb classes the prepositions can pattern with correlate significantly. Further, it is interesting to look at the kind of verb classes both prepositions collocate with. Whereas out of does not seem to have clear preferences and can be found across the board, it is noticeable that from does not at all pattern with verbs not lexicalizing motion. A fact which supports the claim that from is not path salient. The preposition is further very sparingly used with any of the different subtypes of verbs lexicalizing the manner of motion. Typically from collocates with verbs lexicalizing motion and path, a further indication for the low path salience of the preposition itself.\(^5\)

One further observation supports the claim that from can be used to exclusively profile the source point. From is often used with the spatial adverb away. The use of away together with from enhances the dynamicity of the preposition and thus adds a path reading to the otherwise mainly source point profiling from. This heightened path salience is noticeable when comparing a sentence like He walked away from home with the questionable ?He walked from home. Walk a manner of motion verb with a very low degree of path salience, is generally not used with non-dynamic prepositions to express dynamic motion.

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\(^4\) This same difference between the two prepositions can be observed for the CMC. In that construction from collocates with 15 different verb classes whereas out of is found to pattern with 29 different ones.

\(^5\) To avoid misunderstandings it is at this point important to once more call into memory the very specific use of the notion path in this work. Path solely refers to a dynamic path, that is a path that presupposes translocational motion of the figure.
In conclusion we note that the high-ID from displays comes about through its frequent usage with PATH verbs. The preposition itself is not very PATH salient and can therefore be used to solely profile a SOURCE POINT. This is impossible with the very PATH salient source-expressing preposition out of. The difference between the two prepositions can be observed when using them with verbs of arrival.

(8-7)  

a. Chili peppers arrived from the Americas in the early 16th century, brought by the Portuguese.

b. *Chili peppers arrived out of the Americas in the early 16th century, brought by the Portuguese.

c. Chili peppers came out of the Americas in the early 16th century, brought by the Portuguese.

Sentence (8-7a) illustrates that the use of from is perfectly fine in combination with the verb arrive. In fact, as indicated by the bold face numbering, it is the original corpus example. Sentence (8-7b) shows that the use of out of is only marginally acceptable in combination with the verb arrive. Two speakers accepted the sentence whereas three objected to it. The fact that it is only the verb arrive and not any other element in the sentence that makes the use of out of questionable is illustrated in (8-7c), where the verb arrive is replaced with come. The resulting utterance is again fully acceptable which shows that the problem in (8-7b) is indeed the partial incompatibility of arrive and out of.

That the preposition from is, in fact, used to refer non-dynamically to the starting point of the motion when collocating with verbs of arrival is further supported by the fact that it is not possible to add a dynamic goal preposition. Within the IMC it is generally possible to elaborate on the PATH by further adding goal prepositions onto source
prepositions as in *She traveled from Cairo to Nairobi.* This is, however, not possible with verbs of arrival. Note the unacceptability of (8-8).

(8-8) ́*Chili peppers arrived from the Americas to Europe in the early 16th century.*

If the source PP were dynamic, then it should be unproblematic to further add a dynamic goal specification. However, it is only possible to lexically include the goal if it is headed by a low-ID preposition that does not profile a dynamic PATH as in (8-9).

(8-9) ́Chili peppers arrived from the Americas in Europe in the early 16th century.

Remember that it was noted in Section 5.1 of Chapter 5 that one characteristic of English is that it is not possible to combine a source preposition and a low-ID-goal preposition in a complex PATH description. The specification of source and goal demands at least a highly dynamic goal preposition in order to conceptually link both ends of the PATH. We have now found one exception to this rule. However, this exception only works because the entire prepositional complex is non-dynamic. In (8-9), the source preposition profiles the starting point and the goal preposition profiles the endpoint. But neither of them profiles a dynamic PATH. This analysis is further supported by the fact that the best ordering of this sentence goes against the generally adhered to iconic principle of mentioning the source before the goal. Speakers perceive (8-10a) to be a slightly better sounding sentence than (8-10b), though both are accepted as possible utterances.

(8-10) a. ́Chili peppers arrived in Europe from the Americas in the early 16th century.

b. ́Chili peppers arrived from the Americas in Europe in the early 16th century.
The verb exclusively profiles the endpoint and, therefore, the sentence is better sounding when the PP predicing this endpoint is positioned directly after the verb. Since the two PPs do not predicate a complex dynamic PATH description but rather a source point and an endpoint, the PP that is more salient in the verbal profile is better placed directly behind the verb. It is thus possible to maintain the analysis that verbs of arrival are restricted profile verbs that exclusively profile the endpoint.

8.2 Verbs of departure within the IMC

We saw that from can be used as exclusively profiling the starting point of a motion event without at the same time predicing a dynamic PATH. This analysis gains further support from the class of verbs of departure or verbs of motion away from a place. In the data set, the representatives of the category are the verbs bolt, emigrate, and leave. Again, there are other verbs that belong into this class but that do not show up in the extracted examples. A case in point is the verb depart.

Central members of this verb class exclusively pattern with the preposition from when indicating the place of departure, that is, the PATH profiling preposition out of is again only marginally acceptable. Verbs of departure can be seen as the correlate of verbs of arrival regarding the two extremes of a path. Verbs of arrival are restricted to the highlighting of the endpoint of a path whereas verbs of departure exclusively profile the starting point. We can therefore expect that these verbs can also not be used with any other overtly PATH referring prepositions. We will first examine this with respect to the expression of the source. Later, in Section 8.2.2 the use of trajectory-predicing PPs
with verbs of departure is examined before we turn to verbs of departure and their use with goal phrases in Section 8.2.3.

8.2.1 The expression of source with verbs of departure

Verbs of departure are restricted-profile verbs. As with verbs of arrival, this can be seen by the fact that verbs of departure generally only express the source point through the preposition from. The ensuing PATH is not profiled by the verb. This renders an utterance using the PATH-salient preposition out of as only marginally acceptable. The following examples in (8-11) and (8-12) illustrate this for the verbs leave and depart.

(8-11) a. In addition to the four buses leaving Oregon, buses will leave from Dallas, New Orleans, Independence, Mo., and Boston.
   b. When Gauguin departs from Paris in June 1886, he has not yet become the man of the myth.

(8-12) a. †?In addition to the four buses leaving Oregon, buses will leave out of Dallas, New Orleans, Independence, Mo., and Boston.
   b. †?When Gauguin departs out of Paris in June 1886, he has not yet become the man of the myth.

The sentences in (8-12) are not consistently judged as acceptable across speakers even though locations are often conceptualized as containers as in He went into the city or She came out of Ireland. This shows that it is not a mismatch regarding the relational configuration of the preposition with respect to the GROUND that effects the variation in acceptability. Instead, we can infer that it is the dynamic PATH specification that is not warranted with verbs of departure. This analysis is supported by the fact that there is not a single co-occurrence between depart and out of in the entire NAN corpus.
8.2.2 Verbs of departure and trajectory expressing prepositions

The basic analysis for verbs of departure patterning with trajectory-referring prepositions is analogous to that for verbs of arrival. Trajectory prepositions receive a subjective motion interpretation rather than a dynamic PATH reading. This is illustrated in the constructed example in (8-13).\(^6\)

(8-13) *The ships departed along the coast.

In (8-13), the only possible interpretation is that the ships departed from different points along the coast, hence a necessary plurality of ships. Note that the fact that trajectory-referring prepositions patterning with verbs of departure can only receive a subjective motion interpretation results in the necessity of a plural or mass FIGURE. That is, only a FIGURE that can be scanned along as if it were an elongated object can be used together with verbs of departure and trajectory PPs. A singular FIGURE is unacceptable with these verbs as illustrated in (8-14).

(8-14) *The ship departed along the coast.

The unacceptability of (8-14) as well as the subjective motion interpretation of the example in (8-13) provide further evidence for the positing of a source point specification for verbs of departure. Any preposition that is used in the construction is

\(^6\) It was unfortunately necessary to make up the examples since there are no occurrences of the verb depart with trajectory prepositions in the corpus. This is so even though the sentence in (8-13) is acceptable. At this point, we thus find proof for the claim that not everything that is possible will actually be found in a corpus, even a corpus as big as the NANN. A finding which underlines the importance of complementing the analysis of corpus data with speaker intuitions. Even though there generally is a strong correlation between
necessarily interpreted non-dynamically. If a non-dynamic interpretation is not possible, the utterance is unacceptable as shown in (8-12) and (8-14). Before finally putting forward the necessary new constructions, the use of verbs of departure with goal prepositions is investigated.

8.2.3 Verbs of departure and the expression of the goal

There is one interesting difference between verbs of arrival and verbs of departure when it comes to the inclusion of more than the profiled PATH window. Unlike with verbs of arrival, utterances containing verbs of departure cannot include a specification of the opposite end of the path, i.e. the goal. However, it is possible to lexically profile the directionality of the path towards the goal as long as the final configuration remains sufficiently underspecified. This observation will first be illustrated with examples before a possible motivation for this difference is given that at the same time allows us to uphold the claim that we need to posit a non-dynamic SOURCE POINT specification for verbs of departure. The examples in (8-15) might at first seem to contradict the claim that it is not possible to add a goal specification to verbs of departure.

(8-15) a. They said cruise ships departing from Luxor and Aswan, to the south, routinely deposit Western tourists at Qena for the short drive to Abydos, especially now that the government has barred cruise ships from longer trips through areas such as Asyut that are considered more dangerous.

b. Ironically, details surfaced Wednesday as more than 90 human rights monitors from the United Nations and the Organization of American States departed on an Air France flight to Guadeloupe.

c. After a half-hour of casting, a bonito took my fly gently and departed toward Nantucket.

the non-occurrence of a specific pattern in a corpus and its non-acceptability, there are exceptions to this rule.
The examples illustrated in (8-15) are the only three out of 1000 utterances containing the verb *depart* that contain such a goal specification. It is thus not very common to lexically predicate the goal with verbs of departure, but since we find these examples we have to account for the data. First of all, it is necessary to add that verbs of departure are very frequently used with a goal specification when the goal is expressed as an intention using the prepositions *for*. That is, it is not a concrete spatial goal, however, it is a way of incorporating the goal into the utterance without at the same time lexicalizing a dynamic *PATH*. The use of *for* with verbs of departure is shown in (8-16).

(8-16) Friday night, a State Department spokesman told Newsday that Carter was unlikely to *depart for* Sarajevo before Monday at the earliest.

Note that in (8-16) the source is again a deictic source, that is, the location has been established in previous discourse. The goal, Sarajevo, is construed as pertaining to the purpose domain rather than the spatial domain. It is Carter’s intention to leave for Sarajevo, however, the utterance does not contain any information whatsoever if he actually reaches that goal. That intentional goals expressed by the preposition *for* do not imply the actual traversal of a path to the predicated destination can be seen by the fact that it is possible to deny the reaching of the intended destination in the same utterance. This is illustrated in the constructed example in (8-17).

(8-17) ‘Carter departed for Sarajevo but he never got there.

This last observation is important when returning now to the examples in (8-15) that actually seem to include a concrete spatial predication of the goal.
I will claim that the examples in (8-15) are not actually predating the goal. Instead, what they illustrate is that verbs of departure allow for the specification of the FIGURE's orientation, however, they do neither include a goal nor a dynamic PATH in their relational profile. To show this, we will examine the examples one by one.

The landmark profiled by the preposition to in (8-15a) is not a final destination, that is, it is not an endpoint that would demarcate the end of the path. Instead, it expresses the direction in which the cruise ship takes off. In that way, the point of departure is expressed through the source PP headed by the preposition from and the to PP specifies the directionality of the ensuing path. Note, however, that no final destination is specified nor even implied. A concrete spatial location that functions as the goal is not acceptable using the preposition to with verbs of departure which is illustrated by the unacceptability of the examples in (8-18).

(8-18) a. *The cruise ships departed from Luxor and Aswan to Qena.
   b. *The busses departed from Dallas to New Orleans.

Sentence (8-15b) may seem as a counterexample, but I think no one would dispute that the PP headed by to actually modifies the preceding noun flight rather than functioning as a prepositional complement to the verb.

The last example (8-15c) is again only expressing a direction. Nantucket is a spatial goal, but the use of the preposition towards makes it once more only an intended goal. The PP thus again functions to express a direction and does not give an actual goal specification. Note that the utterance becomes questionable as soon as toward is exchanged for the preposition to.
(8-19) After a half-hour of casting, a bonito took my fly gently and departed to Nantucket.

I would further surmise that the preposition *towards* in (8-15c) does not only lack a goal specification, but that it is also not predicating a dynamic *PATH*. The expression of directionality with verbs of departure is merely a static orientation that does not imply the actual traversal of a *PATH*. If the PP would actually predicate a dynamic *PATH*, it should be possible to elaborate on the trajectory taken by the *FIGURE*. As has been remarked upon many a time in linguistic research, sources and goals can only be specified once in a single utterance whereas it is possible to line up multiple trajectory prepositions. That is, it is possible to say *He went from the house, through the garden, across the alleyway, past the field to the river*. This, however, is unacceptable with verbs of departure as is illustrated in (8-20).

(8-20) *He departed from the house, across the field, through the woods toward Nantucket.

The unacceptability of (8-20) shows that the possibility of expressing directionality with verbs of departure does not at the same time imply that these verbs profile a dynamic *PATH*. Instead, we can maintain the claim that verbs of departure are restricted profile verbs that only include a static source point in their relational profile. Independent evidence also comes from the fact that the preposition *toward* is frequently used to non-dynamically refer to an orientation without at the same time predicating *PATH* as shown in (8-21).
(8-21) All I remember is the .44 revolver lying on top of his desk, angled as it was toward the chair I occupied.

The question that still needs to be answered is why it is not possible to include a static goal point specification in an utterance containing a verb of departure. The latter would be expected if verbs of departure were the exact opposite of verbs of arrival. Remember that with verbs of arrival, it was possible to specify a static source but not the dynamic PATH linking the source point with the goal point. Consider (8-22).

(8-22) An average of more than 3 million cruise passengers a year depart from U.S. ports in the Caribbean.

The sentence can only mean that the US ports are located in the Caribbean. The Caribbean is not interpretable as a goal point specification. What we find here is a natural asymmetry between sources and goals. The reaching of a goal always also entails a starting point: In order to reach a certain location, who or whatever is moving has necessarily started out somewhere. Or, as Lakoff puts it, it follows from a FIGURE being at a specific point of a path that it has also been on all previous points of the path (1987:458). It is, therefore, possible to include this starting point in utterances containing verbs of arrival. The onset of motion, on the other hand, i.e., the departure from a specific location does not automatically imply a goal. Naturally, a goal is expected but for all we know, the motion could also perpetuate indefinitely. More important still is the fact that the reaching of the goal has not yet taken place. It presupposes a dynamic PATH. The latter is, however, not included in the verbal profile. The only possibility is therefore to lexically predicate an intended goal which does not at the same time entail the
reaching of that goal. We have seen that this possibility is realized with the use of the preposition *for*. In that case, however, we have left the spatial domain and entered the purpose domain.

Even if a departure does not entail the reaching of a specific goal, it does, however, imply that a FIGURE sets off to move. Departure is the start of motion away from a specific location. This moving away from a location already gives us a certain directionality. It was shown that it is possible, though not very frequent, to further specify this directionality without violating the restricted profile of the verb. As long as it is only the direction that is specified and not a dynamic PATH or even the actual endpoint, the verb’s profile is still not violated.

The discussion leads to the conclusion that it is necessary to introduce the notion of a SOURCE POINT in order to account for the data. A dynamic PATH specification is unacceptable and does not occur with verbs of departure. The restricted profile of the verb only allows for a static specification of the spatial configuration between FIGURE and GROUND prior to the motion event.

### 8.3 Constructions of arrival and departure

The use of verbs of arrival in the IMC is comparable to that of verbs of positioning in the CMC. For verbs of positioning, it has been argued that it is necessary to introduce the specification of a GOAL POINT and, consequently, to introduce a new construction that is related to the CMC. This was necessary in order to account for the fact that a dynamic PP, a defining characteristic of the CMC is unacceptable with verbs of positioning. As has been shown in this chapter, the same line of argument is
applicable to verbs of arrival within the IMC. This further supports the necessity of introducing a **GOAL POINT** as a semantic role within English motion constructions. Further, the argument unavoidably leads to the introduction of an additional construction, the IAC. The semantic specification of the IMC includes a dynamic **PATH**. However, it is exactly this which is unacceptable with verbs of arrival. We therefore need to differentiate between the two constructions. The IAC is a construction that is closely related to the IMC and that differs with respect to the nature of **PATH** as well as regarding the verbal semantics. The structure of the construction is illustrated in Figure 8-1.

![Figure 8-1: The Intransitive-Arrival Construction](image)

Verbs of arrival lexicalize **PATH** which is one of the reasons why the use of prepositional phrases is so restricted.

Even though it was shown that it is also possible to include a **SOURCE POINT** in the utterances of the IAC type, it is sufficient to specify a **GOAL POINT** in the constructional template. We have seen that a goal point is always present. It is either lexically specified or it is implied deictically. A **SOURCE POINT**, on the other hand, is not a necessity that makes up part of the constructional template.

With respect to verbs of departure the same line of argumentation is valid. That is, the unacceptability of a dynamic **PATH** specification leads to the positing of a **SOURCE**
POINT which consequently brings about a further construction, the IDC. The structure of this construction is illustrated in Figure 8-2.

<table>
<thead>
<tr>
<th>Sem:</th>
<th>MOVE-PATH</th>
<th>&lt; theme</th>
<th>source point &gt;</th>
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<tbody>
<tr>
<td></td>
<td>PRED</td>
<td>&lt;</td>
<td>↓</td>
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<tr>
<td>Syn:</td>
<td>V</td>
<td>SUBJ</td>
<td>OBL</td>
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</table>

**Figure 8-2: The Intransitive-Departure Construction**

Positing two new constructions entails one further fact that has as yet not been addressed. By definition, a construction can add semantic content that is not derivable compositionally from the lexical elements if the construction is not fully instantiated. However, what is the semantic content that these two constructions add? It would be possible to argue that the necessary non-dynamic interpretation of the prepositions *from* and *toward* are instances of constructional coercion. The same would go for the subjective motion interpretation of trajectory prepositions. Yet, it is once more possible to claim that these prepositional readings are a result of the verbal semantics rather than the construction. In keeping with the analysis in Chapter 7, I will thus state that it is again not any kind of constructional coercion that brings about the non-dynamic interpretation. Throughout the chapter it was shown that the prepositional usage is motivated by the verbal semantics. This puts into questions the necessity of positing two new constructions in the first place. Yet, staying within the framework of Construction Grammar, it is necessary to recognize these utterance types as different from the IMC since their semantics consistently deviate from the semantics of the IMC. To really prove the construction status of the IAC and the IDC it would be necessary to find verbs that do
not fully instantiate the construction but that can nevertheless be used in this syntactic frame and yield an interpretation that mirrors the constructional semantics. Until such cases can be found, the construction status of both the IAC and the IDC is tentative. Like the CPC, the constructions are very unproductive which makes it difficult to establish their existence.

There is one more question that needs to be addressed with respect to the two new constructions: Why do we have to posit two new constructions? Would it not suffice to have one construction with a non-dynamic PATH specification that would then take care of verbs of arrival as well as verbs of departure? This, of course, seems to be a tempting possibility which at first glance seems very plausible. The semantic specification of the verb as MOVE + PATH sufficiently restricts the choice of verbs. This is necessary to exclude manner of motion verbs that would generally receive a non-translocational interpretation with non-dynamic prepositions which does not correspond to the semantics of the construction. Additionally, the non-dynamic PATH specification takes care of the fact that all prepositions used in the construction have to receive a static interpretation, i.e. a SOURCE POINT or GOAL POINT interpretation for prepositions profiling either the beginning or the end of PATH, and a subjective motion interpretation for trajectory prepositions. There are, however, two problems with this more general construction that would integrate both verb classes. The first can be seen when comparing the nature of the verbs used in the IMC with verbs of arrival and verbs of departure. The latter two classes are much more restricted, whereas verbs used in the IMC can generally take any PATH window, that is, they can pattern with source, trajectory, or goal prepositions. This is not the case with the other verb classes. Both verbs of arrival and verbs of departure always
profile either the SOURCE POINT or the GOAL POINT, respectively. It was shown for verbs of arrival, that even when patterning with only a source prepositional phrase, they nevertheless profile a deictically implied GOAL POINT. This restricted profile of the verbs that leads to the necessary inclusion of a GOAL POINT is a necessary part of the constructional semantics. A non-dynamic PATH specification, is not detailed enough to capture this fact. The second reason why it is not possible to have one more general construction is the fact, that verbs of departure cannot even take a GOAL POINT expressing prepositional complement. If we only have a general non-dynamic PATH specification it entails that any preposition as long as it can receive a non-dynamic interpretation is acceptable in the construction. We have seen, however, that utterances containing a verb of departure and a GOAL POINT PP are unacceptable. The restricted profile of both verbs consequently does not allow for a more general construction. Instead, we have to posit one separate construction for each verb class.

8.4 Aspectual verbs in the IMC

Having established the existence of both the IAC and the IDC, we can now group a further verb class as pertaining to one of these new constructions. It was noted earlier, that out of all the 1835 occurrences of the IMC in the data set, 11 examples neither contain a verb of motion nor a dynamic preposition. We can now account for all of the examples since they form a coherent class: the verbs all predicate the termination of an activity. The sentences in (8-23) show some of the examples.
(8-23) a. The front of the plane came to rest relatively intact on a road, the center section was badly crushed and the tail section rammed into the kitchen of an empty house.
   b. Thursday afternoon, a long, lean bicyclist was trekking across the hills to the beach and stopped outside the house.
   c. When she stopped at an intersection, he ran up to her car and pounded it with his fist.

The conclusion of a motion activity implies the reaching of a goal. This is very similar to the use of verbs of arrival. The difference being, of course, that verbs of arrival express motion towards an endpoint and the reaching of that endpoint, whereas verbs predicating the conclusion of an activity do not lexicalize motion, and they do also not inherently predicate a spatial goal. The verbs are primarily aspectual verbs and are used to bound an activity in time. Yet, when used in the IAC, these verbs receive a spatial interpretation and the activity whose termination is predicated is understood as one of motion. This interpretation comes about by virtue of the use of the verb in the specific construction. This constitutes an example of coercion and provides evidence for the actual existence of the construction. The construction coerces the unspecified aspectual verb into a motion interpretation. The use of the locative prepositional phrase brings about a spatial rather than a temporal reading and thus the activity is automatically understood as a motion event. Note that the prepositions used with these verbs are always non-dynamic low-IP prepositions. A use of these verbs with dynamic prepositions is unacceptable as illustrated in (8-24).

(8-24) *The front of the plane came to rest relatively intact onto a road, the center section was badly crushed and the tail section rammed into the kitchen of an empty house.
The necessary use of low-ID prepositions underlines once more that these verbs are, indeed, used within the IAC and not the IMC. The IAC in (8-24) is partially instantiated in that the PP corresponds to the constructional template. The verb is coerced into the necessary motion interpretation through the construction.

8.5 Summary of results

To conclude, it can be stated that in this chapter two new related constructions have been introduced. Analogous to the positing of the CPC in Chapter 6, it was shown that utterances containing verbs of arrival or verbs of departure are only acceptable if the prepositional complement of the verb is non-dynamic. For verbs of arrival, a GOAL POINT specification analogous to that for verbs of positioning in the CPC was stipulated. Verbs of departure were shown to demand a SOURCE POINT specification. The independent existence of the Intransitive-Arrival Construction as well as the Intransitive-Departure Construction were then posited. The constructions were posited even though it can be argued that the necessary non-dynamic interpretation even of high-ID prepositions is brought about through the semantics of the verb rather than through constructional coercion. Yet, it could be shown that it is, indeed, necessary to affirm the existence of the constructions rather than claiming full compositionality since aspectual verbs that predicate the termination of an activity are coerced into a motion interpretation through the constructional import of the IAC.
9 CONCLUSION

This dissertation has been concerned with the question how prepositional dynamicity and verb meaning interact and what exactly the role of the construction is. In the following, the main findings will be summarized in 9.1, before ending in 9.2 with a brief discussion on what is so noteworthy about the notion of PATH that it deserves so much attention.

9.1 Summarizing the main findings

The basis of the analysis was laid out in Chapter 3. In that chapter, a cline of dynamicity for a selected set of prepositions was established on the basis of their frequency of usage in dynamic versus non-dynamic contexts in a representative corpus sample. Frequency of usage was thus used as an indicator for conceptual representation. In that way, the semantic import regarding the expression of a dynamic PATH of each preposition could be determined. Establishing a preposition’s degree of dynamicity was important in order to be able to test the import of the various constructions examined. One hypothesis formulated in Chapter 4 states that constructions are limited with respect to their ability to alter the conventionalized interpretation of lexical elements. That is, even though it is undisputed that constructions do have the ability to add semantic content to not fully instantiated utterances, there are clear limitations as to the power of the construction to add such content.

Typically, constructions are fully instantiated. This was verified on the basis of a large corpus study for both the Caused-Motion Construction and the Intransitive-Motion Construction. However, in case the instantiating lexical items deviate from the constructional template, a cline based on the frequency of actually occurring utterance
types was hypothesized in Chapter 4 and verified in Chapters 5 and 7 for the two constructions, respectively: motion verbs are most typically occurring with dynamic prepositions; non-motion verbs that are semantically, typically force-dynamically, related to the construction often occur with dynamic prepositions and are in that combination easily interpretable as instances of motion constructions; motion verbs occur with non-dynamic prepositions less frequently and will generally yield ambiguous utterances; finally, non-motion verbs hardly ever occur with non-dynamic prepositions within either the CMC or the IMC. Utterances of the latter type almost always receive a non-translocational interpretation. The verification of the hypothesis for both the CMC and the IMC led to the positing of the Lexical Specification Constraint in Chapter 7.

Hypothesis 2 stated in Chapter 4 predicted a correlation between a preposition's degree of dynamicty and the number of co-occurring verb classes. This correlation, established for both the CMC and the IMC, shows that non-dynamic prepositions cluster around a very restricted set of verb classes. These verbs typically lexicalize PATH and are highly endpoint-salient. It was thus shown that it is not enough for the preposition to have an endpoint focus. Instead, the verb has to display the same endpoint profiling in order for the preposition to be interpretable as predicating a dynamic PATH. Again, the confirmation of the hypothesis led to the formulation of a general constraint in Chapter 7, namely the Matched Profile Constraint.

The third and last constraint that was established in Chapter 7 on the basis of the previously formulated hypothesis is the so-called Recoverable Path Constraint. This constraint refers to the necessity that either the verb or the preposition contain enough PATH information to allow for an unambiguous decision between translocational and
non-translocational motion. It was shown that for the conceptualization of translocational motion, it is of greater importance to lexicalize PATH than it is to lexicalize MOTION. The lexicalization of a dynamic PATH in a preposition, together with a verb that stands in some metonymic relation to the construction, but does not itself lexicalize MOTION, will always lead to a successful interpretation of the described event. Yet, the lexicalization of MOTION in the verb, together with a preposition that stands in some metonymic relation to the construction, but does not itself lexicalize PATH, will more often than not lead to the conceptualization of a static or non-translocational event. That this is the case in spite of the semantic import of the construction was shown on the basis of the virtual non-occurrence in the corpus of such data as well as on the basis of tested interpretational preferences.

In Chapters 5 and 7, specific verb classes that are used in the two motion constructions, i.e. the CMC and the IMC, were analyzed with respect to their interaction with the prepositional phrase and the semantics of the construction. The Recoverable Path Constraint proved valid in that it was shown for different kinds of verb classes that only verbs semantically profiling the endpoint are used with non-dynamic prepositions. Verbs that are PATH-neutral as well as verbs that profile other segments of PATH do not occur with non-dynamic prepositions to express translocational motion. It was suggested that the verbal profiling of either the source or the trajectory and a preposition's sole profiling of the endpoint of a PATH occasions a conceptual gap. That is, a non-dynamic preposition like in, on, or at that can be used in dynamic contexts to predicate the endpoint, does not at the same time predicate a dynamic PATH. This lexical PATH specification is, however, necessary in order to link the different PATH segments when
the verb does not itself profile the same window. That is why sentences like the ones shown in (9-1) are hard to process when they are supposed to be describing a dynamic scene, i.e. a disappearing into the forest in the case of (9-1a) and a banishing into the belly of Mexico in the case of (9-1b). The verbs profile the source, whereas the prepositions profile a static endpoint configuration.

(9-1) a. ??The dog disappeared in the forest.
   b. ??In the most infamous example of this policy run amok, known as Operation Wetback, more than 1 million people were banished in the belly of Mexico, transported in railroad cars as one might move cattle.

Since PATH is, according to Talmy, a non-intra-dependent relationship, i.e. the different elements of PATH do not co-evoke each other, it is necessary to lexically specify the connectedness. Apparently, the construction alone cannot supply the missing information. In 9.2, a possible explanation for this phenomenon will be offered.

In the process of analyzing different verb classes with respect to their relational profile, it was shown in Chapter 7 that verbs lexicalizing the MANNER of motion evoke PATH to varying degrees. That is, there is not such a clear division between PATH and MANNER-encoding verbs as has been drawn by Talmy and subsequent researchers working in his framework. Rather, we should posit a continuum between PATH-encoding and MANNER-encoding verbs. MANNER verbs that are fairly PATH salient and furthermore evoke an endpoint specification, i.e. verbs such as drop, bounce, jump, can be used with non-dynamic prepositions, unlike MANNER verbs with a non-salient PATH and no endpoint specification such as crawl, stagger, run.
Some verbs were shown to exclusively profile the endpoint. Verbs of positioning like put, place, lay, sit, or stand, and verbs of arrival like arrive, land or end up, virtually do not occur with dynamic PATH PPs. Prepositions that are generally interpreted as referring to translocational motion receive a non-dynamic interpretation when used with these verbs. Trajectory-expressing prepositions like along and across, which are comparatively high in dynamicity, receive a subjective motion interpretation. This is due to the fact that the motion predicated in the verb is already completed. A subjective motion interpretation is thus the only conceptually possible way to interpret the use of a trajectory preposition with a restricted endpoint profiling verb.

In Chapters 6 and 8, it was therefore concluded that it is necessary to posit additional constructions that are different from but related to both the CMC and the IMC. These constructions include a GOAL POINT specification rather than a dynamic PATH specification. In Chapter 8, it was further shown that for verbs of departure, it is equally necessary to posit a SOURCE POINT specification and with that another construction. These additional constructions, which were labeled the Caused-Position Construction, the Intransitive-Arrival Construction, and the Intransitive-Departure Construction were shown to be closely related to their respective motion constructions, i.e. the CMC and the IMC. It was established that some verbs that marginally fit either construction type bring about a blended construal that allows for the switching back and forth of either a static endpoint interpretation or a dynamic PATH interpretation.

The analysis has proven that it is possible to isolate specific elements and investigate them separately, namely the degree of dynamicity of a preposition, the degree of PATH-incorporation in a verb, and the recoverability of PATH in specific co-occurrence
patterns of verbs and prepositions. This careful analysis of one specific aspect, i.e. the necessary degree of PATH specification in instantiations of the CMC and the IMC, has shown that it is important to pay special attention even to oblique roles in argument structure constructions. It is not enough to determine the specific relation between verbs and construction. Instead, it is necessary to integrate all aspects of the construction.

A further important aspect of the presented work is the role of coercion in motion constructions. I have shown that non-dynamic prepositions are typically interpreted as referring to translocational motion if the verb profiles the endpoint. If, however, the verb is PATH-neutral or profiles any other segment of PATH, a non-dynamic preposition can no longer be coerced into a dynamic reading. The Matched Profile Constraint captures this finding. An important implication of this work is that we have to question the role of coercion altogether. Contrary to Goldberg, I have shown that with respect to the use of non-dynamic preposition in motion construction, it is not possible to maintain that the construction coerces such prepositions into a directional reading. The construction alone does not suffice to influence the canonical interpretation of non-dynamic prepositions. Instead, a non-dynamic reading crucially and singularly depends upon the semantics of the verb.

9.2 What’s so special about PATH?

My reaction, upon first coming across Construction Grammar, was that even though it set out to defy strict compositionality, it seemed that it was only introducing a higher level at which compositionality could be restored. Lexical elements no longer have to contribute every necessary semantic element, since the more abstract
construction is in the position to add missing arguments as well as missing meaning components such as MOTION, CAUSE, or DYNAMICITY. The theory was very convincing, though I felt that it did not leave much room for a more dynamic, emergent view of language that relies more on situational and contextual factors, rather than solely on established language structures. Nancy Budwig (1998), who comes from an acquisition perspective is more in accord with my understanding. She states

meanings cannot really be said to be ‘carried’ by the construction alone, rather, the constructions seem to be actively appropriated by children in actual contexts as they attempt to use language to co-construct reality with their interlocutor. Goldberg’s view highlights the representational function of language and accordingly meaning is inherent in form. Alternatively I am suggesting a more dynamic view of meaning in which speakers actively negotiate meaning as part of ongoing social practices (see Gumperz & Levinson 1996; Hanks 1996) (Budwig 1998:446).

Though I still theoretically subscribe to the view that “speakers actively negotiate meaning”, the dissertation has turned out to place much more emphasis on compositionality than Construction Grammar ever intended to. How did that happen? The basic idea was to illustrate the different ways that PATH can be represented in discourse, and to find support for the idea of Construction Grammar that it would probably often be left to be inferred or added by the construction. In that way, I wanted to paint a picture that would leave room for constructions to supply missing meaning components, but at the same time I wanted to show that the given discourse situation and the established context influence to a high degree which elements of the scene have to actually get lexicalized. It turned out, however, that a completely data-driven approach does not always yield the expected results. Rather than being able to present a view of
language that places less emphasis on compositionality and the necessary lexical predication of semantic elements, the dissertation has shown that it is almost always necessary to lexicalize the element of PATH in at least written English.\footnote{This, however, is due to the special nature of PATH, and I would like to end this work with a brief discussion on this special nature.}

It has been shown throughout the dissertation that verbal profiling is of prime importance when it comes to the predication of PATH. The verbal profile and the prepositional profile have to match within an utterance. Any incompatibility results in either an unacceptable utterance or a non-translocational interpretation. This restrictedness or non-existence of any possible constructional coercion comes about through the internal complexity of PATH. As has been rightly observed by Talmy, the different elements of PATH do not co-evoke each other. Even though the source-path-goal schema is a powerful schema that underlies a lot of conceptual reasoning (cf. Lakoff 1987, Johnson 1987), the existence of this abstract schema does not at the same time imply that the expression of any one segment of PATH automatically entails information about the other two segments. The PATH schema is thus a schema of independent but intimately intertwined elements. Seemingly to contradict this, we have seen in Chapter 8 that it is possible to express the static starting point of a motion event and the static endpoint in one single utterance without at the same time predicking a dynamic PATH. Example (8-9) given in Chapter 8 and repeated here as (9-2), illustrates this with the verb \textit{arrive}.

\footnote{Future research, though, has to determine whether the expression of PATH is less constrained in spoken language than in written language.}
Chili peppers arrived from the Americas in Europe in the early 16th century.

The co-occurrence of a static starting point and a static endpoint in a single utterance is only possible because source and goal do not automatically co-evolve each other. Even when combined in such a way, it is not automatically understood that they form part of a single journey. Only when both prepositions are dynamic, thus highlighting the dynamic element, is it understood that one single path is being referred to. It would be interesting in this context to pursue in future research the question of whether the restriction that holds true for English, namely that the expression of the source requires a dynamic goal preposition in a complex PATH description, is also found in other languages. If it is the case that there is a cross-linguistic tendency to use dynamic prepositions in complex PATH descriptions in languages which also display this kind of prepositional system that distinguishes between more dynamic and more static prepositions, then this would provide further evidence for the conceptual independence of the different PATH segments.

Overall, this thesis has shown that it is indispensable to consider the lexical semantics of the instantiating verbs and their co-occurrence restrictions with specific prepositions even when examining the workings of more abstract linguistic units like constructions.
BIBLIOGRAPHY

Data Sources


References


APPENDIX A: VERB CLASSIFICATION AND CO-OCCURRING PREPOSITIONS

This appendix serves two purposes: (i) it lists and classifies all verbs that occurred in the data set of 958 caused-motion constructions and 1358 intransitive-motion constructions; (ii) it lists all the prepositions occurring with the different verb classes. ¹ The appendix consists of two parts. The first part includes the data for the Caused-Motion Construction and the second part includes the data for the Intransitive-Motion Construction.

The classification of the verbs into different categories is based on the semantics of the verb outside the respective construction. Naturally, there are other ways of classifying these verbs, i.e. taking more syntactic properties into consideration like Levin (1993) in her classification of English verbs. However, a more in-depth categorization would be beyond the scope of the dissertation. The present categorization fulfills the following purposes: (i) it serves to determine which verbs lexicalize motion; (ii) it serves to determine major semantic groupings like verbs that are primarily cause-expressing, manner-expressing, or path-expressing; (iii) it serves to determine several sub-classifications. Within the dissertation these three sortings fulfilled the following functions: (i) the differentiation between motion and non-motion verbs as well as that between cause, manner, or path-predicating verbs was found to determine a construction's ability to influence the conventional interpretation of lexical items; (ii) the grouping into different verbal subclasses allowed a determination of the number of co-occurring verb classes for the different prepositions in order to establish a correlation

¹ I would like to thank Suzanne Kemmer for helping me with the semantic classification of the different verbs.
between the degree of dynamicity of a preposition and the number of co-occurring verb classes.

A lot of the verbs could be grouped under several headings; however, since this would not have altered the analysis significantly, verbs are only listed once according to which semantic property appears to be the most salient. It is furthermore possible to come up with more fine-grained distinctions. Yet, this would also not have altered the analysis significantly. For the present purposes this semantic classification was thus detailed enough.

This appendix also serves as a quick reference for determining which verb classes co-occur with which kind of prepositions. All verb classes that are found in instantiations of the CMC and the IMC within the data set are listed below in the left columns of the different tables. In the right column all prepositions that co-occur with the respective verb class within the data set are listed. The tables thus allow us to assess at a glance the profiling preferences of the different verb classes.

A.1 Verb classification and co-occurring prepositions within the CMC

<table>
<thead>
<tr>
<th>VERB CLASSES</th>
<th>VERBS OCCURRING IN THE DATA SET</th>
<th>PREPOSITIONS OCCURRING WITH THE VERB CLASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>VERBS OF SCHEMATIC MOTION</td>
<td>move</td>
<td>onto, into, to, toward, from, across, along</td>
</tr>
</tbody>
</table>

Table A.1-1: Schematic motion verbs and their co-occurring prepositions in the CMC
<table>
<thead>
<tr>
<th>VERB CLASSES</th>
<th>VERBS OCCURRING IN THE DATA SET</th>
<th>PREPOSITIONS OCCURRING WITH THE VERB CLASS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VERBS PRIMARILY LEXICALIZING THE CAUSE OF MOTION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VERBS OF CAUSED MOTION IN A SPECIFIED MANNER</td>
<td>bash, bunt, cast, fling, flip, hurl, lob, loop, pitch, pummel, sling, throw, thrust, thwack, toss, whack</td>
<td>through, onto, into, toward, out, out of, over, across, at, inside, on</td>
</tr>
<tr>
<td>BY THROWING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BY HOLDING</td>
<td>carry, take (objects)</td>
<td>through, onto, into, to, toward, out of, across, outside, inside</td>
</tr>
<tr>
<td>BY PULLING</td>
<td>drag, draw, haul, pull, tow</td>
<td>through, onto, into, to, toward, out of, from, over, across, along, inside</td>
</tr>
<tr>
<td>BY DRIVING FORWARD, CONTACT-NEUTRAL</td>
<td>drive, propel</td>
<td>through, onto, into, toward, out of, across, inside</td>
</tr>
<tr>
<td>BY DRIVING FORWARD, WITH CONTACT AGAINST RESISTANCE</td>
<td>push, shove</td>
<td>onto, into, toward, out of, from, across, inside</td>
</tr>
<tr>
<td>BY DROPPING</td>
<td>drop, dump, plop, plunge</td>
<td>onto, into, at</td>
</tr>
<tr>
<td>BRINGING ABOUT A CHANGE OF ORIENTATION</td>
<td>invert, swing, swivel, turn, unmold</td>
<td>onto, into, toward, out of</td>
</tr>
<tr>
<td>BRINGING ABOUT A CHANGE OF BALANCE</td>
<td>tip</td>
<td>onto, toward</td>
</tr>
<tr>
<td>VERBS OF CAUSED RAPID MOTION</td>
<td>hustle, rush, whisk</td>
<td>onto, to, toward, out of, over</td>
</tr>
<tr>
<td>VERBS OF SENDING AND GIVING</td>
<td>bring, deliver, dispatch, distribute, export, forward, give, hand, import, mail, send, ship, transfer, transport</td>
<td>through, onto, into, to, under, toward, out, out of, from, over, across, along, inside</td>
</tr>
<tr>
<td>VERBS OF RECEIVING</td>
<td>get</td>
<td>out of, over, in, inside</td>
</tr>
<tr>
<td>VERBS OF TAKING INTO POSSESSION</td>
<td>grab, pick up, pluck, snatch</td>
<td>out of, from</td>
</tr>
<tr>
<td>VERBS OF BRINGING INTO VIEW</td>
<td>dredge up, pop, recover</td>
<td>from</td>
</tr>
</tbody>
</table>

Table A.1-2: Verbs primarily lexicalizing CAUSE and their co-occurring prepositions in the CMC

<table>
<thead>
<tr>
<th>VERB CLASSES</th>
<th>VERBS OCCURRING IN THE DATA SET</th>
<th>PREPOSITIONS OCCURRING WITH THE VERB CLASS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Verbs primarily lexicalizing the CAUSE and PATH of motion</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VERBS OF CAUSED MOTION AWAY FROM A PLACE</td>
<td>banish, empty, evacuate, expel, remove, relocate, shoo, withdraw</td>
<td>onto, into, to, toward, from</td>
</tr>
<tr>
<td>VERBS OF DIVERTED MOTION</td>
<td>divert, detour, repel, veer</td>
<td>onto, toward, from</td>
</tr>
<tr>
<td>VERBS OF CAUSED MOTION ALONG A SPECIFIED PATH</td>
<td>heave, hoist, load, lower, lift, unload</td>
<td>through, onto, into, toward, inside</td>
</tr>
<tr>
<td>INTO A SUBSTANCE</td>
<td>dip, implant, infuse, inject, insert</td>
<td>through, into</td>
</tr>
</tbody>
</table>

Table A.1-3: Verbs classes primarily lexicalizing CAUSE and PATH and their co-occurring prepositions in the CMC
<table>
<thead>
<tr>
<th>VERB CLASSES</th>
<th>VERBS OCCURRING IN THE DATA SET</th>
<th>PREPOSITIONS OCCURRING WITH THE VERB CLASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>VERBS EXPRESSING THE PATH</td>
<td>advance, back, mount, pass, raise</td>
<td>through, onto, into, toward, over, along</td>
</tr>
<tr>
<td>VERBS OF PUTTING AND POSITIONING</td>
<td>deploy, deposit, fit, lay, place, plant, position, post, put, set, set up</td>
<td>onto, into, to, under, over, along, between, in, at, outside, inside, on</td>
</tr>
<tr>
<td>IN A SPECIFIED MANNER</td>
<td>poke, pour, stuff</td>
<td>onto, into, inside, on</td>
</tr>
<tr>
<td>WITH FOCUS ON THE FINAL CONFIGURATION</td>
<td>attach, bundle, clot, drape, fold, heap, lodge, pack, pile, stack, stash, stick, string, tuck</td>
<td>onto, into, to, under, out of, over, along, between, outside, inside</td>
</tr>
</tbody>
</table>

Table A.1-4: Verbs classes primarily lexicalizing PATH and their co-occurring prepositions in the CMC

<table>
<thead>
<tr>
<th>VERB CLASSES</th>
<th>VERBS OCCURRING IN THE DATA SET</th>
<th>PREPOSITIONS OCCURRING WITH THE VERB CLASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>VERBS EXPRESSING MANNER</td>
<td>bounce, crash-land, float, fly, march, parade, ride, roll, run, sail, slide, slip, sneak, step, stutter-step, trundle, walk</td>
<td>through, onto, into, toward, out of, over, across, along</td>
</tr>
<tr>
<td>BY LIQUID SUBSTANCES</td>
<td>flush, wash</td>
<td>onto, into, out of, from</td>
</tr>
<tr>
<td>BY EXTENSION</td>
<td>reach, stretch</td>
<td>toward, out of</td>
</tr>
<tr>
<td>VERBS OF SUBSTANCE EMISSION</td>
<td>drip, rain, shed, squirt, trickle</td>
<td>onto, from, over</td>
</tr>
<tr>
<td>OF SUBSTANCE DISPERSION</td>
<td>scatter, spew, splash, splatter, spray, spread, sprinkle</td>
<td>onto, into, toward, over, across, along</td>
</tr>
<tr>
<td>OF SUBSTANCE APPLICATION</td>
<td>scrawl</td>
<td>over</td>
</tr>
<tr>
<td>VERBS OF BALLISTIC MOTION</td>
<td>discharge, fire, launch, shoot</td>
<td>onto, into, toward, out, out of</td>
</tr>
<tr>
<td>VERBS OF GUIDING AND ACCOMPANYING</td>
<td>escort, guide, head, herd, lead, maneuver, steer, take (person), usher</td>
<td>through, onto, into, to, toward, out of, across, along, inside</td>
</tr>
<tr>
<td>VERBS OF FOLLOWING</td>
<td>chase, follow, track</td>
<td>through, into, out of</td>
</tr>
<tr>
<td>VERBS OF ILLICIT CAUSED MOTION</td>
<td>rustle, smuggle&lt;sup&gt;2&lt;/sup&gt;</td>
<td>into, out of, across</td>
</tr>
</tbody>
</table>

Table A.1-5: Verbs classes primarily lexicalizing MANNER and their co-occurring prepositions in the CMC

---

<sup>2</sup> The verbs rustle and smuggle are only very marginal members of the category motion verbs. They evoke a much richer frame and the fact of motion is only of minor importance. In fact, it is probably the case that the motion domain is only activated very weakly upon hearing a sentence like *He smuggles liquor*. However, both activities, i.e. smuggling and rustling, necessarily involve motion of the FIGURE along a PATH.
<table>
<thead>
<tr>
<th>VERB CLASSES</th>
<th>VERBS OCCURRING IN THE DATA SET</th>
<th>PREPOSITIONS OCCURRING WITH THE VERB CLASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOTION VERBS EXPRESSING THE FIGURE</td>
<td>nail, screw</td>
<td>onto, over</td>
</tr>
<tr>
<td>MOTION VERBS EXPRESSING THE INSTRUMENT</td>
<td>bat, brush, bulldoze, drill, ferry, funnel, ladle, paddle, pump, scoop, shovel, spoon, swab, truck, wheel</td>
<td>through, onto, into, to, under, toward, out of, across, outside</td>
</tr>
<tr>
<td>WITH SPECIFIC UNNAMED INSTRUMENT</td>
<td>sift, strain, sweep</td>
<td>through, onto, into, toward, out of</td>
</tr>
</tbody>
</table>

**Table A.1-6:** Some other verbs classes primarily lexicalizing MOTION and their co-occurring prepositions in the CMC

<table>
<thead>
<tr>
<th>VERB CLASSES</th>
<th>VERBS OCCURRING IN THE DATA SET</th>
<th>PREPOSITIONS OCCURRING WITH THE VERB CLASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>VERBS OF EXERTING FORCE</td>
<td>force, work</td>
<td>onto, toward, out of, from, inside</td>
</tr>
<tr>
<td>IN A SPECIFIED MANNER</td>
<td>hit, kick, knock, press, punch, rub, scrape, scrub, shake, snap, squeeze, whip, wrestle</td>
<td>through, onto, into, toward, out of, over, inside</td>
</tr>
<tr>
<td>FORCEFUL IMPACTS</td>
<td>bash, blast, bomb, crash, ram, slam, smash</td>
<td>through, onto, into, out of</td>
</tr>
<tr>
<td>LIGHT CONTACT</td>
<td>nudge, slap</td>
<td>onto, out of inside</td>
</tr>
<tr>
<td>MANIPULATIVE ACTIVITIES</td>
<td>blow, leech, suck</td>
<td>onto, into, under, toward, out of, from</td>
</tr>
<tr>
<td>VERBS OF CUTTING</td>
<td>slice, chip, cut</td>
<td>onto, out of</td>
</tr>
<tr>
<td>RELEASE VERBS</td>
<td>free, loose, release, unleash</td>
<td>onto, into, toward, from</td>
</tr>
<tr>
<td>SPECIFIED ACTIVITY</td>
<td>torch</td>
<td>out of</td>
</tr>
<tr>
<td>VERBS OF SOUND EMISSION</td>
<td>buzz, plunk</td>
<td>onto, into</td>
</tr>
<tr>
<td>VERBS OF FASTENING WITH SPECIFIC INSTRUMENT</td>
<td>strap, tack, thread</td>
<td>onto</td>
</tr>
<tr>
<td>VERBS OF MANUAL SIGNALING</td>
<td>beckon, motion, wave</td>
<td>through, toward, inside</td>
</tr>
<tr>
<td>VERBS OF PERMISSION AND ENABLEMENT</td>
<td>admit, allow, invite, let</td>
<td>onto, into, over, across, in, inside</td>
</tr>
<tr>
<td>SPEECH ACT VERBS</td>
<td>call, order, direct</td>
<td>onto, into, to, toward, out of, from, inside</td>
</tr>
<tr>
<td>VERBS OF EXPRESSING ENCOURAGEMENT</td>
<td>cheer, cajole, coax</td>
<td>onto, out of, across</td>
</tr>
<tr>
<td>VERBS OF ATTRACTING</td>
<td>attract, lure</td>
<td>onto, to</td>
</tr>
<tr>
<td>VERBS OF MIXING SUBSTANCES</td>
<td>blend, stir, dissolve</td>
<td>into</td>
</tr>
<tr>
<td>VERBS OF AIMING</td>
<td>aim, focus</td>
<td>into, toward</td>
</tr>
<tr>
<td>INCIDENTAL ACTIVITY VERBS</td>
<td>graze</td>
<td>over</td>
</tr>
</tbody>
</table>

**Table A.1-7:** Verbs classes not primarily lexicalizing MOTION and their co-occurring prepositions in the CMC
### A.2 Verb classification and co-occurring prepositions within the IMC

<table>
<thead>
<tr>
<th>VERB CLASSES</th>
<th>VERBS OCCURRING IN THE DATA SET</th>
<th>PREPOSITIONS OCCURRING WITH THE VERB CLASS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Verbs Primarily Lexicalizing Motion</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VERBS OF SCHEMATIC MOTION</td>
<td>move, relocate</td>
<td>through, onto, into, to, toward, out of, along, across, inside</td>
</tr>
<tr>
<td>DEICTIC SCHEMATIC VERBS</td>
<td>come, go</td>
<td>through, onto, into, to, toward, out of, from, over, along, across, outside</td>
</tr>
</tbody>
</table>

**Table A.2-1:** Verb classes of schematic MOTION and their co-occurring prepositions in the IMC

<table>
<thead>
<tr>
<th>VERB CLASSES</th>
<th>VERBS OCCURRING IN THE DATA SET</th>
<th>PREPOSITIONS OCCURRING WITH THE VERB CLASS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Verbs Primarily Lexicalizing the Manner of Motion</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MANNER OF MOTION VERBS</td>
<td>barrel, billow, bounce, breeze, clamber, coast, crawl, creep, dart, drag, drive, edge, gallop, hike, inch, jog, limp, lope, lunge, maneuver, march, parade, pounce, ride, roll, scamper, scramble, scurry, shuffle, slouch, snake, sneak, stagger, stalk, stampede, step, stride, strut, stumble, stump, sweep, swoop, traipse, trek, trot, trudge, venture, waddle, walk, wiggle, wobble</td>
<td>through, onto, into, to, under, toward, out, out of, from, along, across, in, outside, inside, on</td>
</tr>
<tr>
<td>EXPRESSING SPEED</td>
<td>dash, scoot, storm, speed, race, run, rush, sprint, whisk</td>
<td>through, onto, into, to, under, toward, out, out of, along, across, inside</td>
</tr>
<tr>
<td>WITH EMPHASIS ON INTENTIONALITY</td>
<td>hurry, hustle</td>
<td>through, onto, toward, along</td>
</tr>
<tr>
<td>AIMLESS MANNER</td>
<td>amble, cruise, drift, meander, stray, ramble, roam, saunter, stroll, wander</td>
<td>through, onto, into, toward, out of, along, across, outside</td>
</tr>
<tr>
<td>JUMPING MANNER</td>
<td>bound, hop, jump, leap, skip</td>
<td>through, onto, into, toward, out of, along, across, inside, on</td>
</tr>
<tr>
<td>VERTICAL CHANGE</td>
<td>climb, crash-land, dive, soar</td>
<td>through, onto, into, to, under, toward, out of</td>
</tr>
<tr>
<td>CHANGE OF ORIENTATION</td>
<td>careen, flip, pivot, spin, swing, swirl</td>
<td>through, onto, toward, across</td>
</tr>
<tr>
<td>MULTIPLE OR MASS LIQUID FIGURE</td>
<td>pour, spread, stream, surge</td>
<td>through, onto, into, toward, out of, across, in</td>
</tr>
<tr>
<td>MULTIPLE OR MASS COLLECTIVE FIGURE</td>
<td>fan, flock, swarm, troop</td>
<td>through, onto, into, to</td>
</tr>
<tr>
<td>IMPLYING MOVEMENT THROUGH AIR OR FLUID</td>
<td>float, flow, fly, sail, skim, swim, wade, waft</td>
<td>through, onto, into, to, toward, out of, along, across</td>
</tr>
</tbody>
</table>

*continued on next page*
<table>
<thead>
<tr>
<th>IMPLYING SLIPPERY GROUND</th>
<th>skid, slide, slip</th>
<th>through, onto, toward, out of, across</th>
</tr>
</thead>
<tbody>
<tr>
<td>VERBS OF POSITIONING IN A SPECIFIED MANNER</td>
<td>settle</td>
<td>onto, into</td>
</tr>
<tr>
<td>WITH FOCUS ON FINAL CONFIGURATION</td>
<td>file, pile</td>
<td>onto, into, out of</td>
</tr>
<tr>
<td>WITH COMPRESSION</td>
<td>cram, crowd, pack</td>
<td>onto, into</td>
</tr>
<tr>
<td>VERBS EXPRESSING FALLING MOTION</td>
<td>drop, fall, hurtle, plop, plunge, topple, tumble</td>
<td>through, onto, into, to, toward, out of, by, along, on</td>
</tr>
<tr>
<td>VERBS EXPRESSING THE INSTRUMENT</td>
<td>bicycle, bike, catapult, motor, parachute, pedal, pedal-boat, rocket, ship, skate</td>
<td>onto, to, toward, out of, along, across</td>
</tr>
<tr>
<td>VERBS EVOKING LIQUID SUBSTANCE AS FIGURE</td>
<td>bail out, bubble, cascade, churn, drain, flood, gush, overflow, wash</td>
<td>onto, toward, out of</td>
</tr>
<tr>
<td>SLOW SEEPING MOTION</td>
<td>diffuse, filter, leach</td>
<td>through, out of</td>
</tr>
<tr>
<td>FLUID SUBSTANCE EMISSION</td>
<td>dribble, drip, emanate, leak, ooze, rain</td>
<td>onto, into, from</td>
</tr>
<tr>
<td>FLUID SUBSTANCE DISPERSION</td>
<td>spill, splash</td>
<td>onto</td>
</tr>
<tr>
<td>VERBS ONLY APPLICABLE TO SPECIFIC FIGURE</td>
<td>taxi (plane)</td>
<td>toward</td>
</tr>
</tbody>
</table>

**Table A.2-2:** Verb classes primarily lexicalizing the MANNER of motion and their co-occurring prepositions in the IMC

<table>
<thead>
<tr>
<th>VERB CLASSES</th>
<th>VERBS OCCURRING IN THE DATA SET</th>
<th>PREPOSITIONS OCCURRING WITH THE VERB CLASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>OTHERS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VERBS EXPRESSING MOTION WITH SPECIFIC PURPOSE</td>
<td>migrate, travel</td>
<td>through, to, toward, out of, from, along, across</td>
</tr>
<tr>
<td>OTHER: ACTION RESULTING IN ATTACHEMENT</td>
<td>chomp (probable blend of clamp and chomp)</td>
<td>onto</td>
</tr>
</tbody>
</table>

**Table A.2-3:** Other verb classes lexicalizing MOTION and their co-occurring prepositions in the IMC
<table>
<thead>
<tr>
<th>VERB CLASSES</th>
<th>VERBS OCCURRING IN THE DATA SET</th>
<th>PREPOSITIONS OCCURRING WITH THE VERB CLASS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VERBS PRIMARILY LEXICALIZING THE PATH OF MOTION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VERBS EXPRESSING APPROACH AND ARRIVAL</td>
<td>approach, arrive, land, reach, set foot</td>
<td>from, along, between, in, at, outside, inside, on</td>
</tr>
<tr>
<td>SUCCESSFUL ARRIVAL—IMPLIED GOAL ATTAINMENT</td>
<td>get, make it</td>
<td>through, onto, into, to, out of, across, in, inside, outside</td>
</tr>
<tr>
<td>COMING INTO VIEW</td>
<td>appear, emerge, pop, show up</td>
<td>onto, out of, from, in, at</td>
</tr>
<tr>
<td>ARRIVAL AT SOME FIXED GROUND</td>
<td>dock</td>
<td>on</td>
</tr>
<tr>
<td>VERBS EXPRESSING MOTION AWAY FROM A PLACE</td>
<td>bolt, emigrate, leave</td>
<td>from</td>
</tr>
<tr>
<td>GOING OUT OF VIEW</td>
<td>disappear, vanish</td>
<td>onto, into</td>
</tr>
<tr>
<td>EXPRESSING ESCAPE</td>
<td>escape, flee</td>
<td>through, onto, into, to, toward, from, across</td>
</tr>
<tr>
<td>EXPRESSING MOTION BACK ALONG A PREVIOUSLY TRAVELED PATH</td>
<td>retire, retreat</td>
<td>to, toward, inside</td>
</tr>
<tr>
<td>VERBS EXPRESSING MOTION AGAINST RESISTANCE</td>
<td>pull, push, prod</td>
<td>onto, into, out of, inside</td>
</tr>
<tr>
<td>VERBS EXPRESSING MOTION TOWARDS GROUND</td>
<td>gravitate, head</td>
<td>onto, into, to, towards, out of, across</td>
</tr>
<tr>
<td>VERBS EXPRESSING INTRUSION</td>
<td>invade, penetrate</td>
<td>from, inside</td>
</tr>
<tr>
<td>EXPRESSING GRADUAL UNION WITH GROUND</td>
<td>merge</td>
<td>into</td>
</tr>
<tr>
<td>VERBS EXPRESSING A CHANGE OF ORIENTATION</td>
<td>turn</td>
<td>onto, toward, out of</td>
</tr>
<tr>
<td>DIVERTED MOTION</td>
<td>detour, shift, swerve, veer</td>
<td>onto, to, toward</td>
</tr>
<tr>
<td>VERBS SPECIFYING THE PATH</td>
<td>pass</td>
<td>through</td>
</tr>
<tr>
<td>MOTION ACROSS BOUNDARIES</td>
<td>cross</td>
<td>into, to, from</td>
</tr>
<tr>
<td>VERTICAL MOTION</td>
<td>ascend, descend, rise, sink</td>
<td>through, onto, into, toward, out of, from</td>
</tr>
<tr>
<td>HORIZONTAL FRONT/BACK MOTION</td>
<td>advance, back</td>
<td>onto, toward, out of, across</td>
</tr>
<tr>
<td>MOTION WITH RESPECT TO A CONTAINER</td>
<td>exit</td>
<td>through</td>
</tr>
<tr>
<td>EXPRESSING THE SHAPE OF THE PATH</td>
<td>arc, ccil, curve</td>
<td>through, toward, from</td>
</tr>
<tr>
<td>EXPRESSING THE CREATION OF A PATH</td>
<td>tunnel</td>
<td>under, toward</td>
</tr>
<tr>
<td>EXPRESSING A CLOSED PATH</td>
<td>go back, return</td>
<td>to, into, from, inside</td>
</tr>
</tbody>
</table>

**Table A.2-4:** Verb classes primarily lexicalizing the PATH of motion and their co-occurring prepositions in the IMC
<table>
<thead>
<tr>
<th>VERB CLASSES</th>
<th>VERBS OCCURRING IN THE DATA SET</th>
<th>PREPOSITIONS OCCURRING WITH THE VERB CLASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbs not primarily lexicalizing motion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbs of sound emission</td>
<td>buzz, clatter, roar, rumble</td>
<td>through, onto, into, toward, out of, along</td>
</tr>
<tr>
<td>Verbs of substance emission</td>
<td>steam</td>
<td>onto, into, toward</td>
</tr>
<tr>
<td>Verbs of forceful impacts</td>
<td>crash, bump, punch, ram, slam, smack, smash</td>
<td>through, to, toward</td>
</tr>
<tr>
<td>Exerting force in a specified manner</td>
<td>blow, dig, plow</td>
<td>through, into, across</td>
</tr>
<tr>
<td>Force with compression</td>
<td>press, squeeze</td>
<td>through, into, toward</td>
</tr>
<tr>
<td>Disruption of material integrity</td>
<td>break, burst, erupt</td>
<td>through, into, out of</td>
</tr>
<tr>
<td>Through tearing or cutting</td>
<td>cut, rip</td>
<td>through, into</td>
</tr>
<tr>
<td>Verbs expressing a change in internal figure configuration</td>
<td>collapse, duck, sag</td>
<td>onto, into, toward, out of, across</td>
</tr>
<tr>
<td>Aspectual verbs expressing the continuance of an activity</td>
<td>carry on, continue, proceed</td>
<td>toward, along</td>
</tr>
<tr>
<td>Aspectual verbs expressing the conclusion of an activity</td>
<td>come to rest, conclude, stop</td>
<td>to, at, outside, on</td>
</tr>
</tbody>
</table>

**Table A.2-5:** Verb classes not primarily lexicalizing the motion and their co-occurring prepositions in the IMC
Appendix B: Verbs co-occurring with specific prepositions

This appendix contains tables for each preposition that list the different verbs co-occurring with them in the data set. The data set consists of 3000 examples from the North-American News Corpus for each of the 19 prepositions. The verbs are grouped according to the verb classification illustrated in Appendix A. The numbers in brackets following the verbs indicate the number of occurrences. No number equals a single occurrence. The prepositions are ordered according to their ID rank with the high-ID prepositions listed first (cf. Chapter 2 for the notion of ‘ID rank’). First, all tables containing prepositions with their co-occurring verbs in the CMC are listed in B.1, followed by tables listing the co-occurrence patterns for the IMC in B.2.

B.1 Prepositions and co-occurring verbs in the CMC

<table>
<thead>
<tr>
<th>VERB CLASSES AND TYPES OCCURRING WITH THROUGH</th>
<th>VERBS PRIMARILY LEXICALIZING MOTION</th>
<th>Verbs of following</th>
<th>follow, track</th>
</tr>
</thead>
<tbody>
<tr>
<td>VERB CLASSES</td>
<td>VERBS</td>
<td>Instrument conflating</td>
<td>drill, funnel, pump (2), truck</td>
</tr>
<tr>
<td>Caused motion by throwing</td>
<td>throw</td>
<td>Unnamed instrument</td>
<td>sift, strain (2), sweep</td>
</tr>
<tr>
<td>Caused motion by holding</td>
<td>carry (3)</td>
<td>Forward caused motion</td>
<td>drive (2), propel</td>
</tr>
<tr>
<td>Caused motion by pulling</td>
<td>drag (2), draw</td>
<td>Verb classes: 13</td>
<td>Types: 29</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tokens: 43</td>
<td></td>
</tr>
<tr>
<td>Verbs of sending and giving</td>
<td>bring, hand, send (2), ship, transport</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motion along a specified path</td>
<td>lift</td>
<td>VERB CLASSES</td>
<td></td>
</tr>
<tr>
<td>Path verbs</td>
<td>pass</td>
<td>PERB CLASSES</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Exerting force in a specified manner</td>
<td>press</td>
<td></td>
</tr>
<tr>
<td>Motion into a substance</td>
<td>inject</td>
<td>Forceful impacts</td>
<td>blast, ram</td>
</tr>
<tr>
<td>Manner conflating</td>
<td>parade, run, walk</td>
<td>Manual Signaling</td>
<td>wave (2)</td>
</tr>
<tr>
<td>Guiding and accompanying</td>
<td>guide, lead (4), take</td>
<td>Verb classes: 3</td>
<td>Types: 4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tokens: 5</td>
<td></td>
</tr>
<tr>
<td>Total verb classes: 16</td>
<td>Total verb types: 33</td>
<td>Total verb tokens: 48</td>
<td></td>
</tr>
</tbody>
</table>

Table B.1-1: Verbs occurring with through in the CMC

356
<table>
<thead>
<tr>
<th>VERB CLASSES AND TYPES OCCURRING WITH ONTO</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VERBS PRIMARILY LEXICALIZING MOTION</strong></td>
</tr>
<tr>
<td><strong>VERBS</strong></td>
</tr>
<tr>
<td>Schematic motion</td>
</tr>
<tr>
<td>Caused motion in a specified manner by throwing</td>
</tr>
<tr>
<td>by holding</td>
</tr>
<tr>
<td>by pulling</td>
</tr>
<tr>
<td>driving forward</td>
</tr>
<tr>
<td>against resistance</td>
</tr>
<tr>
<td>by dropping</td>
</tr>
<tr>
<td>change of orientation</td>
</tr>
<tr>
<td>change of balance</td>
</tr>
<tr>
<td>Rapid motion</td>
</tr>
<tr>
<td>Verbs of sending and giving</td>
</tr>
<tr>
<td>Motion away from a place</td>
</tr>
<tr>
<td>Verbs of diverted motion</td>
</tr>
<tr>
<td>Along a specified path</td>
</tr>
<tr>
<td>Verbs expressing path</td>
</tr>
<tr>
<td>Putting and positioning</td>
</tr>
<tr>
<td>in a specified manner</td>
</tr>
<tr>
<td>focus on the final configuration</td>
</tr>
<tr>
<td>Manner conflating</td>
</tr>
<tr>
<td>Motion by liquid substance</td>
</tr>
<tr>
<td>Substance emission</td>
</tr>
<tr>
<td><strong>VERBS NOT PRIMARILY LEXICALIZING MOTION</strong></td>
</tr>
<tr>
<td><strong>VERBS CLASSES</strong></td>
</tr>
<tr>
<td>Exerting force</td>
</tr>
<tr>
<td>Forceful impacts</td>
</tr>
<tr>
<td>Light contact</td>
</tr>
<tr>
<td>Manipulative activities</td>
</tr>
<tr>
<td>by cutting</td>
</tr>
<tr>
<td>Release verbs</td>
</tr>
<tr>
<td>Sound emission</td>
</tr>
<tr>
<td>Verbs of fastening</td>
</tr>
<tr>
<td>Permission and enablement</td>
</tr>
<tr>
<td>Speech act</td>
</tr>
<tr>
<td>Expressing encouragement</td>
</tr>
<tr>
<td>Verbs of attracting</td>
</tr>
</tbody>
</table>

**Table B.1-2: Verbs occurring with onto in the CMC**
### Verb Classes and Types Occurring with into

<table>
<thead>
<tr>
<th>Verb Classes Primarily Lexicalizing Motion</th>
<th>Verbs of Substance Dispersion</th>
<th>Verbs of Ballistic Motion</th>
<th>Verbs of Following</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schematic Motion</td>
<td>move (2)</td>
<td>Guiding and accompanying</td>
<td>herd, lead (4), maneuver, take (5)</td>
</tr>
<tr>
<td>Caused motion in a specified manner by throwing</td>
<td>throw (4), toss (2), whack</td>
<td>Verbs of following</td>
<td>chase (2)</td>
</tr>
<tr>
<td>by holding</td>
<td>carry (2)</td>
<td>Verbs of illicit motion</td>
<td>smuggle (3)</td>
</tr>
<tr>
<td>by pulling</td>
<td>draw (2)</td>
<td>Instrument conflating</td>
<td>pump (3), spoon, truck</td>
</tr>
<tr>
<td>driving forward</td>
<td>drive (3)</td>
<td>unnamed instrument</td>
<td>sweep (2)</td>
</tr>
<tr>
<td>against resistance</td>
<td>push (5)</td>
<td>Verb classes: 25</td>
<td>Types: 47, Tokens: 101</td>
</tr>
<tr>
<td>by dropping</td>
<td>dump (3), plunge</td>
<td>VERBS NOT PRIMARILY LEXICALIZING MOTION</td>
<td></td>
</tr>
<tr>
<td>change of orientation</td>
<td>turn (2)</td>
<td>VERB CLASSES</td>
<td>VERBS</td>
</tr>
<tr>
<td>Verbs of sending and giving</td>
<td>bring (7), send (5)</td>
<td>Exerting force in a specified manner</td>
<td>knock</td>
</tr>
<tr>
<td>Motion away from a place</td>
<td>relocate</td>
<td>Forceful impacts</td>
<td>crash (2)</td>
</tr>
<tr>
<td>Along a specified path</td>
<td>load</td>
<td>Manipulative activities</td>
<td>blow (2)</td>
</tr>
<tr>
<td>into a substance</td>
<td>dip, implant, infuse, inject</td>
<td>Release verbs</td>
<td>free, release (3)</td>
</tr>
<tr>
<td>Verbs expressing path</td>
<td>lower (4)</td>
<td>Sound emission</td>
<td>buzz, plunk</td>
</tr>
<tr>
<td>Putting and positioning</td>
<td>place, put (2)</td>
<td>Permission and enablement</td>
<td>allow (4), let</td>
</tr>
<tr>
<td>in a specified manner</td>
<td>pour (5)</td>
<td>Speech act</td>
<td>call (4), order (3)</td>
</tr>
<tr>
<td>focus on final configuration</td>
<td>bundle, fold, pack, stick,</td>
<td>Mixing substances</td>
<td>blend, dissolve, stir (2)</td>
</tr>
<tr>
<td>Manner conflating</td>
<td>tuck (2)</td>
<td>Verb classes: 9</td>
<td>Types: 15, Tokens: 28</td>
</tr>
<tr>
<td>by liquid substance</td>
<td>flush</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total verb classes: 34  Total verb types: 62  Total verb tokens: 129

**Table B.1-3: Verbs occurring with into in the CMC**

<table>
<thead>
<tr>
<th>Verb Classes Primarily Lexicalizing Motion</th>
<th>Motion away from a place</th>
<th>Putting and positioning</th>
<th>banish, relocate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schematic Motion</td>
<td>move (2)</td>
<td>final configuration</td>
<td>attach</td>
</tr>
<tr>
<td>Caused motion by holding</td>
<td>carry, take (3)</td>
<td>Guiding and accompanying</td>
<td>lead</td>
</tr>
<tr>
<td>by pulling</td>
<td>draw (3), pull</td>
<td>Instrument conflating</td>
<td>ferry</td>
</tr>
<tr>
<td>Rapid motion</td>
<td>rush, whisk</td>
<td>Verb classes: 10</td>
<td>Types: 26, Tokens: 61</td>
</tr>
</tbody>
</table>

continued on next page
<table>
<thead>
<tr>
<th>Verbs of sending and giving</th>
<th>bring (6), deliver, dispatch (3), distribute (2), export, forward, give (4) hand (2), mail, send (8), ship (2), take (11), transport</th>
<th>VERBS NOT PRIMARILY LEXICALIZING MOTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VERBS</td>
<td>VERB TYPES</td>
</tr>
<tr>
<td></td>
<td>Verbs of attracting</td>
<td>attract</td>
</tr>
<tr>
<td></td>
<td>Verb classes: 1</td>
<td>Types: 1</td>
</tr>
<tr>
<td></td>
<td>Tokens: 1</td>
<td></td>
</tr>
</tbody>
</table>

Total verb classes: 11  Total verb types: 27  Total verb tokens: 62

**Table B.1-4: Verbs occurring with to in the CMC**

<table>
<thead>
<tr>
<th>VERB CLASSES AND TYPES OCCURRING WITH UNDER</th>
<th>VERBS PRIMARILY LEXICALIZING MOTION</th>
<th>Manner conflating</th>
<th>slip</th>
</tr>
</thead>
<tbody>
<tr>
<td>VERB CLASSES</td>
<td>VERBS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbs of sending and giving</td>
<td>transport (2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Putting and positioning</td>
<td>place (3), put, set</td>
<td></td>
<td></td>
</tr>
<tr>
<td>final configuration</td>
<td>tuck</td>
<td>Manipulative activities</td>
<td></td>
</tr>
<tr>
<td>Forward motion with contact and resistance</td>
<td>shove</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total verb classes: 6  Total verb types: 8  Total verb tokens: 11

**Table B.1-5: Verbs occurring with under in the CMC**

<table>
<thead>
<tr>
<th>VERB CLASSES AND TYPES OCCURRING WITH TOWARD</th>
<th>VERBS PRIMARILY LEXICALIZING MOTION</th>
<th>by extension</th>
<th>stretch</th>
</tr>
</thead>
<tbody>
<tr>
<td>VERB CLASSES</td>
<td>VERBS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schematic motion</td>
<td>move (9)</td>
<td>Substance dispersion</td>
<td>spread (2)</td>
</tr>
<tr>
<td>Caused motion in a specified manner by throwing</td>
<td>bunt, cast, hurl (2), lob, loop, sling, throw (2), thrust (2), toss (2)</td>
<td>Ballistic motion</td>
<td>discharge, fire (5), launch</td>
</tr>
<tr>
<td>by holding</td>
<td>carry, take (2)</td>
<td>Guiding and accompanying</td>
<td>guide, head, maneuver, steer, take (3)</td>
</tr>
<tr>
<td>by pulling</td>
<td>draw, pull (4), tow</td>
<td>Expressing the instrument</td>
<td>paddle, wheel</td>
</tr>
<tr>
<td>by driving forward against resistance</td>
<td>drive</td>
<td>unnamed instrument</td>
<td>sweep (2)</td>
</tr>
<tr>
<td>change of orientation</td>
<td>swivel, turn (3)</td>
<td>VERBS NOT PRIMARILY LEXICALIZING MOTION</td>
<td></td>
</tr>
<tr>
<td>change of balance</td>
<td>tip</td>
<td>VERB CLASSES</td>
<td>VERB TYPES</td>
</tr>
<tr>
<td>Rapid motion</td>
<td>rush (2)</td>
<td>Exerting force</td>
<td>force (2), hit (3) kick (2)</td>
</tr>
<tr>
<td>Verbs of sending and giving</td>
<td>send (7)</td>
<td>in a specified manner</td>
<td>whip</td>
</tr>
<tr>
<td>Motion away from a place</td>
<td>shoo</td>
<td>Manipulative activities</td>
<td>blow</td>
</tr>
<tr>
<td>diverted motion</td>
<td>veer</td>
<td>Release verbs</td>
<td>loose, unleash</td>
</tr>
<tr>
<td>Along a specified path</td>
<td>lift</td>
<td>Manual signaling</td>
<td>beckon (2), motion, wave</td>
</tr>
<tr>
<td>Expressing the path</td>
<td>advance, raise</td>
<td>Speech act</td>
<td>direct (3)</td>
</tr>
<tr>
<td>Manner conflating</td>
<td>ride, stutter-step, walk</td>
<td>VERB classes: 6</td>
<td>Types: 11</td>
</tr>
</tbody>
</table>

Total verb classes: 27  Total verb types: 89  Total verb tokens: 62

**Table B.1-6 Verbs occurring with toward in the CMC**
### Table B.1-7: Verbs occurring with out in the CMC

<table>
<thead>
<tr>
<th>VERB CLASSES AND TYPES OCCURRING WITH OUT</th>
<th>VERBS PRIMARILY LEXICALIZING MOTION</th>
<th>Guiding and accompanying</th>
<th>escort, lead (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caused motion by throwing</td>
<td>toss (2), throw (3)</td>
<td>Illicit motion</td>
<td>chase (3)</td>
</tr>
<tr>
<td>by holding</td>
<td>carry (3), take (5)</td>
<td>Instrument conflating</td>
<td>smuggle (2)</td>
</tr>
<tr>
<td>by pulling</td>
<td>draw, drag (2), haul, pull (13)</td>
<td>unnamed instrument</td>
<td>bulldoze</td>
</tr>
<tr>
<td>by driving forward</td>
<td>drive (4)</td>
<td>Verb classes: 20</td>
<td>Types: 30</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Tokens: 71</td>
</tr>
<tr>
<td>against resistance</td>
<td>push (3)</td>
<td>VERBS NOT PRIMARILY LEXICALIZING MOTION</td>
<td></td>
</tr>
<tr>
<td>change of orientation</td>
<td>turn</td>
<td>Exerting force</td>
<td>force (5)</td>
</tr>
<tr>
<td>Rapid motion</td>
<td>whisk</td>
<td>in a specified manner</td>
<td>knock (4), wrestle</td>
</tr>
<tr>
<td>Verbs of sending and giving</td>
<td>bring (2), transfer</td>
<td>Forceful impacts</td>
<td>bomb</td>
</tr>
<tr>
<td>Verbs of receiving</td>
<td>get (2)</td>
<td>Light contact</td>
<td>slap</td>
</tr>
<tr>
<td>Taking into possession</td>
<td>pluck (2)</td>
<td>Manipulative activities</td>
<td>blow (2)</td>
</tr>
<tr>
<td>Putting with focus on final configuration</td>
<td>bundle (2), stick (2)</td>
<td>by cutting</td>
<td>cut</td>
</tr>
<tr>
<td>Manner conflating</td>
<td>fly, run, sneak</td>
<td>Specified activity</td>
<td>torch</td>
</tr>
<tr>
<td>by liquid substance</td>
<td>wash (2)</td>
<td>Speech act</td>
<td>order (5)</td>
</tr>
<tr>
<td>by extension</td>
<td>reach</td>
<td>Attracting</td>
<td>lure (2)</td>
</tr>
<tr>
<td>Verbs of ballistic motion</td>
<td>shoot</td>
<td>Verb classes: 9</td>
<td>Types: 10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Tokens: 23</td>
</tr>
</tbody>
</table>

Total verb classes: 29 Total verb types: 40 Total verb tokens: 94
### Table B.1-9: Verbs occurring with from in the CMC

<table>
<thead>
<tr>
<th>VERB CLASSES AND TYPES OCCURRING WITH FROM</th>
<th>Substance emission</th>
<th>Verbs classes:</th>
<th>Types:</th>
<th>Tokens:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbs primarily lexicalizing motion</td>
<td>drip</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schematic motion</td>
<td>move</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caused motion by pulling against resistance</td>
<td>drag (2), pull (2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbs of sending and giving</td>
<td>bring, import</td>
<td>Exerting force</td>
<td>force</td>
<td></td>
</tr>
<tr>
<td>Taking into possession</td>
<td>grab, pluck, snatch</td>
<td>With specified manner</td>
<td>scrape, shake</td>
<td></td>
</tr>
<tr>
<td>Bringing into view</td>
<td>dredge up, pick up (2), pop, recover (2)</td>
<td>Manipulative activities</td>
<td>blow</td>
<td></td>
</tr>
<tr>
<td>Motion away from a place</td>
<td>expel (3), evacuate, remove (13), withdraw (2)</td>
<td>Release verbs</td>
<td>release (3)</td>
<td></td>
</tr>
<tr>
<td>Verbs of diverted motion</td>
<td>divert repel</td>
<td>Verb classes:5</td>
<td>Types:5</td>
<td>Tokens:8</td>
</tr>
<tr>
<td>liquid substance</td>
<td>wash</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total verb classes: 15</td>
<td>Total verb types: 26</td>
<td>Total verb tokens:48</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table B.1-10: Verbs occurring with over in the CMC

<table>
<thead>
<tr>
<th>VERB CLASSES AND TYPES OCCURRING WITH OVER</th>
<th>Substance emission</th>
<th>Verbs classes:</th>
<th>Types:</th>
<th>Tokens:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbs primarily lexicalizing motion</td>
<td>rain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schematic motion</td>
<td>slang, toss</td>
<td>Substance application</td>
<td>scrawl</td>
<td></td>
</tr>
<tr>
<td>Motion by throwing</td>
<td>pull (2)</td>
<td>Figure conflating</td>
<td>nail</td>
<td></td>
</tr>
<tr>
<td>Rapid motion</td>
<td>rush</td>
<td>Verb classes:13</td>
<td>Types:22</td>
<td>Tokens:33</td>
</tr>
<tr>
<td>Verbs of sending and giving</td>
<td>bring (2), hand (4), send (2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbs of receiving</td>
<td>get</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbs expressing the path</td>
<td>raise</td>
<td>Exerting force in a specified manner</td>
<td>hit</td>
<td></td>
</tr>
<tr>
<td>Putting and positioning</td>
<td>lay, place, put (4)</td>
<td>Permission and enablement</td>
<td>invite (2)</td>
<td></td>
</tr>
<tr>
<td>final configuration</td>
<td>drape</td>
<td>Incidental activity</td>
<td>graze</td>
<td></td>
</tr>
<tr>
<td>Manner conflating</td>
<td>run, slide</td>
<td>Verb classes:3</td>
<td>Types:3</td>
<td>Tokens:4</td>
</tr>
<tr>
<td>Total verb classes: 16</td>
<td>Total verb types: 25</td>
<td>Total verb tokens: 37</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table B.1-10 (continued): Verbs occurring with along

<table>
<thead>
<tr>
<th>VERB CLASSES AND TYPES OCCURRING WITH ALONG</th>
<th>Verbs primarily lexicalizing motion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schematic motion</td>
<td>move (2)</td>
</tr>
<tr>
<td>Caused motion by pulling</td>
<td>haul</td>
</tr>
<tr>
<td>Verbs of sending and giving</td>
<td>dispatch</td>
</tr>
<tr>
<td>Verbs expressing path</td>
<td>pass</td>
</tr>
<tr>
<td>Verbs of putting and positioning</td>
<td>deploy (2), lay (2), place (2), plant (2), post (3), put (2), set up</td>
</tr>
<tr>
<td>focus on final configuration</td>
<td>pile, string</td>
</tr>
<tr>
<td>Manner conflating</td>
<td>roll, run, walk</td>
</tr>
<tr>
<td>------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Substance dispersion</td>
<td>sprinkle</td>
</tr>
<tr>
<td>Guiding and accompanying</td>
<td>lead, take</td>
</tr>
<tr>
<td>Total verb classes: 9</td>
<td>Total verb types: 19</td>
</tr>
</tbody>
</table>

**Table B.1-11: Verbs occurring with along in the CMC**

<table>
<thead>
<tr>
<th>VERBS PRIMARILY LEXICALIZING MOTION</th>
<th>Substance dispersion</th>
<th>VERBS NOT PRIMARILY LEXICALIZING MOTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schematic motion</td>
<td>move</td>
<td>Guiding and accompanying</td>
</tr>
<tr>
<td></td>
<td>Illicit motion</td>
<td>rustle, smuggle (2)</td>
</tr>
<tr>
<td>Caused motion by throwing</td>
<td>pummel (2)</td>
<td>Verb classes: 10</td>
</tr>
<tr>
<td>by holding</td>
<td>carry (3), take</td>
<td></td>
</tr>
<tr>
<td>by pulling</td>
<td>drag, draw</td>
<td></td>
</tr>
<tr>
<td>by driving forward</td>
<td>drive (2)</td>
<td></td>
</tr>
<tr>
<td>Verbs of sending and giving</td>
<td>bring (2), send (5), transport</td>
<td></td>
</tr>
<tr>
<td>Manner conflating</td>
<td>slide, sneak</td>
<td></td>
</tr>
<tr>
<td>Total verb classes: 12</td>
<td>Total verb types: 20</td>
<td>Total verb tokens: 30</td>
</tr>
</tbody>
</table>

**Table B.1-12: Verbs occurring with across in the CMC**

<table>
<thead>
<tr>
<th>VERBS PRIMARILY LEXICALIZING MOTION</th>
<th>VERBS NOT PRIMARILY LEXICALIZING MOTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>VERB CLASSES</td>
<td>VERBS</td>
</tr>
<tr>
<td>Putting and positioning</td>
<td>position, put (2)</td>
</tr>
<tr>
<td>focus on final configuration</td>
<td>lodge, stick (2)</td>
</tr>
<tr>
<td>Total verb classes: 2</td>
<td>Total verb types: 4</td>
</tr>
<tr>
<td>Total verb tokens: 6</td>
<td></td>
</tr>
</tbody>
</table>

**Table B.1-13: Verbs occurring with between in the CMC**

<table>
<thead>
<tr>
<th>VERBS PRIMARILY LEXICALIZING MOTION</th>
<th>VERBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>VERB CLASSES</td>
<td>VERBS</td>
</tr>
<tr>
<td>Putting and positioning</td>
<td>position, put (2), place</td>
</tr>
<tr>
<td>Verbs of receiving</td>
<td>get</td>
</tr>
<tr>
<td>Total verb classes: 2</td>
<td>Total verb types: 4</td>
</tr>
<tr>
<td>Total verb tokens: 5</td>
<td></td>
</tr>
</tbody>
</table>

**Table B.1-14: Verbs occurring with in in the CMC**

<table>
<thead>
<tr>
<th>VERBS PRIMARILY LEXICALIZING MOTION</th>
<th>VERBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>VERB CLASSES</td>
<td>VERBS</td>
</tr>
<tr>
<td>Caused motion by holding</td>
<td>take</td>
</tr>
<tr>
<td>Caused motion by dropping</td>
<td>drop</td>
</tr>
<tr>
<td>Putting and positioning</td>
<td>place</td>
</tr>
<tr>
<td>Total verb classes: 3</td>
<td>Total verb types: 4</td>
</tr>
<tr>
<td>Total verb tokens: 4</td>
<td></td>
</tr>
</tbody>
</table>

**Table B.1-15: Verbs occurring with at in the CMC**

<table>
<thead>
<tr>
<th>VERBS PRIMARILY LEXICALIZING MOTION</th>
<th>VERBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>VERB CLASSES</td>
<td>VERBS</td>
</tr>
<tr>
<td>Caused motion by holding</td>
<td>take</td>
</tr>
<tr>
<td>Putting and positioning</td>
<td>lay (2), place (3)</td>
</tr>
<tr>
<td>Instrument conflating</td>
<td>stick, wheel</td>
</tr>
<tr>
<td>Total verb classes: 4</td>
<td>Total verb types: 5</td>
</tr>
<tr>
<td>Total verb tokens: 8</td>
<td></td>
</tr>
</tbody>
</table>

**Table B.1-16: Verbs occurring with outside in the CMC**
### Table B.1-17: Verbs occurring with inside in the CMC

<table>
<thead>
<tr>
<th><strong>Verbs Primarily Lexicalizing Motion</strong></th>
<th><strong>Verb Classes</strong></th>
<th><strong>Types</strong></th>
<th><strong>Tokens</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbs by throwing</td>
<td>throw</td>
<td>12</td>
<td>29</td>
</tr>
<tr>
<td>by holding</td>
<td>carry</td>
<td>12</td>
<td>36</td>
</tr>
<tr>
<td>by pulling</td>
<td>draw, pull</td>
<td>12</td>
<td>36</td>
</tr>
<tr>
<td>against resistance</td>
<td>push (2)</td>
<td>12</td>
<td>36</td>
</tr>
<tr>
<td>Verbs of sending and giving</td>
<td>send (3)</td>
<td>12</td>
<td>36</td>
</tr>
<tr>
<td>Exerting force</td>
<td>work</td>
<td>12</td>
<td>36</td>
</tr>
<tr>
<td>Verbs of receiving</td>
<td>get</td>
<td>12</td>
<td>36</td>
</tr>
<tr>
<td>in a specified manner</td>
<td>punch (2), snap</td>
<td>12</td>
<td>36</td>
</tr>
<tr>
<td>Permission and enablement</td>
<td>invite</td>
<td>12</td>
<td>36</td>
</tr>
<tr>
<td>Putting and positioning</td>
<td>place (3), plant, put (4)</td>
<td>12</td>
<td>36</td>
</tr>
<tr>
<td>Verb classes: 3</td>
<td>Types: 4</td>
<td>Tokens: 5</td>
<td>36</td>
</tr>
</tbody>
</table>

Total verb classes: 15  Total verb types: 22  Total verb tokens: 34

### Table B.1-18: Verbs occurring with on in the CMC

<table>
<thead>
<tr>
<th><strong>Verbs Primarily Lexicalizing Motion</strong></th>
<th><strong>Verb Classes</strong></th>
<th><strong>Types</strong></th>
<th><strong>Tokens</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Caused motion by throwing</td>
<td>throw</td>
<td>12</td>
<td>36</td>
</tr>
<tr>
<td>Verbs of putting and positioning</td>
<td>place (2), put (4)</td>
<td>12</td>
<td>36</td>
</tr>
<tr>
<td>in a specified manner</td>
<td>pour</td>
<td>12</td>
<td>36</td>
</tr>
</tbody>
</table>

Total verb classes: 3  Total verb types: 4  Total verb tokens: 8

### B.2 Prepositions and co-occurring verbs in the IMC

<table>
<thead>
<tr>
<th><strong>Verbs Primarily Lexicalizing Motion</strong></th>
<th><strong>Successful arrival</strong></th>
<th><strong>Verb Classes</strong></th>
<th><strong>Types</strong></th>
<th><strong>Tokens</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbs by going</td>
<td>move (7)</td>
<td>22</td>
<td>62</td>
<td>153</td>
</tr>
<tr>
<td>Schematic motion</td>
<td>come (3), go (9)</td>
<td>22</td>
<td>62</td>
<td>153</td>
</tr>
<tr>
<td>Deictic schematic verbs</td>
<td>billow, breeze, creep (2), dart (2), drive (4), hike, march (3), parade, ride (2), roll (2), scamper, shuffle (2), snake, stagger, step, stride, stroll, stumble (2), sweep, trapse, trek (3), trudge (3), walk (13), wander (5), wiggle</td>
<td>22</td>
<td>62</td>
<td></td>
</tr>
<tr>
<td>Manner conflating</td>
<td>Container ground</td>
<td>22</td>
<td>62</td>
<td>153</td>
</tr>
<tr>
<td>Expressing escape</td>
<td>escape, flee</td>
<td>22</td>
<td>62</td>
<td>153</td>
</tr>
<tr>
<td>Specifying the path</td>
<td>pass (20)</td>
<td>22</td>
<td>62</td>
<td>153</td>
</tr>
<tr>
<td>Vertical motion</td>
<td>descend, rise</td>
<td>22</td>
<td>62</td>
<td>153</td>
</tr>
<tr>
<td>Shape of path</td>
<td>arc</td>
<td>22</td>
<td>62</td>
<td>153</td>
</tr>
<tr>
<td>Specific purpose</td>
<td>travel (4)</td>
<td>22</td>
<td>62</td>
<td>153</td>
</tr>
<tr>
<td>Sweeping motion</td>
<td>leach</td>
<td>22</td>
<td>62</td>
<td>153</td>
</tr>
<tr>
<td>Falling motion</td>
<td>plunge (2), tumble</td>
<td>22</td>
<td>62</td>
<td>153</td>
</tr>
<tr>
<td>Slippery ground</td>
<td>skid</td>
<td>22</td>
<td>62</td>
<td>153</td>
</tr>
</tbody>
</table>

| expressing speed                      | run (6), race, speed (2), whisk | 22 | 62 |
| emphasis on intenionality             | hurry, hurdle           | 22 | 62 |

**Verb Classes**: 23  **Types**: 62  **Tokens**: 153

**Verbs Not Primarily Lexicalizing Motion**

**continued next page**
<table>
<thead>
<tr>
<th>jumping</th>
<th>leap</th>
<th>Sound emission</th>
<th>roar, rumble</th>
</tr>
</thead>
<tbody>
<tr>
<td>vertical change</td>
<td>climb, soar</td>
<td>Force in specified manner</td>
<td>blow</td>
</tr>
<tr>
<td>change of orientation</td>
<td>swing, swirl</td>
<td>Forceful impacts</td>
<td>crash (2), smash</td>
</tr>
<tr>
<td>liquid ground</td>
<td>sail (2), wade</td>
<td>Force with compression</td>
<td>press, squeeze (2)</td>
</tr>
<tr>
<td>liquid figure</td>
<td>spread, surge</td>
<td>disruption of material integrity</td>
<td>break (3), burst (2), erupt</td>
</tr>
<tr>
<td>collective/mass figure</td>
<td>fan</td>
<td>through cutting/tearing</td>
<td>rip</td>
</tr>
<tr>
<td>through air or liquid</td>
<td>float, fly (2), waft</td>
<td>Verb classes: 6</td>
<td>Types: 11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total verb tokens: 169</td>
<td></td>
</tr>
</tbody>
</table>

Total verb classes: 29  Total verb types: 73  Total verb tokens: 169

**Table B.2-1: Verbs occurring with through in the IMC**

<table>
<thead>
<tr>
<th>VERB CLASSES AND TYPES OCCURRING WITH ONTO</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VERBS PRIMARILY LEXICALIZING MOTION</strong></td>
</tr>
<tr>
<td>Liquid figure</td>
</tr>
<tr>
<td>Schematic motion</td>
</tr>
<tr>
<td><strong>VERBS</strong></td>
</tr>
<tr>
<td>Schematic motion</td>
</tr>
<tr>
<td>Deictic schematic verbs</td>
</tr>
<tr>
<td>Manner conflating</td>
</tr>
<tr>
<td>Expressing speed</td>
</tr>
<tr>
<td>emphasis on intenionality</td>
</tr>
<tr>
<td>aimless</td>
</tr>
<tr>
<td>jumping</td>
</tr>
<tr>
<td>vertical change</td>
</tr>
<tr>
<td>change of orientation</td>
</tr>
<tr>
<td>liquid figure</td>
</tr>
<tr>
<td>collective/mass figure</td>
</tr>
<tr>
<td>through air or liquid</td>
</tr>
<tr>
<td>slipping ground</td>
</tr>
<tr>
<td>Positioning in specified manner</td>
</tr>
<tr>
<td>final config.</td>
</tr>
<tr>
<td>with compression</td>
</tr>
<tr>
<td>Falling motion</td>
</tr>
<tr>
<td>Instrument conflating</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Total verb classes: 37  Total verb types: 96  Total verb tokens: 300

**Table B.2-2: Verbs occurring with onto in the IMC**
### VERB CLASSES AND TYPES OCCURRING WITH INTO

<table>
<thead>
<tr>
<th>VERBS PRIMARILY LEXICALIZING MOTION</th>
<th>Successful arrival</th>
<th>Disappear (3), vanish</th>
</tr>
</thead>
<tbody>
<tr>
<td>VERB CLASSES</td>
<td>VERBS</td>
<td></td>
</tr>
<tr>
<td>Schematic motion</td>
<td>move (11)</td>
<td></td>
</tr>
<tr>
<td>Deictic schematic verbs</td>
<td>come (2), go (15)</td>
<td></td>
</tr>
<tr>
<td>Manner conflating</td>
<td>climb, coast, crawl, limp, march (2), ride (2), scramble, sneak, stagger, stalk, stampede, step (3), stride, sweep (2), trek, venture (2), walk (13), wander (5)</td>
<td>Forward against resistance</td>
</tr>
<tr>
<td>expressing speed</td>
<td>race, run (3), storm</td>
<td>Vertical motion</td>
</tr>
<tr>
<td>aimless</td>
<td>amble, drift, roam, saunter, stray, stroll</td>
<td>Closed path</td>
</tr>
<tr>
<td>jumping</td>
<td>hop, jump (4), leap</td>
<td>Verb classes: 27 Types: 71 Tokens: 159</td>
</tr>
<tr>
<td>liquid figure</td>
<td>pour (7), stream (3), surge (2)</td>
<td>Verb classes: 7 Types: 11 Tokens: 28</td>
</tr>
<tr>
<td>collective/mass figure</td>
<td>swarm</td>
<td>VERBS NOT PRIMARILY LEXICALIZING MOTION</td>
</tr>
<tr>
<td>through air/liquid</td>
<td>float, flow, fly (6), sail, wade, waft</td>
<td>VERB CLASSES VERBS</td>
</tr>
<tr>
<td>slippery ground</td>
<td>skid, slide (2), slip (3)</td>
<td>Sound emission rumble</td>
</tr>
<tr>
<td>Positioning in a specified manner</td>
<td>settle (2)</td>
<td>Substance emission steam</td>
</tr>
<tr>
<td>focus on final configuration</td>
<td>file, pile</td>
<td>Exerting force in a specified manner squeeze</td>
</tr>
<tr>
<td>with compression</td>
<td>crowd, pack</td>
<td>Forceful impacts crash (9), ram, slam (6), smash (2)</td>
</tr>
<tr>
<td>Falling motion</td>
<td>drop (2), fall, plunge (4)</td>
<td>Disruption of material integrity break (2), burst (3)</td>
</tr>
<tr>
<td>Liquid figure</td>
<td>flood, gush, wash</td>
<td>through cutting/tearing cut</td>
</tr>
<tr>
<td>Fluid substance emission</td>
<td>leak (3), ooze</td>
<td>Change in internal figure organization duck</td>
</tr>
<tr>
<td>Fluid substance dispersion</td>
<td>spill</td>
<td>Verb classes: 7 Types: 11 Tokens: 28</td>
</tr>
</tbody>
</table>

| Total verb classes: 34 | Total verb types: 82 | Total verb tokens: 187 |

**Table B.2-3: Verbs occurring with into in the IMC**

### VERB CLASSES AND TYPES OCCURRING WITH TO

<table>
<thead>
<tr>
<th>VERBS PRIMARILY LEXICALIZING MOTION</th>
<th>Along previously traveled path</th>
<th>retire</th>
</tr>
</thead>
<tbody>
<tr>
<td>VERB CLASSES</td>
<td>VERBS</td>
<td></td>
</tr>
<tr>
<td>Schematic motion</td>
<td>move (8), relocate</td>
<td></td>
</tr>
<tr>
<td>Deictic schematic verbs</td>
<td>come (10), go (25)</td>
<td></td>
</tr>
<tr>
<td>Manner conflating</td>
<td>climb, drive, roll, trek, venture, walk, wander</td>
<td>Towards ground head (5)</td>
</tr>
<tr>
<td>expressing speed</td>
<td>run, race (2), rush</td>
<td></td>
</tr>
<tr>
<td>mass liquid figure</td>
<td>flock</td>
<td></td>
</tr>
</tbody>
</table>

| expressions                        | for (2), refer (2), indicate (3) |                      |
| Mass liquid figure                 | flock                           |                      |

**continued next page**
<table>
<thead>
<tr>
<th>through air or liquid</th>
<th>fly (7)</th>
<th>Verb classes: 17</th>
<th>Types: 30</th>
<th>Tokens: 114</th>
</tr>
</thead>
<tbody>
<tr>
<td>Falling motion</td>
<td>drop, fall (2)</td>
<td><strong>VERBS NOT PRIMARILY LEXICALIZING MOTION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instrument conflat.</td>
<td>motor, raft</td>
<td><strong>VERB CLASSES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweeping motion</td>
<td>diffuse</td>
<td>Conclusion of activity</td>
<td>come to rest</td>
<td></td>
</tr>
<tr>
<td>Specific purpose</td>
<td>travel (9)</td>
<td>Verb classes: 1</td>
<td>Types: 1</td>
<td>Tokens: 1</td>
</tr>
</tbody>
</table>

Total verb classes: 18  Total verb types: 31  Total verb tokens: 115

**Table B.2-4: Verbs occurring with to in the IMC**

<table>
<thead>
<tr>
<th>UNDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>VERB CLASSES</td>
</tr>
<tr>
<td>Manner conflating</td>
</tr>
<tr>
<td>expressing speed</td>
</tr>
<tr>
<td>implying vertical change</td>
</tr>
<tr>
<td>Creation of path</td>
</tr>
</tbody>
</table>

Total verb classes: 4  Total verb types: 4  Total verb tokens: 7

**Table B.2-5: Verbs occurring with under in the IMC**

<table>
<thead>
<tr>
<th>TOWARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>VERB CLASSES</td>
</tr>
<tr>
<td>Specific purpose</td>
</tr>
<tr>
<td>Expressing escape</td>
</tr>
<tr>
<td>Previously traveled path</td>
</tr>
<tr>
<td>Against resistance</td>
</tr>
<tr>
<td>Manner conflating</td>
</tr>
<tr>
<td>Change in orientation</td>
</tr>
<tr>
<td>Vertical motion</td>
</tr>
<tr>
<td>expressing speed</td>
</tr>
<tr>
<td>Front/back motion</td>
</tr>
<tr>
<td>emphasis on intentionality</td>
</tr>
<tr>
<td>Shape of path</td>
</tr>
<tr>
<td>jumping</td>
</tr>
<tr>
<td>Creation of path</td>
</tr>
<tr>
<td>vertical change</td>
</tr>
<tr>
<td>Verb classes: 27</td>
</tr>
<tr>
<td>change of orientation</td>
</tr>
<tr>
<td>VERBS NOT PRIMARILY LEXICALIZING MOTION</td>
</tr>
<tr>
<td>mass liquid figure</td>
</tr>
<tr>
<td>through air/liquid</td>
</tr>
<tr>
<td>liquid ground</td>
</tr>
<tr>
<td>slippery ground</td>
</tr>
<tr>
<td>Falling motion</td>
</tr>
<tr>
<td>Instrument conflating</td>
</tr>
<tr>
<td>Sound emission</td>
</tr>
<tr>
<td>Substance emission</td>
</tr>
<tr>
<td>Forceful impacts</td>
</tr>
<tr>
<td>Force with compression</td>
</tr>
<tr>
<td>Change in internal figure configuration</td>
</tr>
</tbody>
</table>

continued next page
<table>
<thead>
<tr>
<th>Liquid figure</th>
<th>churn</th>
<th>Continuation of activity</th>
<th>proceed, carry on</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific figure</td>
<td>taxi</td>
<td>Verb classes: 6</td>
<td>Types: 7</td>
</tr>
<tr>
<td>Total verb classes: 33</td>
<td>Total verb types: 68</td>
<td>Total verb tokens: 202</td>
<td></td>
</tr>
</tbody>
</table>

**Table B.2-6: Verbs occurring with toward in the IMC**

<table>
<thead>
<tr>
<th>VERB CLASSES AND TYPES OCCURRING WITH OUT</th>
<th>VERBS PRIMARILY LEXICALIZING MOTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manner conflating</td>
<td>walk</td>
</tr>
<tr>
<td>expressing speed</td>
<td>run</td>
</tr>
<tr>
<td>Total verb classes: 2</td>
<td>Total verb types: 2</td>
</tr>
<tr>
<td>Total verb tokens: 2</td>
<td></td>
</tr>
</tbody>
</table>

**Table B.2-7: Verbs occurring with out in the IMC**

<table>
<thead>
<tr>
<th>VERB CLASSES AND TYPES OCCURRING WITH OUT OF</th>
<th>VERBS PRIMARILY LEXICALIZING MOTION</th>
<th>Instrument conflating</th>
<th>VERBS NOT PRIMARILY LEXICALIZING MOTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manner conflating</td>
<td>billow, clamber, crawl (2), cruise, drive, roll, run (3), step (4), stride, venture (3), walk (17), wander</td>
<td>Liquid figure</td>
<td>bail, bubble</td>
</tr>
<tr>
<td>expressing speed</td>
<td>storm, race (2), rush (2), speed</td>
<td>Seeping motion</td>
<td>filter</td>
</tr>
<tr>
<td>jumping</td>
<td>jump (7), leap</td>
<td>Specific purpose</td>
<td>migrate, travel</td>
</tr>
<tr>
<td>vertical change</td>
<td>climb (3)</td>
<td>Vertical motion</td>
<td>rise</td>
</tr>
<tr>
<td>change of orientation</td>
<td>spin</td>
<td>Front/back motion</td>
<td>back</td>
</tr>
<tr>
<td>liquid figure</td>
<td>pour (5), stream (4)</td>
<td>Verb classes: 22</td>
<td>Types: 42</td>
</tr>
<tr>
<td>through air or liquid</td>
<td>fly (3)</td>
<td>Total verb classes: 25</td>
<td>Total verb types: 45</td>
</tr>
<tr>
<td>slippery ground</td>
<td>slip (3)</td>
<td>Total verb tokens: 130</td>
<td></td>
</tr>
<tr>
<td>Positioning with focus on final configuration</td>
<td>file</td>
<td>Sound emission</td>
<td>roar</td>
</tr>
<tr>
<td>Disruption of integrity</td>
<td>Change in figure configuration</td>
<td>burst</td>
<td>duck</td>
</tr>
<tr>
<td>Falling motion</td>
<td>fall, lunge</td>
<td>Verb classes: 3</td>
<td>Types: 3</td>
</tr>
<tr>
<td>Total verb classes: 25</td>
<td>Total verb types: 45</td>
<td>Total verb tokens: 130</td>
<td></td>
</tr>
</tbody>
</table>

**Table B.2-8: Verbs occurring with out of in the IMC**
### Table B.2-9: Verbs occurring with *from* in the IMC

<table>
<thead>
<tr>
<th>Deictic schematic verbs</th>
<th>Motion away from s.th.</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>come</em> (12)</td>
<td><em>express</em> escape</td>
</tr>
<tr>
<td>through air or liquid</td>
<td><em>express</em> intrusion</td>
</tr>
<tr>
<td><em>dribble, ooze, emanate</em></td>
<td><em>cross</em></td>
</tr>
<tr>
<td>Specific purpose</td>
<td><em>shape of path</em></td>
</tr>
<tr>
<td>Expressing arrival</td>
<td><em>closed path</em></td>
</tr>
</tbody>
</table>

**Total verb classes:** 12  
**Total verb types:** 18  
**Total verb tokens:** 43

### Table B.1-10: Verbs occurring with *over* in the IMC

<table>
<thead>
<tr>
<th>Deictic schematic verbs</th>
<th>Verbs</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>come</em></td>
<td></td>
</tr>
</tbody>
</table>

**Total verb classes:** 1  
**Total verb types:** 1  
**Total verb tokens:** 1

### Table B.1-11: Verbs occurring with *by* in the IMC

<table>
<thead>
<tr>
<th>Deictic schematic verbs</th>
<th>Verbs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><em>drop</em></td>
</tr>
</tbody>
</table>

**Total verb classes:** 1  
**Total verb types:** 1  
**Total verb tokens:** 1

### Table B.2-12: Verbs occurring with *along* in the IMC

<table>
<thead>
<tr>
<th>Manner conflating</th>
<th>Expressing speed</th>
<th>Verbs not primarily lexicalizing motion</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>bounce, drive</em> (8), <em>edge</em>, gallop, <em>hike</em> (3), <em>inch, jog, parade, ride, roll</em> (2), <em>trudge, walk</em> (12)</td>
<td><em>race</em> (2), <em>scoot, speed</em></td>
<td><em>hurry</em> (2)</td>
</tr>
<tr>
<td><em>ambles, cruise</em> (2), <em>drift</em> (2), <em>meander, roam, stroll</em> (4)</td>
<td><em>emphasize on intentionality</em></td>
<td><em>ambles, cruise</em> (2), <em>drift</em> (2), <em>meander, roam, stroll</em> (4)</td>
</tr>
<tr>
<td><em>jumping manner</em></td>
<td><em>bound</em></td>
<td><em>continuation of an activity</em></td>
</tr>
<tr>
<td><em>Liquid/air ground</em></td>
<td><em>float, fly</em> (2), <em>sail, skim, wade, waft</em></td>
<td><em>continue</em> (3)</td>
</tr>
</tbody>
</table>

**Total verb classes:** 14  
**Total verb types:** 40  
**Total verb tokens:** 74
<table>
<thead>
<tr>
<th>VERB CLASSES AND TYPES OCCURRING WITH \across</th>
</tr>
</thead>
<tbody>
<tr>
<td>VERBS PRIMARILY LEXICALIZING MOTION</td>
</tr>
<tr>
<td>VERB CLASSES</td>
</tr>
<tr>
<td>Schematic motion</td>
</tr>
<tr>
<td>Deictic schematic verbs</td>
</tr>
<tr>
<td>Manner conflating</td>
</tr>
<tr>
<td>expressing speed</td>
</tr>
<tr>
<td>aimless manner</td>
</tr>
<tr>
<td>jumping manner</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VERBS NOT PRIMARILY LEXICALIZING MOTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>VERB CLASSES</td>
</tr>
<tr>
<td>Change in orient.</td>
</tr>
<tr>
<td>Mass/liquid figure</td>
</tr>
<tr>
<td>Liquid/air ground</td>
</tr>
<tr>
<td>Slippery ground</td>
</tr>
<tr>
<td>Verb classes: 2</td>
</tr>
<tr>
<td>Tokens: 2</td>
</tr>
</tbody>
</table>

Total verb classes: 18  
Total verb types: 35  
Total verb tokens: 54

Table B.2-13: Verbs occurring with \across in the IMC

<table>
<thead>
<tr>
<th>VERB CLASSES AND TYPES OCCURRING WITH \between</th>
</tr>
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<tbody>
<tr>
<td>VERBS PRIMARILY LEXICALIZING MOTION</td>
</tr>
<tr>
<td>VERB CLASSES</td>
</tr>
<tr>
<td>Expressing arrival</td>
</tr>
<tr>
<td>Verb classes: 1</td>
</tr>
<tr>
<td>Total verb tokens: 2</td>
</tr>
</tbody>
</table>

Table B.2-14: Verbs occurring with \between in the IMC

<table>
<thead>
<tr>
<th>VERB CLASSES AND TYPES OCCURRING WITH \in</th>
</tr>
</thead>
<tbody>
<tr>
<td>VERBS PRIMARILY LEXICALIZING MOTION</td>
</tr>
<tr>
<td>VERB CLASSES</td>
</tr>
<tr>
<td>Manner conflating</td>
</tr>
<tr>
<td>Liquid Figure</td>
</tr>
<tr>
<td>Expressing arrival</td>
</tr>
<tr>
<td>Successful arrival</td>
</tr>
<tr>
<td>Verb classes: 4</td>
</tr>
<tr>
<td>Total verb tokens: 11</td>
</tr>
</tbody>
</table>

Table B.2-15: Verbs occurring with \in in the IMC

<table>
<thead>
<tr>
<th>VERB CLASSES AND TYPES OCCURRING WITH \at</th>
</tr>
</thead>
<tbody>
<tr>
<td>VERBS PRIMARILY LEXICALIZING MOTION</td>
</tr>
<tr>
<td>VERB CLASSES</td>
</tr>
<tr>
<td>Expressing arrival</td>
</tr>
<tr>
<td>Coming into view</td>
</tr>
<tr>
<td>Verb classes: 2</td>
</tr>
<tr>
<td>Tokens: 21</td>
</tr>
<tr>
<td>Verb classes: 1</td>
</tr>
<tr>
<td>Tokens: 7</td>
</tr>
</tbody>
</table>

Total verb classes: 3  
Total verb types: 6  
Total verb tokens: 28

Table B.1-16: Verbs occurring with \at in the IMC
### Table B.2-17: Verbs occurring with outside in the IMC

<table>
<thead>
<tr>
<th>VERB CLASSES AND TYPES OCCURRING WITH</th>
<th>VERBS PRIMARILY LEXICALIZING MOTION</th>
<th>Successful arrival</th>
<th>get</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VERBS</strong></td>
<td>go (3)</td>
<td>VERBS NOT PRIMARILY LEXICALIZING MOTION</td>
<td></td>
</tr>
<tr>
<td><strong>Manner conflating</strong></td>
<td>step, stump, trudge, venture (2), walk</td>
<td><strong>VERBS</strong></td>
<td><strong>VERBS</strong></td>
</tr>
<tr>
<td><strong>aimless manner</strong></td>
<td>drift, stroll</td>
<td>Conclusion of an activity</td>
<td>stop</td>
</tr>
<tr>
<td><strong>Approach and arrival</strong></td>
<td>arrive, land, set foot</td>
<td>Verb classes: 1</td>
<td>Types: 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tokens: 1</td>
<td></td>
</tr>
</tbody>
</table>

Total verb classes: 6  
Total verb types: 13  
Total verb tokens: 16

### Table B.2-18: Verbs occurring with inside in the IMC

<table>
<thead>
<tr>
<th>VERB CLASSES AND TYPES OCCURRING WITH</th>
<th>VERBS PRIMARILY LEXICALIZING MOTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VERBS</strong></td>
<td>move</td>
</tr>
<tr>
<td>Schematic motion</td>
<td></td>
</tr>
<tr>
<td>Deictic Schematic verbs</td>
<td>come, go (5)</td>
</tr>
<tr>
<td><strong>Manner conflating</strong></td>
<td>dart, step (3)</td>
</tr>
<tr>
<td>expressing speed</td>
<td>run</td>
</tr>
<tr>
<td>jumping manner</td>
<td>skip</td>
</tr>
<tr>
<td>Expressing arrival</td>
<td>reach (2), land (2), set foot</td>
</tr>
<tr>
<td>Successful arrival</td>
<td>get (3)</td>
</tr>
<tr>
<td>Previously traveled path</td>
<td>retreat</td>
</tr>
<tr>
<td>Against resistance</td>
<td>pull</td>
</tr>
<tr>
<td>Intrusion</td>
<td>penetrate</td>
</tr>
<tr>
<td>Closed Path</td>
<td>go back (2)</td>
</tr>
</tbody>
</table>

Total verb classes: 11  
Total verb types: 15  
Total verb tokens: 26

### Table B.2-19: Verbs occurring with on in the IMC

<table>
<thead>
<tr>
<th>VERB CLASSES AND TYPES OCCURRING WITH</th>
<th>VERBS PRIMARILY LEXICALIZING MOTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VERBS</strong></td>
<td>jump, leap</td>
</tr>
<tr>
<td>Manner conflating</td>
<td>fall</td>
</tr>
<tr>
<td>Falling motion</td>
<td></td>
</tr>
<tr>
<td>Expressing arrival</td>
<td>land (2), set foot</td>
</tr>
<tr>
<td>Arrival at fixed ground</td>
<td>dock</td>
</tr>
</tbody>
</table>

Total verb classes: 6  
Total verb types: 8  
Total verb tokens: 9

Table B.2-18: Verbs occurring with inside in the IMC

Table B.2-19: Verbs occurring with on in the IMC
APPENDIX C: QUESTIONNAIRES AND RESULTS

This appendix contains the two questionnaires as well as the results of the two surveys that were used to obtain intuition data as a further source of evidence thus supplementing the frequency data obtained from the corpora. The survey only covered some of the problems dealt with in the dissertation. Questionnaire 1 seeks to test the use of dynamic versus non-dynamic prepositional phrases with verbs of putting and positioning. The relevant chapter in the dissertation is Chapter 6. Questionnaire 2 was designed to test interpretational biases of instances of the caused-motion as well as the intransitive-motion construction with non-dynamic prepositions. Chapter 5 and Chapter 7 incorporate the results of the second survey.

The questionnaires were both accessible via the internet. Students of the Rice community were asked to access the web page and submit their answers via email. About half of the data for each survey were gathered in this manner. The other half of the data was gathered on campus and consisted of a traditional paper and pencil testing. The questions in the paper and pencil questionnaires were arranged in a different order in order to control for ordering effects. The questionnaires shown below are in the form of the web survey. Following the two surveys, the results obtained are shown in Tables C-1 and C-2 respectively.
Survey I

Age: _____ years
Sex: Male □ Female □
In which country or state did you grow up?: __________________

The Survey.
In the following you see sets of paragraphs that are taken from newspapers. The sentences do not necessarily represent the original wording, some are slightly altered. Please indicate for each sentence in the different paragraphs whether you think this sentence is one that you could say in English. Please check yes if you could say it. Check no if you could not. Check maybe if you are in doubt.

Please stick to your first intuition and don’t go back changing answers later!

The following example illustrates the task (though it need not reflect your own intuitions):
(ex)
- He placed the necklace in the drawer.
  Yes □ No □ Maybe □
- He placed the necklace into the drawer.
  Yes □ No □ Maybe □

(1)
a. So far, they have not placed this mass into patients, choosing instead to keep it in a sterile container and run patients’ blood through the device like a dialysis machine.
  Yes □ No □ Maybe □
b. So far, they have not placed this mass in patients, choosing instead to keep it in a sterile container and run patients’ blood through the device like a dialysis machine.
  Yes □ No □ Maybe □
c. So far, they have not placed this mass inside patients, choosing instead to keep it in a sterile container and run patients’ blood through the device like a dialysis machine.
  Yes □ No □ Maybe □

(2)
a. Seeking to demonstrate impact spatter, for instance, he placed several drops on a piece of paper, then banged his hand into it, prompting several jurors to jump or flinch.
  Yes □ No □ Maybe □
b. Seeking to demonstrate impact spatter, for instance, he placed several drops onto a piece of paper, then banged his hand into it, prompting several jurors to jump or flinch.
  Yes □ No □ Maybe □

(3)
a. Tugging his wife along with one hand and waving frantically with the other, Zedillo bounced onto a stage under a threatening sky one recent afternoon to pledge the future to 8,000 women.
  Yes □ No □ Maybe □
b. Tugging his wife along with one hand and waving frantically with the other, Zedillo bounced on a stage under a threatening sky one recent afternoon to pledge the future to 8,000 women.
  Yes □ No □ Maybe □
(4) a. "In L.A., from what I understand, all you have to do is hang a bag of laundry on your porch in the morning, and by afternoon, you'll have drive-by fashions," he said.
   Yes ☐ No ☐ Maybe ☐
b. "In L.A., from what I understand, all you have to do is hang a bag of laundry onto your porch in the morning, and by afternoon, you'll have drive-by fashions," he said.
   Yes ☐ No ☐ Maybe ☐

(5) a. An understanding crew turned the craft around and deposited her on the plane that took her home to Sarasota, Fla., where she spent the week decompressing.
   Yes ☐ No ☐ Maybe ☐
b. An understanding crew turned the craft around and deposited her onto the plane that took her home to Sarasota, Fla., where she spent the week decompressing.
   Yes ☐ No ☐ Maybe ☐

(6) a. Generally, when foreigners have reason to travel out of Pyongyang, the government puts them in a car or train leaving the city after nightfall, so they pass through the countryside in darkness.
   Yes ☐ No ☐ Maybe ☐
b. Generally, when foreigners have reason to travel out of Pyongyang, the government puts them into a car or train leaving the city after nightfall, so they pass through the countryside in darkness.
   Yes ☐ No ☐ Maybe ☐

(7) a. Friday he arrived at Bellevue accompanied by three attorneys, he was put into a wheelchair, and pushed into a guarded ward.
   Yes ☐ No ☐ Maybe ☐
b. Friday he arrived at Bellevue accompanied by three attorneys, he was put in a wheelchair, and pushed into a guarded ward.
   Yes ☐ No ☐ Maybe ☐

(8) a. Processors also will be required to use a bacteria-reducing rinse before the bird is placed in the "chiller," a cold-water bath.
   Yes ☐ No ☐ Maybe ☐
b. Processors also will be required to use a bacteria-reducing rinse before the bird is placed into the "chiller," a cold-water bath.
   Yes ☐ No ☐ Maybe ☐

(9) a. A yellow rose wrapped in cellophane was laid in her grave.
   Yes ☐ No ☐ Maybe ☐
b. A yellow rose wrapped in cellophane was laid into her grave.
   Yes ☐ No ☐ Maybe ☐
c. A yellow rose wrapped in cellophane was laid inside her grave.
   Yes ☐ No ☐ Maybe ☐

(10) a. Place lamb chops onto carrots and leeks and pour sauce over.
   Yes ☐ No ☐ Maybe ☐
b. Place lamb chops on carrots and leeks and pour sauce over.
   Yes ☐ No ☐ Maybe ☐
(11) a. Kendall was fitted for Roush Racing’s backup Mustang on Friday night and put it on the track for the first time yesterday morning.
   Yes □  No □  Maybe □

   b. Kendall was fitted for Roush Racing’s backup Mustang on Friday night and put it onto the track for the first time yesterday morning.
   Yes □  No □  Maybe □

(12) a. At one point, a little girl in neon pink shorts and a T-shirt was allowed to descend from the stands and place three red carnations onto the casket.
   Yes □  No □  Maybe □

   b. At one point, a little girl in neon pink shorts and a T-shirt was allowed to descend from the stands and place three red carnations on the casket.
   Yes □  No □  Maybe □

(13) a. The victim landed on his feet, was resuscitated, placed on the stretcher and hauled upward with another Ranger beside him to steady the stretcher, the report said.
   Yes □  No □  Maybe □

   b. The victim landed on his feet, was resuscitated, placed onto the stretcher and hauled upward with another Ranger beside him to steady the stretcher, the report said.
   Yes □  No □  Maybe □

(14) a. The only thing to do was balance on the windowsill, draw up the ladder and place it in the room.
   Yes □  No □  Maybe □

   b. The only thing to do was balance on the windowsill, draw up the ladder and place it inside the room.
   Yes □  No □  Maybe □

   c. The only thing to do was balance on the windowsill, draw up the ladder and place it into the room.
   Yes □  No □  Maybe □

(15) a. A yellow rose wrapped in cellophane was laid on her coffin.
   Yes □  No □  Maybe □

   b. A yellow rose wrapped in cellophane was laid onto her coffin.
   Yes □  No □  Maybe □

Thank you for your participation in this survey.
Background Information
Age: ______ years
Sex: Male □ Female □
In which country or state did you grow up?: __________________

The Survey.
In the following you see single sentences or sets of similar sentences that are taken from newspapers. The sentences do not necessarily represent the original wording but are slightly altered. Please indicate for each sentence, which one of the provided partial paraphrases best reflects your interpretation of the sentence. If you think both paraphrases would be possible interpretations check the box both are ok paraphrases. If you think that none of the paraphrases is a possible interpretation check the box neither paraphrase says what the original sentence means.

In case you think that both paraphrases are ok, please additionally indicate which of the paraphrases reflects the interpretation that came to your mind first when you first read the example.

Please stick to your first intuition and don’t go back changing answers later!

The following example illustrates the task (though it need not reflect your own intuitions):

(ex)
• W. Hodding Carter took this sage advice to heart as he and a friend trekked in the great American wilderness.
  1. Carter and his friend were trekking within the wilderness ■
  2. Carter and his friend enter the wilderness while trekking □
     Both are ok interpretations
     1 came to my mind first □
     2 came to my mind first □
     Neither paraphrase says what the original sentence means □

(1)
• Every week during good weather, Kemen carefully moves every one of the statues on his center walkway.
  1. Kemen moves the statues around on the walkway □
  2. Kemen moves the statues onto the walkway □
     Both are ok interpretations
     1 came to my mind first □
     2 came to my mind first □
     Neither paraphrase says what the original sentence means □

(2)
• David Johnson, 38, one of the people in line, said the man drove on the sidewalk and swiped a building, hitting some men as the crowd scattered.
  1. The man drove onto the sidewalk □
  2. The man drove down on the sidewalk □
     Both are ok interpretations
     1 came to my mind first □
     2 came to my mind first □
     Neither paraphrase says what the original sentence means □
(3) • He released the wild cat in the mountains.
   1. He released the cat into the mountains
   2. He released the cat while being in the mountains
   Both are ok interpretations
   1 came to my mind first
   2 came to my mind first
   Neither paraphrase says what the original sentence means

(4) • This weekend, hundreds of thousands will shuffle over a one-lane wooden bridge in Bukavu, Zaire.
   1. They will shuffle over the bridge that is in Bukavu
   2. They will shuffle over the bridge into Bukavu
   Both are ok interpretations
   1 came to my mind first
   2 came to my mind first
   Neither paraphrase says what the original sentence means

(5) • Huey was squeezing lemons in the pitcher.
   1. Huey squeezed the lemons within the pitcher
   2. Huey squeezed the lemons into the pitcher
   Both are ok interpretations
   1 came to my mind first
   2 came to my mind first
   Neither paraphrase says what the original sentence means

• Huey was squeezing lemons inside the pitcher.
   1. Huey squeezed the lemons within the pitcher
   2. Huey squeezed the lemons into the pitcher
   Both are ok interpretations
   1 came to my mind first
   2 came to my mind first
   Neither paraphrase says what the original sentence means

(6) • When she turned around she saw that the cat was climbing in the tree.
   1. The cat was climbing into the tree
   2. The cat was in the tree, climbing around
   Both are ok interpretations
   1 came to my mind first
   2 came to my mind first
   Neither paraphrase says what the original sentence means

(7) • Hodzic wandered in a portion of the Serb-held territory that surrounds Sarajevo and was captured and hauled off to a tiny, dark cell.
   1. Hodzic was wandering around in the territory
   2. Hodzic entered the territory while wandering around
   Both are ok interpretations
   1 came to my mind first
   2 came to my mind first
   Neither paraphrase says what the original sentence means
• Hodzic wandered inside a portion of the Serb-held territory that surrounds Sarajevo and was captured and hauled off to a tiny, dark cell.
  1. Hodicz was wandering around in the territory
  2. Hodicz entered the territory while wandering around
  Both are ok interpretations
      1 came to my mind first
      2 came to my mind first
  Neither paraphrase says what the original sentence means

(8)
• The woman ran in the street screaming.
  1. The woman enters the street running
  2. The woman runs down the street
  Both are ok interpretations
      1 came to my mind first
      2 came to my mind first
  Neither paraphrase says what the original sentence means

(9)
• She scraped the plates inside the trash can before rinsing them in the sink.
  1. She scraped the contents of the plate into the trash can
  2. She scraped the plates within the trash can
  Both are ok interpretations
      1 came to my mind first
      2 came to my mind first
  Neither paraphrase says what the original sentence means

• She scraped the plates in the trash can before rinsing them in the sink.
  1. She scraped the contents of the plate into the trash can
  2. She scraped the plates within the trash can
  Both are ok interpretations
      1 came to my mind first
      2 came to my mind first
  Neither paraphrase says what the original sentence means

(10)
• Zedillo bounced on a stage under a threatening sky one recent afternoon.
  1. Zedillo bounced up and down while being on the stage
  2. Zedillo bounced onto the stage
  Both are ok interpretations
      1 came to my mind first
      2 came to my mind first
  Neither paraphrase says what the original sentence means

(11)
• He used to dress in a tuxedo and walk his Doberman in Beverly Hills at night.
  1. He walks the Doberman into Beverly Hills
  2. He walks the Doberman within Beverly Hills
  Both are ok interpretations
      1 came to my mind first
      2 came to my mind first
  Neither paraphrase says what the original sentence means
(12) • After they reach "meal" size, a water vacuum system will remove the fish from the barrels on the boats.
  1. The system transfers the fish from the barrels onto the boats
  2. The system removes the fish from the barrels that are on the boats
     Both are ok interpretations
     1 came to my mind first
     2 came to my mind first
     Neither paraphrase says what the original sentence means

(13) • He is a "pendler," one of hundreds of thousands of eastern German commuters who travel tremendous distances each day in the former West just to find work.
  1. He travels within the former West to find work
  2. He travels into the former West to find work
     Both are ok interpretations
     1 came to my mind first
     2 came to my mind first
     Neither paraphrase says what the original sentence means

(14) • Finally, the 5-foot-11, 195-pound Runnion said, he "just went berserk," knocked down the 5-8, 110-pound Donnelly and bounced on her chest as she gasped "help me, help me."
  1. He bounced up and down while being on her chest
  2. He bounced onto her chest
     Both are ok interpretations
     1 came to my mind first
     2 came to my mind first
     Neither paraphrase says what the original sentence means

(15) • Andrew J. Hood, 41, drove his gray Mercedes on the property Friday, insisting that some of the Branch Davidians had sought out his leadership and that God had directed him to offer it.
  1. Hood drove the Mercedes around on the property
  2. Hood drove the Mercedes onto the property
     Both are ok interpretations
     1 came to my mind first
     2 came to my mind first
     Neither paraphrase says what the original sentence means

(16) • There are girls in this country who are seniors in high school or in pigtails or just learning to walk who, if they want to, will march on the campus of The Citadel one day, attend school and graduate.
  1. The girls will someday enter the Citadel campus marching
  2. The girls will someday march around on the Citadel campus
     Both are ok interpretations
     1 came to my mind first
     2 came to my mind first
     Neither paraphrase says what the original sentence means

Thank you for your participation in this survey.
### Table C-1: Results of Survey 1

<table>
<thead>
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<th># of question</th>
<th>Yes</th>
<th>No</th>
<th>Maybe</th>
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<td>26</td>
<td>8</td>
</tr>
<tr>
<td>1b</td>
<td>26</td>
<td>15</td>
<td>9</td>
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### Table C-2: Results of Survey 2

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