Granularity, space and motion-framed location

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Abstract

The ways in which different languages encode motion events has been the topic of intense analysis and dissection in recent years, especially with regard to Talmy’s (1991, 2000) verb/satellite-framed typology. This chapter shifts course by moving away from motion event typologies and the encoding of canonical motion events. Instead, it shows that English speakers can conceptualise space in terms of motion events, even when they set out to encode locative events: This represents a second order function of motion-event conceptualisation. Such instances of motion-framed location, as lexicalised by the spatio-temporal prepositions ‘before’, ‘after’ and ‘following’, show that speakers can consider locative relationships in ways which differ markedly to the static perceptions of space behind the use of prototypical locative prepositions. This suggests that the salience of motion in everyday spatial perception colours the way in which locative relationships are encoded in English.
1. Introduction

This chapter examines what will be termed here ‘motion-framed location’. Instances of motion-framed location occur when a speaker uses a preposition such as before, after or following to encode a locative relationship. In cases like these, the respective locations of a figure and ground\textsuperscript{1} entity are determined as a function of their distance from a (typically unlexicalised) observer. This distance is measured in terms of time, considered as a function of the motion necessary to reach the Figure and the Ground. The entity which is said to be before is closer to the observer, and will be reached earlier by the agent in motion. Motion is the concept which underpins the sequential sense (Tyler and Evans 2003) of such prepositions - at least as far as they encode the physical, locative relationships investigated in this chapter. By firstly exploring several interpretations of granularity, an analytical framework inspired by the salience of motion in scalar typologies of space is adopted. This leads to the observation that motion events may be encoded by speakers when lexicalising locative relationships in different types of space. The use of ‘before’, ‘after’ and ‘following’ suggests a perception of space which is different to that which triggers the use of prototypical locative prepositions, such as ‘in front of’ and ‘behind’. In certain cases both types of preposition – static and motion-framed, may be available to encode the same locative relationship. When this occurs, speakers have the choice between anchoring the locative relationship in a static scene, or one in which the role of motion is stressed. Previous research sheds little light on how the concept of motion can be used to encode locative relationships. The analysis presented here works towards a closer consideration of the question. Such consideration is necessary if we are to fully understand how speakers conceptualise locative relationships when they prepare to talk about them (cf. “thinking for speaking”, Slobin 1996).

\textsuperscript{1}I use Talmy’s (2000) distinction of figure and ground in this chapter. The Figure (or figural entity, as I shall also refer to it) is “a moving… entity whose path, site or orientation is conceived as a variable” (Talmy 2000a: 311) The Ground, or ground entity is “a reference entity, one that has a stationary setting relative to a reference frame with respect to which the Figure’s path, site or orientation is categorized” (ibid: 313).
2. What is granularity?

As a preliminary observation, many interpretations of granularity are predicated upon the notion of detail: this gives rise to terms like fine-grained or its polar opposite coarse-grained (Gullberg: forthcoming), both of which are commonly used as modifiers to define relative levels of focus or detail. Narasimhan and Cablitz (2002), working in the spatial domain suggest that “one way of viewing granularity is in terms of how much detail about events is provided in typical descriptions of events” (p. 18). The key words to retain here are detail and events: granularity is a concept which relates to the investigation of different levels of precision (detail) in different relationships (events).

Even the basic task of defining granularity is coloured by the concept it targets: a definition may be fine-grained, coarse-grained or somewhere in between, depending on how detailed a definition is sought (cf. Schegloff 2000:719). Any level of detail is, in fact, a function of the criteria (semantic or otherwise) used to measure granular level; these criteria will differ, depending on the particular event under consideration. For example, motion verbs may be analysed to determine to what extent (if any) the semantic feature of manner of motion is encoded in the lexical stem. The criterion used to determine granular level in such an instance might be a two-step process, outlined as follows: a) does the verb encode any details about the manner in which the motion event is executed? b) if so, just how specific is the manner of motion encoded? Level of precision or specificity is a relative concept, with what is precise being determined, in part at least, by what is less precise, or coarser-grained. For example, lexical verbs like walk and saunter both meet the first requirement of encoding manner of motion in the verb stem. There is divergence, however, when the second criteria is applied: while walk (when applied to a human agent) encodes a motion event in which one uses one’s legs to move, saunter refines this idea by making parallel reference to the leisurely pace at which this motion event is executed. The inclusion of this second semantic detail entails that the lexical verb is more precise, and may be said to be of a finer grain, than walk.

Narasimhan and Cablitz (2002) consider several interpretations of granularity and apply two of these to their research. The first of these is a perception of granularity as “the
specificity with which languages carve up a semantic domain at the lexical and
costnctural levels” (p. 1). Gullberg (forthcoming) follows this interpretation of
granularity, pointing out that commonly-used placement verbs in Dutch and French differ
in the degree to which they lexicalise the spatial properties of the figural object: while
French speakers use the general placement verb *mettre (put)* to describe most caused-
motion events (and therefore do not use the verb to refer to the particular spatial
properties of the figural object), Dutch speakers are required to make a more-refined
lexical selection by using a placement verb which encodes the figure’s shape, orientation
and disposition in relation to the ground object (ibid: 72). Could you give an example
with a gloss? E.g., (according to my own intuitions) *neerleggen (“to lay down”)* can only
be used to describe the bringing into contact of a Figure object with a clear main axis,
with a Ground object that supports the Figure object, where the Figure object’s longest
dimension is in contact with that Ground object (i.e. it is ‘horizontal’ in relation to the
Ground object), whereas *neerzetten (“to put down”)* can only be used to describe the
bringing into contact of a Figure object with a clear main axis, with a Ground object
supporting the Figure object where the Figure object’s shortest dimension is in contact
with that Ground object (i.e. it is ‘vertical’ in relation to the Ground object). The
placement verbs used by Dutch speakers, as opposed to those used by French speakers,
may therefore be said to be of a finer grain. Once again, this determination of granular
level is relative: here, it is achieved by the comparison of the semantic features of two
different sets of placement verbs. Note, moreover, that it is only the semantics of these
verbs as understood within the context of physical placement events which are used to
determine granular level; other semantic extensions which may be evident in other
contexts, for example in idiomatic expressions, are not of interest. A Dutch expression
like the following,

1. *zich neerleggen bij de situatie*
   oneself to lay down with the situation
   ‘to lay oneself down with the situation’

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2 This page number corresponds to the submitted version of the article, since the edited volume in which it appears is yet to be released.
‘to accept the situation’

employs a figurative use of *neerleggen*: such an extension of use moves beyond the context of physical placement events, and would not therefore be considered in the determination of granular level. Granular level is a function of both *context* (physical placement events) and *specific lexical semantic* criteria (spatial properties of the figural object).

The second approach taken by Narasimhan and Cablitz is to view granularity as referring to “scales of space” (2002:9). Applying this concept to their study of locative predicates in Marquesan, Narasimhan and Cablitz follow the granular differentiation of spatial areas proposed by Egenhofer and Mark (1995). Egenhofer and Marks’ twin typological approach splices space into two sub-categories: “geographic” space, which is apprehended through physical displacement, and “table-top” space, which contains objects open to manipulation. A consideration of space as a function of human locomotion is also at the core of Montello’s (1993) typology. Montello proposes a breakdown of space predicated upon “the *projective* size of the space relative to the human body, not its actual or apparent absolute size” (ibid: 315). To see how motion operates within this framework, it is helpful to look at the different categories of space which Montello proposes:

**Figural space**: smaller than body, no movement required to apprehend it

**Vista space**: can be viewed from the one place without “appreciable” (ibid: 315) motion necessary (i.e. rooms, town squares, horizons)

**Environmental space**: larger than body and requires locomotion to apprehend it (i.e. buildings, cities)

**Geographical space**: larger still, and requires maps/models (i.e. countries)

Montello’s typology suggests that motion is intrinsically related to how we understand and apprehend space. It acts as a determining factor in how humans are physically able to perceive spaces of different size (this size being calculated relative to the human
observer), thereby shaping interaction between the human observer/agent and their environment. In what follows, this idea of motion playing a driving role in human perception of space will be developed through an analysis of how the concept of motion-framed location operates in English. Just as Egenhofer and Mark (1995) and Montello (1993) consider motion to be a pivotal concept in the categorisation of space, the analysis which follows argues that motion lies behind how everyday locative relationships are perceived in space. Motion-framed location is another way of viewing and encoding locative relationships. It allows the speaker to set the scene differently to an expression which uses a static locative preposition. Each of these two different approaches, one grounded in the static, the other in the dynamic, results in the encoding of locative relationships at different levels of lexical semantic granularity (specificity).

3. Motion-framed location

In this section, the concept of motion-framed location will be introduced by examining the locative semantics of the preposition ‘before’. To examine how the preposition ‘before’ encodes a locative relationship within the framework of a motion event, an everyday space like a room might be taken as our initial spatial backdrop. If we were to provide a basic, general description of a typical lounge room to a listener, a host of static locative prepositions would come into play: from the book ‘on’ the table, to the table ‘in front of’ the sofa, to the sofa ‘against’ the wall. The use of before in such an example of basic locative discourse would, however, prove problematic:

2. ??There’s a table before the sofa

The confusion is predicated, in part, on the potential viability of two competing lexical senses. One is a sense which glosses as ‘in front of’, the other is a sense which concerns sequentiality (Tyler and Evans 2003). The purely static reading of ‘in front of’, as

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3 This is not to suggest that the prepositions termed static here, such as ‘in front of’, cannot be used in the context of a dynamic motion event. They can be. For example, “he ran in front of the car”. However, it is the verb, not the preposition, which encodes motion. This is different to motion-framed locative prepositions, which do encode motion as part of their semantic structure.
lexicalised by ‘before’, is highly constrained in modern English and generally requires a human ground (ibid: 167) - thereby going against its use in example 4. The sequential sense\(^4\), which incorporates instances of motion-framed location, is infelicitous for two possible reasons: firstly, the concept of motion is not of particular salience to the relatively small space under consideration (a lounge room), and secondly, the simple, descriptive context of the utterance does little to facilitate a conceptualisation of location within a motion event framework. In sentence four, it would be much more acceptable to use a preposition\(^5\) like ‘in front of’ to encode the locative relationship. It is conceivable, however, that an utterance which foregrounds the salience of motion (for example, giving directions) might be enough to licence the use of ‘before’. One such example might be if the speaker were now giving directions over the phone to a friend, who is coming over to pick up the table. In such a context, an utterance like

3. "Go into the lounge room; the table’s on the left, before the sofa"

is nevertheless awkward, and the meaning of ‘before’ is unclear. There is still the temptation to understand ‘before’ in its purely static sense, and this seems to constrain the felicity of the sequential interpretation. The very nature of the close arrangement of objects in restricted interior spaces like lounge rooms seems to favour the use of static prepositions such as ‘next to’, ‘in front of’, ‘behind’, etc. However, when the interior space increases in size and the figure and ground entities are no longer manipulable objects like tables or lounges, ‘before’ becomes more plausible. Imagine the speaker is now explaining to a guest where the bathroom is located:

4. "Go down the hall; the bathroom’s on the left, before the study"

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\(^4\) While the sequential sense “can be used to denote any set of ordered entities” (Tyler and Evans 2003:166), it is only this sense as understood within the context of locative relationships which is of interest in this chapter.

\(^5\) Following Huddleston and Pullum (2005), many so-called “complex prepositions” like “in front of” are in fact divisible into smaller units: “in front” can be taken as a single syntactic unit, and so classifying “in front of” as a single unit is syntactically erroneous. While I acknowledge this point, for the sake of convention and simplicity in the analysis, I will retain the use of “in front of”. 
There are several reasons which favour the use of sequential ‘before’ here. Firstly, the strictly static interpretation of ‘before’ as meaning ‘in front of’ no longer holds. The physical properties of studies are such that they don’t possess inherent orientations: they have no intrinsic front or back\(^6\), nor do we commonly attribute such spatial properties to them through a relative frame of reference (cf. Levinson 2003). As such, it is more difficult for the interpretation of ‘before’ as ‘in front of’ to result. Secondly, the concept of motion is more salient to negotiating one’s way through a house, than it is to locating entities in a single room. ‘Before’, when used to lexicalise a locative sequence, hinges on the interrelated factors of motion and time for semantic validity. In example 4, the use of ‘before’ posits an ordering of the figure and ground entities as a function of the path of an unlexicalised agent. This path, in turn, is governed by the direction(s) taken by the agent to reach the figure. The idea of directed motion underpins the locative relationship by validating a temporal relationship: what is ‘before’ is also what is closer to the viewer in a temporal sense (time being understood in terms of the motion required to reach the figural entity\(^7\)). All of this contrasts markedly to ‘in front of’, which brings into play either an intrinsic or relative frame of reference, and which makes no reference to concepts of time or motion. In light of these basic observations, the following hypothesis may be proposed:

*A preposition encoding location by referring to motion like ‘before’ sets the scene differently to a preposition like ‘in front of’, which encodes location by referring to a static scene.*

4. **Before and after vs. in front of and behind**

As outlined in Section 2, one interpretation of granularity works from the principle that spaces may be categorized according to scale. Motion, necessary for apprehending spaces

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\(^6\) For example, an utterance like “*he sat up the front of the study*” is implausible, as opposed to an utterance like “*he sat up the front of the bus*”, in which the ground entity has an intrinsic front.

\(^7\) The interconnectivity of motion and time are revealed by Evans (2003), who proposes the “Complex Temporal Sequence” model as a way of understanding temporal sequentiality as a function of motion. His concern here, however, is with temporal events and not with locative relationships, although the latter seem to fit the mould he proposes.
of large size, plays a pivotal role in the elaboration of such scalar typologies. A major point to be retained from this interpretation of granularity is how motion alters perceptions of space. It is interesting to take this idea further, by looking at how perceptions of space can be shown to differ depending on whether a locative relationship is framed by a static scene or by a dynamic motion event. Consider the differences between ‘before’ and ‘in front of’:

5. *There’s a post box just in front of the roundabout
6. There’s a post box just before the roundabout

Encoding a locative relationship by in front of triggers an important change in the conceptualisation of the spatial relationship, as the Figure becomes more acutely within the “sphere of influence” (Vandeloise 1986) of the Ground. The proximity of the two entities is now defined in terms of the frontal surface of the ground, which may, depending on the object under consideration, be attributed by an intrinsic or a relative frame of reference (cf. Levinson 2003). Herskovits provides a good example of the latter frame when she points out that “a front can be induced on an inanimate object by facing it” (Herskovits 1986:160). This is exactly what is implied by sentence 5, where the reader assumes the intervention of an oriented human observer to attribute a front to the roundabout. The sentence fails to hold semantically, however, once we apply our world knowledge of canonical post box locations and roundabouts. Its awkwardness suggests that for ‘in front of’ to be licensed, there must be a certain degree of correspondence in the “centres of mass orientation” (Coventry & Garrod 2004:100) of the Figure and Ground. That is, as the centres of the Figure and Ground entities cease to share a common coordinate on the lateral axis, ‘in front of’ starts to become less feasible. It may still be employed if further qualified (i.e. ‘in front of and to the left’), but once the Figure is too far removed from the centre of the Ground, even this fails to hold (as would be the case for example 5). ‘Before’ differs from ‘in front of’ in two important respects here. The first of these is that the salient surface of the ground entity is the one which is proximate to the agent in motion, without necessarily being the ground entity’s front (either intrinsic or relative). A motion/time interface applies, whereby location is calculated as a function
of distance from the speaker: this calculation does not specify the particular surface of the
ground entity in relation to which the figure is located. The second difference is that the
figure and ground entities do not need to be in strict frontal alignment. An entity can be
‘before’ a reference object without being ‘in front of’ it. A further set of examples reveals
a third major difference in the way the two prepositions set the spatial scene. Consider the
following sentences:

7. There’s a speed camera **before** the traffic lights
8. There’s a speed camera **in front of** the traffic lights

Our perception of the distance between the figure and ground entities shifts when
switching from **before** to **in front of** here. **Before** allows the interpretation that a larger
distance holds between the locations of the two entities than **in front of**. This change in
the reading of proximity is likely due to the temporal properties of **before**. These
properties suggest that an event needs to take place to validate the period of time which is
understood as elapsing between the locations of the two entities. The motion event
encoded by ‘before’ validates this temporal shift from the first entity to the second.
Moreover, there is the possibility of inserting a verb phrase directly after the preposition:

9. There’s a speed camera **before** (**you get** to) the traffic lights

**Before** licenses the verb phrase **you get**, and in doing so illuminates the fusion of
temporality, motion and location in its spatial use. As in example 6, the location of the
figural entity is not directly in front of the ground: its exact position is less precisely
determined. A locative semantic granular analysis of **before** and **in front of**, using the two
functions of ‘context’ and ‘specific lexical semantic criteria’ posited in section 1, may be
undertaken as follows:

Context of analysis: a simple figure/ground locative relationship (i.e. examples 7 and 8).
Semantic criteria used to determine granular level: locative information concerning the
figure and ground entities. This includes information such as the orientation of the figure
and ground entities, their distance relative to each other, and their position on any spatial axis.

1) *In front of* specifies that a particular surface of the ground entity, identified as its “front”, is salient in the Figure/Ground relationship. *Before* makes no direct reference to any particular surface of the ground entity - the pertinent surface is the one which is most proximate to the agent in motion.

2) *In front of* suggests that there is an important proximity between the two entities and thus that the Figure lies within the Ground’s sphere of influence. *Before* remains less specific about the distance between the Figure and the Ground, although it does encode a certain (unknown) distance between them.

3) *In front of* and *before* both encode information concerning the location of the figure and ground entities on the frontal axis. *Before* suggests that the Figure will be encountered earlier by the agent in motion than the Ground. *In front of* locates the figure on the frontal axis as a function of the ground entity’s front, which may be attributed by an intrinsic or relative frame of reference. *In front of* also suggests that the “centres of mass orientation” (Coventry & Garrod 2004:100) of the figure and ground entities closely align (thereby referencing the lateral axis), while *before* does not encode such information.

On the basis of such an analysis, *in front of* encodes a greater amount of locative information concerning the figure and ground entities. It is therefore of a finer locative semantic grain than the sequential sense of *before*.

Whereas ‘before’ encodes the location of the Figure as being closer to the point of view of the observer, ‘after’ stipulates that it is further away. Both prepositions encode motion, thus being particularly suited to contexts in which the semantic feature of path is foregrounded. An everyday outdoor space like a street provides a ready example:

10. There’s a phone box just after that stop sign
11. ? There’s a phone box just behind that stop sign
The temporal properties of the preposition *after* belie an understood progression of movement in the direction of the stop sign, and then in the direction of the phone box. The awkwardness of *behind* in example 11 cannot be explained by the lack of concealment of the figural entity by the ground entity (after all, one can be standing behind a line and still be perfectly visible), nor is it because we are unable to apply a front/back distinction to a sign. One possible reason is that we assume a certain distance to lie between the Figure and Ground in examples 10 and 11. Like ‘before’, ‘after’ allows for a reading of distance, whereas ‘behind’ suggests that the Figure is more closely located with respect to the Ground. The choice of preposition thus necessitates an appreciation of the distance between objects in space. Individual spaces trigger different perceptions of distance between figure and ground entities. World knowledge tells us that it is improbable to find a phone box directly behind a sign, and so the use of ‘behind’ becomes less probable in sentence 11. As distance increases, the Figure is drawn further away from the Ground’s sphere of influence. Location now comes to be considered in terms of the motion of an agent and the time required for this agent to reach the landmarks in question: the landmark which is calculated as being further in terms of this time/motion interface is attributed the role of Ground and is said to be ‘after’ the other, which assumes the semantic role of Figure. The implicit role of the agent in the semantic structure of ‘after’ means that location is determined relative to the agent’s path of motion. The consequence of this, however, is that the Ground is no longer conceptualised as an oriented entity which possesses a ‘back’. ‘Behind’, on the other hand, encodes a ‘back’, which is understood to be either intrinsic to the Ground or applied through a relative frame of reference. The encoding of location via a frame of motion in ‘after’ therefore comes at the cost of eliminating a basic front/back distinction.

According to Tyler and Evans (2003:174), “the functional element associated with *after* in its spatial reading is that of following or pursuing, and hence involves intentionality and purpose rather than location per se”. Such intentionality and purpose makes it a particularly ideal choice of preposition when giving directions. It also means that, given an appropriate context, it may be used to lexicalise a locative relationship in a space
which is normally removed from associations of motion and path. The following sentence provides an example:

12. You’ll find the laundry basket in his room, just after the messy pile of clothes on the floor.

Here, the verb *find* suggests intentionality and purpose, while also suggesting a successful end point to a path of motion. This then sets up the motion-framed locative event lexicalised by ‘after’ in the second half of the sentence. If the preposition is replaced by ‘before’ however, we meet the problems encountered in section 3:

13. You’ll find the laundry basket in his room, just before the messy pile of clothes on the floor.

The sentence once again seems to suffer from the two possible interpretations of ‘before’ discussed earlier: the static interpretation which glosses as ‘in front of’, and the sequential interpretation used to encode motion-framed location. In contrast to this, ‘after’ does not have a competing static interpretation which glosses as ‘behind’ (Tyler and Evans 2003:173). There is therefore less room for division between two potential interpretations, leading to a more transparent and acceptable use of the lexeme. This diversion in the semantic network of the prepositions shows that ‘before’ and ‘after’ are not necessarily licensed by the same spatial contexts: when ‘after’ may be used to encode motion-framed location, it is not automatic that ‘before’ may be used to describing the correspondingly opposite locative relationship. A parallel may be drawn, however, in the contrasting lexical semantic granularity of these two prepositions as opposed to ‘in front of’ and ‘behind’. The latter reveal a tighter perception of the spatial properties of the Ground, by encoding a basic front/back distinction which anchors the locative relationship. The Figure is also prototypically closer to the Ground, with both entities having a closer alignment on the frontal axis. While the frontal axis is central to the semantics of ‘before’ and ‘after’, the space between the entities may be greater and their alignment along this axis is not as constrained. Considered within such a framework and
on the basis of such observations, ‘in front of’ and ‘behind’ are of a finer locative semantic grain than sequential ‘before’ and ‘after’.

In certain situations, speakers may be able to choose between prepositions which foreground either the motion event or the locative event. Hence it is perfectly conceivable to give directions to a space like a cinema by saying that it is just after the Spanish restaurant, on your right, or by describing it as next to the Spanish restaurant, on your right. The former locative predicate shows how the simple copula verb ‘be’ can play a role in the encoding of motion, simply by licensing the preposition ‘after’. “The language of motion events is a system used to specify the motion of objects through space with respect to other objects” (Huang & Tanangkingsing 2005:207). Before and after satisfy this definition by encoding the motion of an unlexicalised agent, relative to a figure and ground entity. It is this motion which leads to the sequential locative configuration of the two entities. This shows how motion can come to be a primary concept in the construction of locative relationships.

The interconnectivity of motion, location and lexical encoding is not just limited to examples predicated on ‘before’ and ‘after’. Other prepositions like ‘following’ also draw on motion events to encode locative sequences. ‘Following’ is a preposition which differs interestingly from ‘before’ and ‘after’, in terms of the selection restrictions it places on its nominal complements. While all three prepositions encode sequential location as a function of motion, ‘following’ selects a complement whose referent is of a certain dimensionality. Consider the following example, which gives directions to a law firm in the city of Charlotte:

14. “Hearst Tower parking is on the left following the intersection of Fifth Street and Tryon Street”

Like before and after, following fuses the concepts of temporality, motion and location. In this example, location is encoded through the idea of temporal sequentiality, and little
indication is given of the precise physical location of the figural entity. Location, once again, becomes the function of a lexicalised motion event. In the case of example 14, this concerns a physical trajectory through a reference point (here, an intersection) to a location which exists spatially (and temporally) beyond this reference point. This path is further complemented by a general geographical designation on the lateral axis (“on the left”). The conceptual fusion of time and motion, as lexicalised by ‘following’, cannot be generically applied to all landmarks, however. The ground entity licensed by ‘following’ must be considered a one-dimensional point along the path of motion:

15. *The supermarket’s on the left, following the food court
16. *The hotel bar’s on the left, following the lobby

In examples 15 and 16, the ground entities ‘food court’ and ‘lobby’ are two-dimensional, and it is this two-dimensionality which impedes the felicitous use of ‘following’. The distinguishing property of ‘following’ is its presentation of a sequential locative relationship within a context which foregrounds path. Whereas ‘before’ and ‘after’ may call attention to the multi-dimensionality of the Ground, following suggests that the Ground’s spatial dimensions, beyond the one necessary for conceptualisation as a point, are irrelevant to the locative relationship. The preposition, which is historically derived from the lexical verb ‘follow’ (Huddleston & Pullum 2005:136), reflects the semantic notion of sequentiality at the core of this verb. Contrary to ‘before’ and ‘after’ however, the motion event which underpins the sequential locative relationship lexicalised by ‘following’ is foregrounded further still: this results in the Ground entity being conceptualised as a one-dimensional point along the agent’s path. It appears that the more a preposition foregrounds the concepts of sequentiality and motion, the less salient the spatial properties of the ground entity become. The earlier granular analysis of ‘in front of’ and sequential ‘before’ revealed important distinctions in the way the Ground entity is conceptualised in the lexicalised locative relationship. ‘In front of’ encodes location relative to a surface of the Ground (its “front”); it also suggests a closer alignment of the

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8 I thank Emile van der Zee for suggesting the idea that ‘following’ requires the use of a one dimensional Ground.
Figure and Grounds’ centres of mass orientation than does ‘before’. ‘In front of’ and ‘behind’ also suggest greater proximity of the two entities than do ‘before’ and ‘after’. Common to all of these observations is the recurrent presence of the Ground in the configuration of the locative relationship. The role of the Ground becomes less pronounced in relationships lexicalised by ‘before’ and ‘after’, and is further reduced when ‘following’ comes into play. The encoding of motion-framed location comes at a price: as the salience of motion increases, the Ground comes to be conceptualised in terms of this motion. Its own spatial properties decrease in importance as time and motion characterise the locative relationship. This has important consequences for how English speakers need to consider space when preparing to encode locative relationships. Because speakers must consider the options their language makes available to them when they wish to speak, the ways in which they think when processing thought for speech is necessarily shaped by the language spoken: this is known as “thinking for speaking” (Slobin 1996:76). English makes available lexical items which simultaneously encode both location and motion (cf. before, after and following), while also possessing others which foreground a static scene predicated on the spatial properties of the Ground (cf. in front of and behind). Following the “thinking for speaking” hypothesis, speakers must factor in the concepts of distance, time and motion when deciding whether to use a motion-framed locative preposition like ‘before’, or a static-framed one like ‘in front of’. The salience of distance, time and motion in utterance context should, theoretically, favour the emergence of motion-framed locative prepositions. Prepositions like ‘before’ and ‘after’ should also emerge when there is difficulty in attributing a front/back orientation to a Ground entity. On the other hand, when the distance between objects is less, when motion is of little salience to the spatial context and when the front/back orientation of the Ground is judged to be important, the use of static-framed prepositions should be favoured. Naturally, such hypotheses are speculative and require justification from empirical research.
5. Conclusion

This chapter began by broadly considering the concept of granularity. By identifying a central use as a means of referring to varying levels of specificity, the investigation led to a canvassing of the concept within the framework of lexical semantics. Moving beyond this approach to the topic, previous research undertaken by Narasimhan and Cablitz (2002) revealed a particularly pertinent line of enquiry, through the presentation of granularity as the scalar division of space. The models proposed by Egenhofer and Mark (1995) and Montello (1993) suggest that such division is predicated upon the role of motion in the perception of space. This then led to the exploration of another way in which motion affects the perception of space – through the encoding of motion-framed location. It was shown that English allows speakers the possibility of encoding locative relationships within the framework of motion events, through the use of what I have termed motion-framed locative prepositions\(^9\): i.e. ‘before’, ‘after’ and ‘following’. The use of such prepositions belies a perception of space which contrasts importantly to that behind the use of prototypical locative prepositions like ‘in front of’ and ‘behind’.

Whereas the latter foreground the role of the Ground in the perception of the spatial relationship, motion-framed locative prepositions determine location as a function of time. Time, in turn, is determined by the motion of a (typically unlexicalised) agent. The entity which is further from the agent necessitates a more extended path of motion, and is therefore perceived as being spatially and temporally ‘after’ the Figure, which is said to be ‘before’.

The major point to emerge from the investigation is the different ways in which motion-framed locative prepositions set the spatial scene as opposed to static locative prepositions. The concerns of distance between the Figure and the Ground, their alignment on the frontal axis and the encoding of the Ground’s spatial properties signalled major differences between the two types of preposition. Such divergence then paved the way for an application of the original interpretation of granularity presented in

\(^9\) This is not to suggest that only three motion-framed locative prepositions exist in English. There exist others, such as ‘past’, which remain a subject for future investigation.
the chapter: lexical semantic granularity as considered within contextual boundaries. A comparative granular analysis of the prepositions showed that ‘in front of’ and ‘behind’ were of a finer locative semantic grain than ‘before’ and ‘after’. Perhaps even more important than this, however, is the implication which the latter prepositions have for ‘thinking for speaking’. ‘Before’, ‘after’ and ‘following’ suggest that speakers must consider the salience of motion events to individual locative relationships before using language. This shows that motion is fundamentally linked to location, and colours our very perception of it.
References


