

On the gradable nature of the search domain: A study of degree modifiers and the scalar semantics of Finnish spatial grams

(This is a self-archived manuscript. Please refer to the final, published paper: Huumo, Tuomas. 2021. On the gradable nature of the search domain: A study of degree modifiers and the scalar semantics of Finnish spatial grams. *Cognitive Semantics* 7(1): 85–113.)

Abstract

Degree modifiers (DM) are intensifying words that typically modify adjectives or adverbs. Some DMs (e.g., 'rather', 'very') indicate an open scale, which is unbounded and has no maximal or minimal boundaries, others (e.g., 'quite', 'almost') a closed scale, which has either or both. In Finnish, many spatial grams, i.e., adpositions and adverbs, accept DMs. Such grams have a scalar meaning, which the DM then elaborates. I analyze three groups of grams: 1) topological *luona* 'at; by', *lähellä* 'near', and *kaukana* 'far'; 2) directional *kohti* 'towards' and *ohi* 'past'; and 3) targeting *keskellä* 'in the middle of'. I argue that the scalar meaning of the grams may relate 1) to the distance between Figure and Ground; 2) to the direction of Figure's motion or orientation with respect to Ground; 3) to the precision of Figure's location at (or deviation from) a targeting point specified with respect to Ground. Most of the grams accept only closed-scale DMs, while some accept open-scale DMs, and yet others both. The compatibility of closed-scale DMs with most of the grams indicates that the search domain of the grams is typically bounded and has at least a maximal-degree boundary and often also a minimal-degree boundary.

Keywords: degree modifier, adposition, scalar semantics, cognitive linguistics, Finnish

## 1 Introduction

Since the groundbreaking work of Bolinger (1967, 1972), the semantics of degree modifiers (DM) has received considerable attention in both formal and cognitive–functional linguistics. Many studies have focused on the function of DMs as adjective modifiers (e.g., Kennedy, 1997; Kennedy and McNally, 2005; Paradis, 1997, 2001, 2008), but more recently the use of DMs as verb modifiers has been analyzed in model-theoretical semantics (see Fleischhauer, 2016 and the literature cited therein). In cognitive linguistics, Talmy (2017: 315) has pointed out that some English prepositions have a scalar meaning, which can be specified by DMs (see also Quirk et al., 1985: 713). Talmy draws a distinction between centripetal and centrifugal prepositions: an intensifying DM locates

the Figure closer to the Ground<sup>1</sup> of centripetal prepositions (very near) but further away from the Ground of centrifugal prepositions (way above). Taking Talmy's observation as a starting point, I set out to explore the scalar meanings of Finnish spatial grams, i.e., multi-functional grammatical words (in the sense of Svorou, 1994) that typically alternate between the functions of an adposition and an adverb.

Many spatial grams in Finnish accept DMs. The scalar meaning of the grams often depends on whether the gram is used as an adverb or an adposition. In the latter case, it is also relevant whether the adposition is used as a preposition or a postposition and whether it marks the Ground with the genitive or partitive case (details to follow in Section 3). Some Finnish adpositions are rigid in this respect, while others accept both genitive and partitive Grounds, often with different scalar meanings. The grammatical construction in which the gram is used thus also contributes to the gram's ability to co-occur with different DMs. This grammatical diversity of the grams is due to their constituting a semi-open class with both more and less grammaticalized items, many of which go back historically to adverbs or nouns and can still be used in those functions as well (see Grünthal, 2003 for a detailed historical account). This is also why the term gram, introduced by Svorou (1994), is well suited to these elements.

My objective here is to explore the scalar meanings of Finnish spatial grams in a cognitive-linguistic framework. I focus on three groups of grams: 1) topological (luona 'at; by', lähellä 'near', kaukana 'far'), 2) directional (kohti 'towards', ohi 'past'), and 3) targeting (keskellä 'in the middle of'). I analyze the semantics of these elements, with an emphasis on their scalar meanings and compatibility with different closed-scale and open-scale DMs. The classification of DMs I use is a slightly modified version of Paradis (1997, 2001), who analyzes English DMs. I show that in addition to an increasing or decreasing distance between Figure and Ground (as in Talmy's 2017 division into centripetal vs. centrifugal), the scalar meanings of the grams can relate to the direction of Figure's motion or orientation with respect to Ground, or to the degree of deviation of Figure's location from a particular targeting point.

In Section 2, I present a classification of Finnish DMs, based on Paradis (1997, 2001). In Section 3, I first illustrate the scalar meaning of Finnish grams at a general level and then discuss them in

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<sup>1</sup> I use the terms Figure and Ground (see Talmy 2000: Ch. 5) respectively for the entity to be located and for the entity with respect to which the Figure is located. In grammatical terms, the Ground of an adpositional expression is the complement of the adposition. The Figure is typically expressed by another clausal element, e.g. the grammatical subject or object.

more detail: topological grams in section 3.1., directional grams in 3.2., and targeting grams in 3.3. Section 4 sums up the results and concludes the study.

## 2 A classification of Finnish degree modifiers

Degree modifiers (DM) are words that modify other words, such as adjectives or adverbs, by specifying their scalar meanings (see e.g. Paradis, 1997, 2001; Kennedy and McNally, 2005). A precondition for such modification is that the meaning of the modified element is gradable in some sense. According to Kennedy and McNally (2005: 349), gradable adjectives map their arguments onto degrees, i.e. points or intervals partially ordered along some dimension, and a set of such ordered degrees then corresponds to a scale. A DM specifies the position of an entity or a relationship on the relevant scale. The meaning of gradable words involves a standard or norm to which the specified degree relates. For an entity to count as very beautiful, for example, it is not sufficient that it should surpass the standard of being 'beautiful'; it must have that property to a higher degree than most 'beautiful' entities (of the same class). Very is an intensifying DM that specifies such a high degree on an open scale.

The scale to which a DM relates can also be a closed one (see Paradis, 1997, 2001; Kennedy and McNally, 2005). A closed scale has a minimum and maximum value, while in an open scale these are lacking.<sup>2</sup> According to Kennedy and McNally (2005), adjectives such as full, closed and invisible represent closed scales, while long, expensive, and old represent open scales. Some scales are open at one end but closed at the other; for example the adjectives quiet and unknown illustrate scales that are closed at their lower end only, while certain and pure illustrate scales that are closed at their upper end only (Kennedy and McNally, 2005: 352–355). Since metaphorical terms such as lower and upper may be misleading in a discussion of spatial grams (the spatial vertical dimension might be at issue), I will refer to a boundary at the lower end of a scale as its minimal-degree boundary and one at the upper end of a scale as the maximal-degree boundary. These notions are

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<sup>2</sup> Kennedy and McNally (2005: 353–354) characterize the distinction between open and closed scales as follows: “[Assuming] that degrees are values that are isomorphic to the real numbers between 0 and 1[, s]cales that are open on the lower end include all of those degrees that approach the limit of 0 but lack a degree whose value is less than that of all the others in the set; scales that are closed on the lower end include such a minimal value, equal to 0. Analogously, scales that are open on the upper end include all of those degrees that approach the limit of 1 but lack a degree that is greater than all the others in the set; those that are closed on the upper end have a maximal degree whose value is 1.”

purely scalar, and are to be distinguished from spatial notions such as (for example) the inner and outer boundaries of a gram's search domain.<sup>3</sup>

Like adjectives, DMs comprise two scalar main types: those of an open scale (e.g., the English *somewhat*, *rather*, *very*, *extremely*) and those of a closed scale (*almost*, *quite*, *totally*). Paradis (1997: 28) calls the former elements scalar modifiers and the latter totality modifiers. She argues that both groups consist of two subclasses: attenuating DMs, which indicate a degree below a norm, and reinforcing DMs, which indicate a degree above a norm. Reinforcing DMs with an open scale are called BOOSTERS. English BOOSTERS include, for instance, *very*, *terribly* and *extremely*; their function is to reinforce the modified property. Attenuating open-scale DMs comprise two subclasses: MODERATORS, expressing a moderate degree (neither high nor low), such as *rather*, *pretty* and *fairly*, and DIMINISHERS, expressing a low degree, e.g., *slightly* or *somewhat*. (Paradis, 2008: 321.) Totality modifiers, on the other hand, relate to a closed scale. They include the reinforcing MAXIMIZERS (e.g., *completely* and *totally*), and the attenuating APPROXIMATORS (such as *almost*). According to Paradis, MAXIMIZERS highlight a perfect match with a maximum or boundary, while APPROXIMATORS mean that the gradable property falls short of that maximum or boundary (for APPROXIMATORS, see also Radden and Dirven, 2007: 118).

In the following analysis I apply Paradis's (1997, 2008) classification for DMs, with the addition of two subclasses of totality modifiers. I refer to these as FOCUSERS and DELIMITERS. A FOCUSER either specifies or obscures a precise scalar value, as in *The child was exactly three-year-old* vs. *These two words are approximately synonymous*. DELIMITERS are DMs that are able to modify elements of both open and closed scales, with different meanings. An example of a DELIMITER (in my terminology) is the English *quite*, which, according to Paradis (1997, 2008) functions as a MAXIMIZER in closed-scale expressions (e.g., *The bottle is quite empty*), but as a MODERATOR in open-scale expressions (e.g., *The teacher was quite young*; see Paradis, 1997: 17–18, 2008: 337 and the literature cited).

The above classification of English DMs applies well to Finnish DMs. Table 1 lists the Finnish DMs to be analyzed in this article, and gives their (approximate) English translations.

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<sup>3</sup> Search domain is a term in Cognitive Grammar (e.g., Langacker 1987: 177); it refers to "the region to which a locative predication confines its trajector" (trajector being the approximate counterpart of Talmy's Figure).

TABLE 1. Classes of degree modifiers analyzed.

	Open-scale DMs	Closed-scale DMs
Attenuating	DIMINISHERS: hiukan, vähän 'somewhat; (a) little'	APPROXIMATORS: melkein, lähes 'almost'
	MODERATORS: melko, aika, kohtalaisen 'rather; somewhat; relatively' DELIMITERS: ihan, aivan 'quite'	
Reinforcing	BOOSTERS: hyvin, erittäin 'very, extremely'	MAXIMIZERS: täysin, täydellisen 'completely, perfectly' DELIMITERS: ihan, aivan 'quite'
Others		FOCUSERS: täsmälleen, tarkalleen 'exactly, precisely'; suunnilleen 'approximately'

It is important to note that some of the English translations given in Table 1 are merely rough approximations, since DMs are highly language-specific. That is why the English elements are not presented as one-to-one translations of the Finnish DMs; rather, they are intended as rough translations for the class in question. An illustrative case in point are the Finnish DELIMITERS *ihan* and *aivan*, which can both be translated into English as *quite*, but only approximately. They resemble *quite* in being multi-faceted and able to express both a moderate degree (in open-scale expressions) and a maximal one (in closed-scale expressions). For example, as a modifier of a closed-scale adjective in *ihan täysi* 'quite full', the DELIMITER *ihan* reinforces the closed-scale meaning ('completely full'). In the open-scale expression *ihan hyvä* 'pretty good; good enough' it expresses a moderate degree. However, even here *ihan* evokes a closed-scale meaning, in which a minimal-degree boundary is reached. For instance, a student's essay may be *ihan hyvä* 'good enough, sufficiently good' to be returned (albeit not excellent).

In some pairs of antonyms, the Finnish DELIMITERS behave asymmetrically (unlike the English *quite*). They express a maximal degree when they modify a negative pair but are awkward as modifiers of a positive one. For example, *ihan lyhyt* 'maximally short' and *ihan kevyt* 'maximally light' evoke a closed scale (unlike the English *quite short* and *quite light*, which are open-scale expressions). Their antonyms, *?ihan pitkä* 'quite long' and *?ihan raskas* 'quite heavy', are awkward (unlike the English translations with *quite*), unless the context imposes a maximal-degree boundary for the adjectives, as in *ihan pitkä hame* [*quite long skirt*] 'a full-length skirt'. The reason is that qualities designated by many negative adjectives have "zero" as their minimal-degree boundary, while their positive antonyms lack a corresponding maximal-degree boundary. Since there is no maximal-degree boundary, the DELIMITERS are ill-formed without a context evoking such a boundary. Thus, unlike the English *quite*, the Finnish DELIMITERS *ihan* and *aivan* are unable to

function as open-scale MODERATORS. When used with an open-scale adjective, they are either infelicitous or require a specific reading with a closed scale.

### 3 The scalar meanings of Finnish spatial grams

Finnish adpositions are a semi-open class including items which are grammaticalized to a greater or lesser extent (for a historical account, see Grünthal, 2003). Many of them have a historical background as case-inflected nouns (e.g., *pää-llä* [head/top-ADE<sup>4</sup>] 'on top of' < 'on the head/top of') or verbs (e.g. *lähti-en* [leave-INF] 'since [temp.]' < 'leaving'). Their history is also reflected in the fact that many Finnish grams contain local-case endings. Quite often there is more than one case form in use, and an adposition thus in fact has a (partial) local-case paradigm. These paradigms typically reflect the tripartite opposition between a LOCATION, a GOAL, and a SOURCE. For example, the adessive-case form *pää-llä* [head-ADE] 'on top of' expresses a LOCATION at which the Figure is situated, the allative *pää-lle* [head-ALL] 'onto' a GOAL which the Figure reaches, and the ablative *pää-ltä* [head-ABL] 'off' a SOURCE which the Figure leaves. All three forms are adpositions; the choice between them depends on the meaning expressed (stationariness vs. motion into vs. motion out of the search domain). For considerations of space, in the following I discuss only the LOCATION forms of the adpositions, even where there is a whole series.

Most adpositions in Finnish are postpositions, but there are also prepositions and some bipoositions, which can be used as both prepositions and postpositions. Most postpositions take a genitive Ground, e.g., *pöytä-n pää-llä* [table-GEN top-ADE] 'on top of the table', while most prepositions take a partitive Ground, e.g., *ennen ilta-a* [before evening-PAR] 'before evening' (see also Grünthal, 2003: 62–74). The history of the genitive construction is transparent: a noun phrase consisting of a genitive modifier and a head in a local case has been reanalyzed as a postpositional phrase, and the meaning of the head noun has become relational. The origin of the partitive construction is less transparent, but it has been argued by Sadeniemi (1943), that some partitive complements go back to adverbials meaning 'with respect to' (*partitivus respectus*), others to grammatical objects. The elements now used as adpositions were, according to Sadeniemi, originally adverbs.

Some Finnish bipoositions accept both genitive and partitive Grounds. In some cases this correlates with the use of the bipoosition as a preposition (with a partitive Ground) or a postposition (with a

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<sup>4</sup> The abbreviations used for grammatical elements in the glosses are: ABL = ablative, ACC = accusative, ADE = adessive, ALL = allative, ELA = elative, GEN = genitive, PAR = partitive, PRES = present tense, PST = past tense, Q = question morpheme, (number+)SG = (person+) singular.

genitive Ground), as in *kirko-n lähellä* [church-GEN near] vs. *lähellä kirkko-a* [near church-PAR] ‘near the church’.

It has been pointed out, for example in the comprehensive grammar by Hakulinen et al. (2004), that some Finnish adpositions accept DMs while others reject them. In the terminology of Talmy (2017: 315), the former are scalar and the latter non-scalar adpositions. According to Talmy, scalar adpositions can be divided into centripetal and centrifugal ones. Talmy gives the English *near* as an example of a centripetal preposition: when modified by an intensifier, it locates the Figure closer to the Ground (as in *Marge is standing very near the flagpole*). The Finnish counterpart of *near*, the bipoosition *lähellä* ‘near’, is likewise centripetal. It is compatible with both open-scale and (some) closed-scale DMs. The conceptualization of the scale as open or closed correlates with the case marking of the Ground. Open-scale DMs are only felicitous if the Ground is in the partitive. Consider (1), which is the Finnish equivalent of Talmy’s example.

(1)	Marge	seiso-o	hyvin	lähellä	lipputanko-a.
	Marge	stand-PRES.3SG	very	near	flagpole-PAR
	‘Marge is standing very near the flagpole.’				

With a genitive Ground, the bipoosition *lähellä* can only be used as a postposition. The open-scale DMs are now ill-formed (2).

(2)	*Marge	seiso-o	hyvin	lipputango-n	lähellä.
	Marge	stand-PRES.3SG	very	flagpole-GEN	near
	‘Marge is standing very near the flagpole.’				

The closed-scale DMs called DELIMITERS, on the other hand, are felicitous with both partitive (3) and genitive (4) Grounds.

(3)	Marge	seiso-o	ihan	lähellä	lipputanko-a.
	Marge	stand-PRES.3SG	quite	near	flagpole-PAR
	‘Marge is standing quite (‘maximally’ <sup>5</sup> ) near the flagpole.’				

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<sup>5</sup> Here and elsewhere, I use the additional specification ‘maximally’ in translations of Finnish examples with *ihan* and *aivan*. This is because the English *quite* is a less than ideal translation for these elements and might be misleading without the specification (as I pointed out in Section 2).

- (4) Marge seiso-o ihan lipputango-n lähellä.  
 Marge stand-PRES.3SG quite flagpole-PAR near  
 'Marge is standing quite ('maximally') near the flagpole.'

In (3) and (4), the English *quite* is again a less than ideal translation for *ihan*, since it tends to receive an open-scale reading. The Finnish *ihan* means that the scale is closed and that Marge is standing maximally near the flagpole, her precise position depending on the relevant conceptualization – the example does not necessarily mean that Marge is in CONTACT with the flagpole. Examples (1)–(4) demonstrate that, at least with *lähellä* 'near', the case of the Ground and the use of the gram as a preposition vs. a postposition play a role in the acceptability of the DMs; a more detailed account follows in Sections 3.1–3.5.

As pointed out in the Introduction, many Finnish grams can also be used as adverbs, without an overt Ground. *Lähellä* 'near' is a case in point. When used as an adverb, it accepts DMs of both open (5) and closed (6) scales.

- (5) Heikki asu-u melko lähellä.  
 Heikki live-PRES.3SG rather near  
 'Heikki lives rather near.'
- (6) Heikki asu-u aivan lähellä.  
 Heikki live-PRES.3SG quite near  
 'Heikki lives quite ('maximally') near.'

Example (5) has the open-scale MODERATOR *melko* 'rather' as a modifier of *lähellä*, which is used as an adverb. In (6), the DELIMITER *aivan* 'quite' expresses a maximal degree on a closed scale. Besides DELIMITERS, the other closed-class DMs in Table 1 are not compatible with *lähellä* but result in ill-formed combinations such as \**täsmälleen lähellä* 'exactly near' (FOCUSER), or ?*melkein lähellä* 'almost near' (APPROXIMATOR). The latter combination is not ungrammatical, but *melkein* is then understood as a modal adverb indicating the speaker's comment ('One might almost say that Heikki lives nearby'), not a DM. This illustrates differences in acceptability between the different subtypes of closed-scale DMs, as opposed to subtypes of open-scale DMs, which are typically all acceptable in the same contexts.

In sum, the possibility of using DMs with Finnish grams depends on the meaning of the gram, on its use as an adposition vs. an adverb, and (in the adpositional use) on the construction in which it is used (genitive vs. partitive Ground). In the following discussion, I show that while Talmy's



centripetal vs. centrifugal distinction is important, in particular for an analysis of the topological grams, it is only one kind of scalar meaning evoked by DMs when they modify spatial grams.

### 3.1 Topological grams

As examples of topological grams, I compare the scalar meanings of *lähellä* 'near' (already introduced above, as a general example of a scalar gram), *luona* 'at; by' and *kaukana* 'far'. Topological grams express the location of the Figure with respect to the inside or outside of the Ground, without specifying a direction to localize the Figure (see, e.g., Levinson and Meira, 2003). Topological grams activate a symmetrical conceptualization of the Ground: they do not distinguish, for example, between the Ground's 'front' and 'back'. The Finnish *lähellä* 'near' and *luona* 'at; by' are typical topological grams, and mean that the Figure is outside the Ground, in its vicinity. *Kaukana* 'far' is a less typical topological gram, since it means that a considerable distance separates Figure and Ground. It nevertheless conceptualizes the Ground as asymmetrical, and since it is the antonym of *lähellä* 'near', I include it in this discussion of topological grams.

In grammatical terms, the three grams differ significantly from each other. We already saw in examples (1)–(6) that *lähellä* 'near' is grammatically flexible. As an adposition it alternates between prepositional and postpositional uses, and allows the Ground to be in the partitive, as in (1) and (3), or the genitive, as in (2) and (4). In addition, it can be used as an adverb ([5] and [6]). *Lähellä* accepts open-scale DMs ([1] and [5]), but not in the genitive-Ground construction (2). It also accepts DELIMITERS irrespective of the grammatical construction ([3], [4], and [6]). Besides DELIMITERS, other kinds of closed-class DMs (in Table 1) are not compatible with *lähellä*.

The scalar meaning of *lähellä* 'near' is centripetal, like that of the English *near*: the degree expressed increases when the distance between Figure and Ground decreases. In other words, the degree is inversely proportional to the distance. The search domain of *lähellä* has no clear outer (minimal-degree) boundary (Haukioja, 1998: 222); it gradually "fades away" when the distance between Figure and Ground increases. This is what makes the APPROXIMATOR *melkein* 'almost' incompatible with *lähellä*: APPROXIMATORS require a minimal-degree boundary to the relationship they modify. There is, however, a clear inner (maximal-degree) boundary to the search domain of *lähellä*, which is the Ground itself: a Figure is maximally near a Ground when the two are in CONTACT. This inner boundary makes DELIMITERS acceptable modifiers for *lähellä* in (3) and (4). A Figure maximally near the Ground thus realizes the locative relationship at a maximal degree on a closed scale. Whether this actually means that the two are in CONTACT or not, depends on the conceptualization used.

The behavior of *lähellä* 'near' with the DMs in examples (1)–(6) shows that its scalar meaning can be alternatively conceptualized as open or closed. However, it can be closed only at its maximal-degree (inner) boundary, which is expressed by DELIMITERS, since there is no minimal-degree boundary. In the open-scale conceptualization, the boundaries of the search domain are not taken into account; the open-scale degree of a centripetal gram increases towards the Ground, as if the Figure were approaching the Ground indefinitely, without ever reaching it (see also Leal et al.'s 2018 analysis of Portuguese directional prepositions and the literature they cite).

Examples (1)–(6) also show that the genitive-Ground construction, in which *lähellä* is a postposition, only allows DMs of a closed scale in examples (2) vs. (4), while the partitive-Ground construction in (1) and (3) and the adverbial construction in (5) and (6) allow DMs of both closed and open scales. Such ambivalent scalarity is also typical for so-called negative adjectives (Kennedy 1997), such as *lyhyt* 'short' or *pieni* 'small'. These allow both open- and closed-scale DMs, the former representing a conceptualization of an infinitely decreasing length (*hyvin lyhyt* 'very short') or size (*äärimmäisen pieni* 'extremely small'), the latter a minimal-degree boundary on a closed scale (*ihan lyhyt* 'maximally short'). The scalar meaning of *lähellä* 'near' is illustrated in Figure 1.

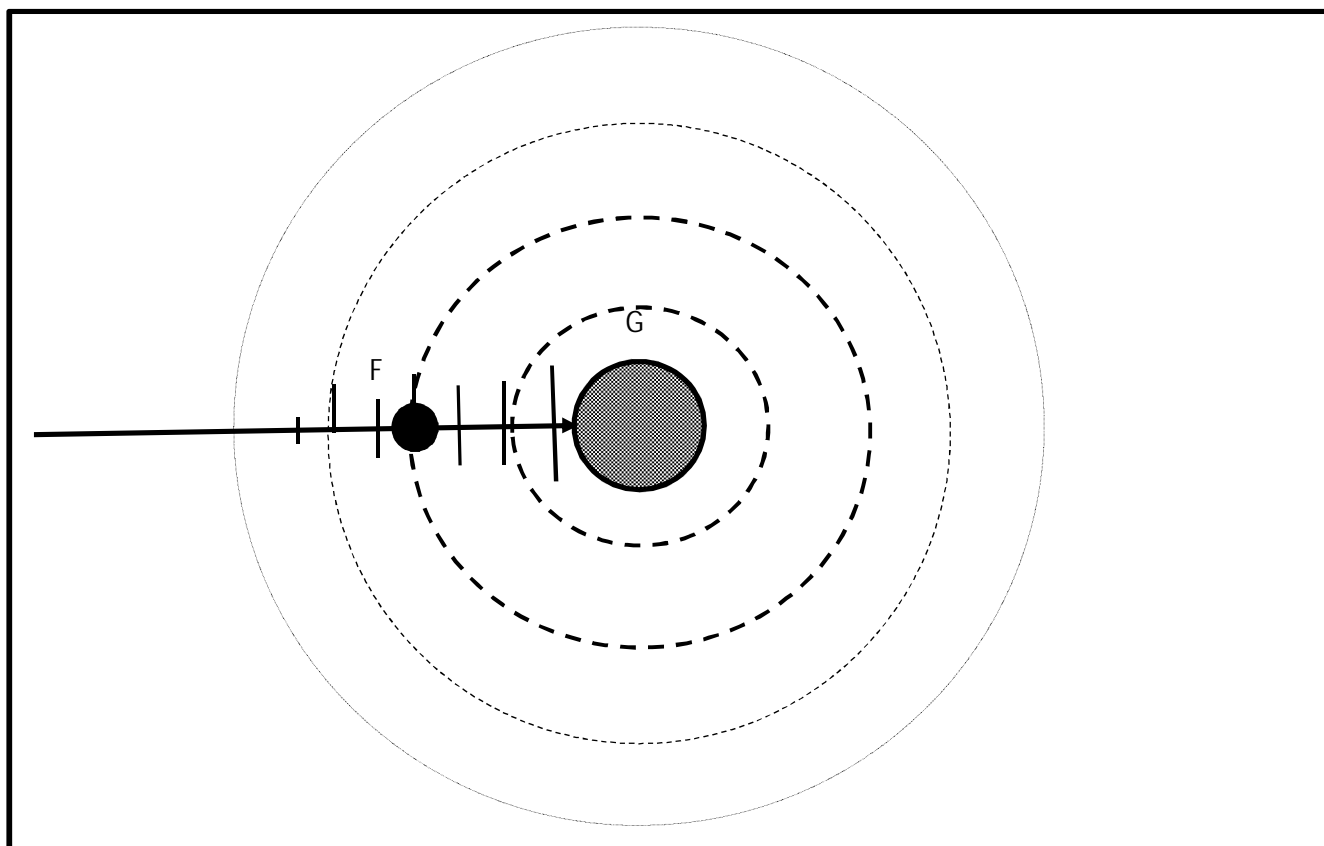


Figure 1. Open-scale meaning of *lähellä* 'near'. Figure's (F) position is assessed as distance from Ground (G). The arrow that points to Ground and the transverse lines across the arrow illustrate the centripetal meaning of the gram. The search domain has no clear outer (minimal-degree)

boundary. The inner (maximal-degree) boundary is the Ground. The circles around the Ground illustrate the vagueness of the search domain.

Now consider *luona* 'at; by', which is a near-synonym for *lähellä* 'near', at least in the sense that both indicate the Figure's location in the vicinity of the Ground without specifying a direction. There are contexts in which the two grams are practically interchangeable. The scalar meaning of *luona* 'at; by', however, differs radically from that of *lähellä* 'near'. *Luona* is strictly a postposition and only takes a genitive Ground. Attempts to use it as an adverb or as an adposition with a partitive Ground result in ungrammaticality. *Luona* rejects all open-scale DMs (as does *lähellä* in the genitive-Ground example [2]), but allows the closed-scale DELIMITER in (7) and APPROXIMATOR in (8).

(7)           Asu-n           ihan           kirko-n       luona.  
               live-PRES.1SG quite           church-GEN at  
               'I live right next to the church.'

(8)           Bussi           on           melkein       kirko-n       luona.  
               bus           be.PRES.3SG almost           church-GEN at  
               'The bus is almost at the church.'

Example (7) means that the Figure (the speaker's home) is maximally near the church on a closed scale. This resembles the closed-scale conceptualization of *lähellä* 'near' in (3) and (4). Example (8) demonstrates that, unlike *lähellä*, *luona* 'at; by' also accepts APPROXIMATORS. This is because the search domain of *luona* has a clear outer boundary, which constitutes the minimal-degree boundary of the relationship. The APPROXIMATOR in (8) means that the bus is marginally outside the outer boundary of the search domain, situated in an approximative region immediately surrounding the search domain. Because the Figure ('bus') in example (8) is a typical MOVER, the example implies motion: the bus is approaching the search domain and about to enter it. Example (9), however, shows that actual motion is not a precondition for the use of the APPROXIMATOR.

(9)           Pesula           on           melkein       kirko-n       luona.  
               Laundry       be.PRES.3SG almost           church-GEN at  
               'The laundry is almost (as far as) at the church.'

In (9), the Figure is stationary ('the laundry'), but the example evokes the conceptual operation known as scanning (Langacker, 2008: 82–83, 109–112), in which the conceptualizer scrutinizes the area in a directional manner to localize the Figure, advancing in the direction of the church, and

encounters the laundry in the approximative region immediately before (mentally) accessing the actual search domain of luona 'at; by'. The scalar meaning of luona 'at; by' is illustrated in Figure 2.

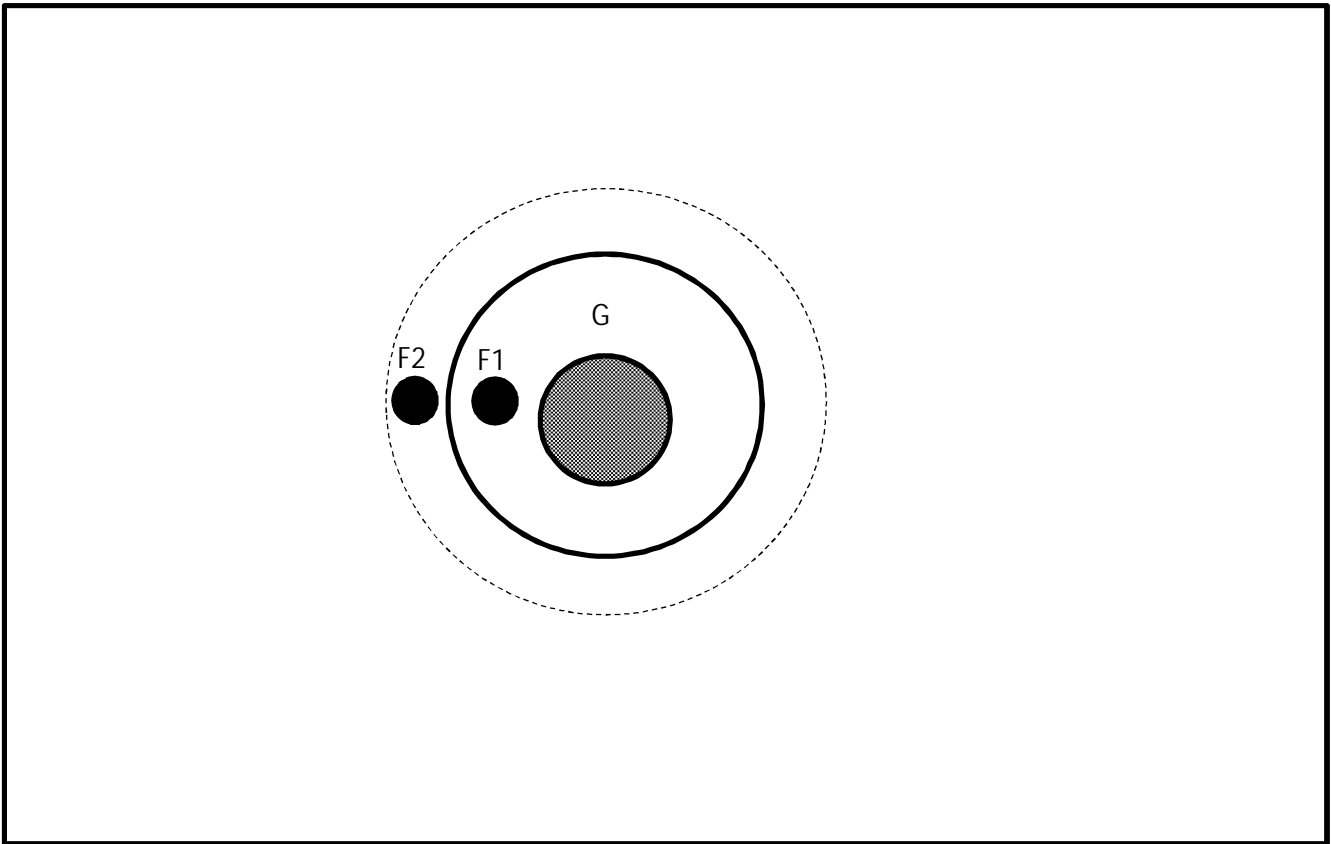


Figure 2. Closed-scale meaning of luona 'at; by'. The search domain has a clear outer (minimum-degree) boundary; the inner (maximal-degree) boundary is the Ground. F1 is situated in the search domain and F2 in the approximative region surrounding the search domain.

The main difference between lähellä 'near' and luona 'at; by' is thus related to their different scalar meanings. Applying the well-known division of adjectives into absolute and relative, luona can be characterized as an absolute gram: its search domain has clear inner (maximal-degree) and outer (minimal-degree) boundaries, and a Figure can be localized inside or outside the search domain. This resembles the meaning of absolute adjectives, which designate qualities that entities either possess or lack (wooden, nuclear, aquatic). In contrast, lähellä 'near' is a relative gram, and evokes a search domain with no clear outer (minimal-degree) boundary. A Figure can be more or less 'near' the Ground. The meaning of a relative gram resembles relative adjectives, such as beautiful or expensive.

The third topological gram to be discussed here is kaukana 'far'. Kaukana is not an adposition proper: it is used as either an adverb or a so-called quasi-adposition. The latter term was introduced by Ojutkangas and Huumo (2010); it refers to a gram that accepts a Ground in a local case (not in

the canonical genitive or partitive), e.g., *kaukana kirko-sta* [far church-ELA] ‘far from the church’. According to Zwarts (1997: 80), it is cross-linguistically common for elements meaning ‘far’ not to be adpositions proper, and the Finnish *kaukana* is a case in point. *Kaukana* ‘far’ is best compatible with open-scale DMs, such as the MODERATOR *melko* ‘rather’ or the BOOSTER *hyvin* ‘very’ in example (10).

- (10)        *Asu-n*        *melko ~ hyvin*        *kaukana*        *kirko-sta*.  
               live-1SG        rather ~ very        far                church-ELA  
               ‘I live rather ~ very far from the church.’

In Talmy’s (2017) terms, *kaukana* is a centrifugal gram. It expresses a degree that increases the further away the Figure is from the Ground and is thus directly proportional to the distance between the two. The search domain of *kaukana* is vague and has neither an inner (minimal-degree) nor an outer (maximal-degree) boundary.<sup>6</sup> This is why the DELIMITERS *ihan* and *aivan* ‘quite’, which express a maximal degree on a closed scale, are infelicitous as modifiers of *kaukana* (11) (unlike the English *quite* in *quite far*). It is only when the context implies a maximal-degree outer boundary to the search domain, as in (12), that a DELIMITER becomes felicitous.

- (11)        ?*Heikki*        *asu-u*                        *ihan*        *kaukana*.  
               Heikki        live-PRES.3SG                quite        far  
               ‘Heikki lives quite (‘maximally’) far away.’
- (12)        *Näe-t-kö*        *kirkontorni-n*                *tuolla,*        *ihan*        *kaukana?*  
               see-2SG-Q        church.tower-ACC            over.there    quite        far  
               ‘Can you see the church tower over there, quite (‘maximally’) far away?’

In (12), the delimiter *ihan* evokes an outer boundary to the search domain: the tower is as far as the conceptualizer can see. The outer boundary of the field of vision now constitutes a maximal-degree boundary and makes the DELIMITER felicitous.

In sum, the antonyms *lähellä* ‘near’ and *kaukana* ‘far’ differ in one important aspect: since *lähellä* is centripetal and vicinal, its search domain has a clear inner (maximal-degree) boundary, the Ground itself. The maximal degree of ‘nearness’ is attained by a Figure located maximally close to

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<sup>6</sup> The notions of ‘inner’ and ‘outer’ specify the boundaries of a gram’s search domain with respect to a center identified as the Ground. An inner boundary is closer to the Ground than the outer boundary. The notions ‘minimal-degree’ and ‘maximal-degree’ relate to the scalar meaning of the gram. For a centripetal gram, the outer boundary of the search domain is the minimal-degree boundary, the inner boundary is the maximal-degree boundary; vice versa for centrifugal grams.

the Ground, possibly in CONTACT with the Ground. The search domain of *kaukana* ‘far’ lacks a maximal-degree (outer) boundary (11), unless such is implied by the context (12).

Now consider the grammatical structure of the above examples and the compatibility of DMs with the different constructions (postposition with a partitive Ground vs. preposition or bipoosition with a genitive Ground vs. adverbial). Examples (2) and (4) demonstrate that open-scale DMs of *lähellä* ‘near’ are infelicitous with the genitive Ground (2) but felicitous with the partitive Ground (4). The reason may be that the genitive-Ground construction is rigid and disallows any elements between the Ground and the gram used as a postposition. The DM thus cannot immediately precede the gram. The partitive-Ground construction, on the other hand, allows the DM to precede the gram if the gram is used as a preposition (4), or even as a postposition (13):

- (13) Hän istu-i minu-a hyvin lähellä  
 3SG sit-PST.3SG 1SG-PAR very near  
 (ja jotain minussa heräsi siinä prosessissa.)  
 ‘She was sitting very close to me (and something woke up in me in that process).’  
 (Internet)

In (13), the BOOSTER DM *hyvin* ‘very’ is between the Ground *minua* [1SG-PAR] and the gram *lähellä*. The acceptability of (13) illustrates an important difference between the genitive and partitive constructions: in the latter, the grammatical bond between Ground and gram is weaker, as shown by the possibility of positioning the DM between the two. More generally, an open-scale DM is only felicitous if it is adjacent to the gram it modifies. If the gram is used as a postposition, the only way to achieve this is by placing the DM between the Ground and the gram, and only the partitive-Ground construction allows this. This constraint prevents the use of open-scale DMs as modifiers of *luona* ‘at; by’, which is always a postposition with a genitive Ground. Such differences suggest that open-scale DMs modify the gram only, not the whole adpositional phrase, while closed-scale DMs modify the whole phrase and precede the Ground in a postpositional construction (14 and 15).

- (14) Asu-n aivan kirko-n lähellä.  
 live-PRES.1SG quite church-GEN near  
 ‘I live quite (‘maximally’) near the church.’
- (15) Pysäkki on aivan kirko-n luona.  
 bus.stop be.PRES.3SG quite church-GEN at  
 ‘The bus stop is right next to the church.’



thus differs grammatically from the topological lähellä 'near', which accepts open-scale DMs in the partitive-Ground construction (cf. Section 3.1.).

(18) Juoks-i-n melkein kirkko-a kohti.  
run-PST-1SG almost church-PAR towards  
'I ran almost towards the church.'

(19) Juoks-i-n ihan kirkko-a kohti.  
run-PST-1SG quite church-PAR towards  
'I ran right towards the church.'

(20) Juoks-i-n täsmälleen kirkko-a kohti.  
run-PST-1SG exactly church-PAR towards  
'I ran exactly towards the church.'

In (18), the APPROXIMATOR *melkein* 'almost' means that the actual vector remains marginally outside the contact sector. It is located in a surrounding sector, which I will refer to as the approximative sector (cf. the approximative region of topological grams in 3.1.). In other words, the actual vector in (18) points in a direction such that motion in that direction would marginally fail to bring the Figure into CONTACT with the Ground.

In the scalar meanings of (19) and (20), the notion of the ideal vector is essential. The scalar assessment presented by the DELIMITER *ihan* 'quite' in (19) and the FOCUSER *täsmälleen* 'exactly' in (20) relates the actual vector to the ideal vector: both mean that the actual vector (essentially) coincides with the ideal vector and thus realizes the 'towards' relationship at a maximal degree on a closed scale. The minimal-degree boundary of the relationship is attained by any actual vector that is at least marginally within the contact sector. See Figure 3.



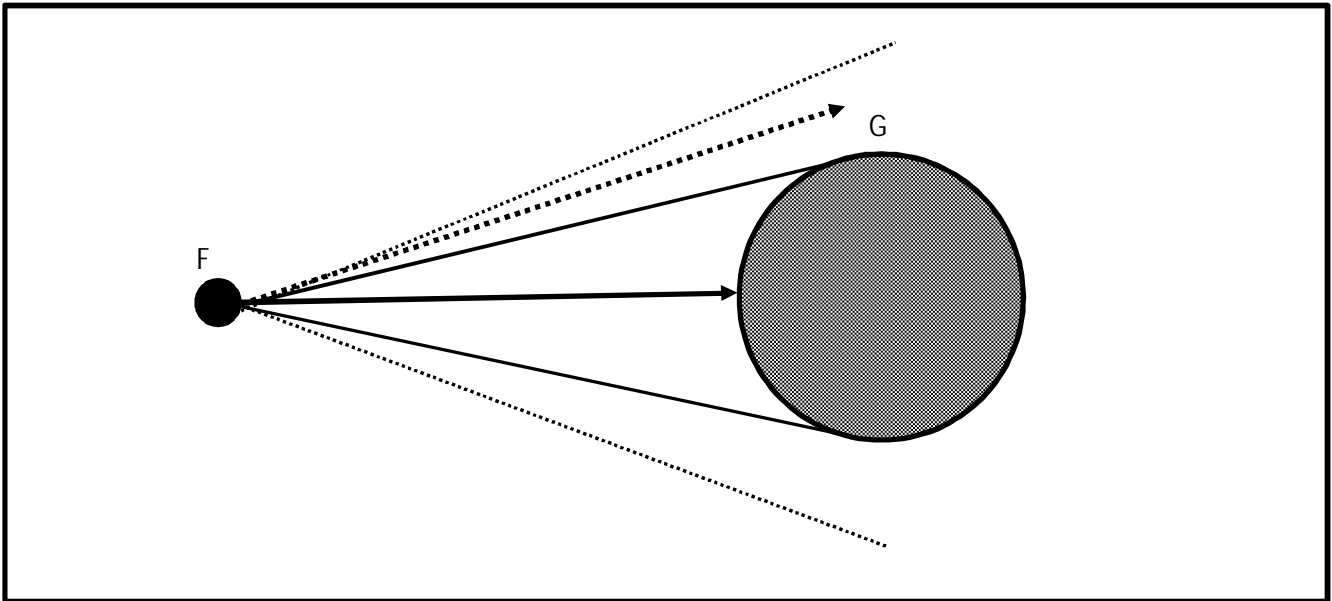


Figure 3. Closed-scale meaning of *kohti* 'towards'. The solid arrow pointing from F to the middle of G is the ideal vector. The solid lines extending from F to the sides of G are the outer boundaries of the contact sector. An actual vector inside the contact sector instantiates the 'towards' relationship. The dotted lines mark the approximative sector. The dotted arrow represents an actual vector in the approximative sector ('almost towards').

Now consider *ohi* 'past; by', which can express a direction or a path. Unlike *kohti* 'towards', *ohi* 'past' is a biposition that only takes a genitive Ground. Alternatively, *ohi* can be used as an adverb. The directional meaning of *ohi* 'past' involves an actual vector that remains outside the contact sector, as in (21) and (22). Like the English past, *ohi* can also express a path (23), in which case its directional meaning is not prominent.

(21) Heit-i-n                      pallo-n      Heiki-n      pää-n      ohi.  
 throw-PST-1SG              ball-ACC      Heikki-GEN      head-GEN      past  
 'I threw the ball past Heikki's head.'

(22) Tähtäs-i-n      tahallani      maalitaulu-n                      ohi.  
 aim-PST-1SG      deliberately      target-GEN                      past  
 'I deliberately aimed past the target.'

(23) Bussi              mene-e      sairaala-n      ohi.  
 bus              go-PRES.3SG      hospital-GEN      past  
 'The bus goes past the hospital.'

In (21) and (22), *ohi* 'past' expresses a direction in which the MOVER 'the ball' in (21), or the fictive signal in (22) advances, narrowly avoiding a CONTACT with the Ground. The actual vector indicated

by ohi remains outside the contact sector. In (23), ohi indicates a path, not a direction: the issue is not whether the bus ends up in CONTACT with the hospital, but its advancement along a path (e.g., a street) located in the vicinity of the hospital. The path sense is also present in (21), which indicates Figure's actual motion; the direction specified by the actual vector gradually becomes a path when traversed by the Figure.

Like kohti 'towards', ohi 'past' only accepts DMs of a closed scale. The search domain of ohi is a sector that surrounds the contact sector on all sides and contains all vectors that start from the Figure's location but that, in case the Figure moves in that direction, narrowly fail to result in CONTACT with the Ground. I will refer to this sector as the search sector of ohi (cf. search domain).

The scalar meaning of ohi 'past' is twofold and reflects the degree to which the actual vector deviates from the contact sector. In some uses, the degree increases when the deviation decreases; in others, the opposite is the case. Adopting Talmy's (2017: 315) terms, ohi 'past' thus alternates between a centripetal-type and a centrifugal-type scalar meaning, if those terms are extended to express the actual vector's decreasing vs. increasing deviation from the contact sector, respectively. In the centripetal type, the degree is inversely proportional to the deviation. The maximal-degree boundary is then the search sector's inner side, which is adjacent to the (outer) side of the contact sector, and the maximal degree is attained by an actual vector that (practically) coincides with the inner side of the search sector. The outer boundary of the search sector is vague: it is the side not adjacent to the contact sector, but its position depends on the conceived size of the search sector, which in turn depends on the conceptualizer's choices.

The alternative conceptualization of ohi 'past' is centrifugal: the degree is directly proportional to the deviation of the actual vector from the inner boundary of the search sector (see also Talmy, 2005: 233–234, analysis of English past). The inner boundary is now the minimal-degree boundary, and the outer boundary is the maximal-degree boundary. In spite of its vagueness, the outer boundary is a vital part of the centrifugal conceptualization. If the actual vector points in a direction that is outside the search sector, ohi is no longer felicitous. For example, if I throw a dart in a direction that deviates ninety degrees from an ideal vector pointing from my location to the dartboard, it would not be appropriate to say that I threw the dart 'past' (ohi) the dartboard. The deviation is too large for ohi 'past' to apply.

Like kohti 'towards', ohi 'past' allows both APPROXIMATORS (24) and DELIMITERS (25).

- (24) Ammu-i-n                      melkein      maalitaulu-n                      ohi.  
 shoot-PST-1SG                      almost      target-GEN                      past  
 'I shot almost past the target.'
- (25) Tähtäs-i-n                      ihan              maalitaulu-n                      ohi.  
 aim-PST-1SG                      quite              target-GEN                      past  
 'I aimed altogether past the target.'

Both (24) and (25) illustrate the centrifugal reading of ohi 'past'. In example (24), the projectile did hit the target but only marginally: by hitting the target's edge, it failed to go 'past' the target. This means that its trajectory followed an actual vector narrowly in the confines of the contact sector, and that the approximative sector is located inside the contact sector, at its margins. In (25), the DELIMITER ihan is likewise centrifugal: it means that the speaker deliberately aimed past the target with a maximally wide margin (not just narrowly). Even though the position of the outer, maximal-degree boundary of the search sector of ohi 'past' is vague, example (25) positions the actual vector maximally near that boundary.

As pointed out above, ohi also has a centripetal meaning in which the degree is inversely proportional to the deviation of the actual vector from the inner boundary of the search sector. In this meaning, the inner boundary of the search sector is the maximal-degree boundary. The centripetal use is illustrated by (26), in which the DELIMITER aivan 'quite; right' indicates a maximal scalar value; it is reached when the actual vector deviates as little as possible from the maximal-degree boundary, which is the inner boundary of the search sector, adjacent to the outer boundary of the contact sector. More concretely, (26) means that the arrow passed by the speaker's ear at a minimal distance without touching it.

- (26) Nuoli              suhaht-i                                      aivan              korva-ni              ohi.  
 arrow              swoosh-PST.3SG                                      quite              ear-1SG              past  
 'The arrow swooshed right by my ear.'

The centripetal reading is also possible if ohi is modified by an APPROXIMATOR, as in (27).

- (27) Nuoli              suhaht-i                                      melkein              korva-ni              ohi.  
 arrow              swoosh-PST.3SG                                      almost              ear-1SG              past  
 'The arrow swooshed almost by my ear.'

In (27), the direction of the Figure (the arrow) remains in the approximative sector, which in the centripetal reading is outside the search sector's outer boundary. A centrifugal reading, in contrast,

would mean that the arrow did in fact hit the speaker's ear (cf. 24). The centripetal conceptualization, however, is strongly preferred in (27): the arrow missed the speaker's ear by a relatively wide margin. The actual vector thus points in a direction that is maximally close to the outer boundary of the search sector. Figure 4 illustrates the centrifugal and centripetal meanings of ohi 'past'.

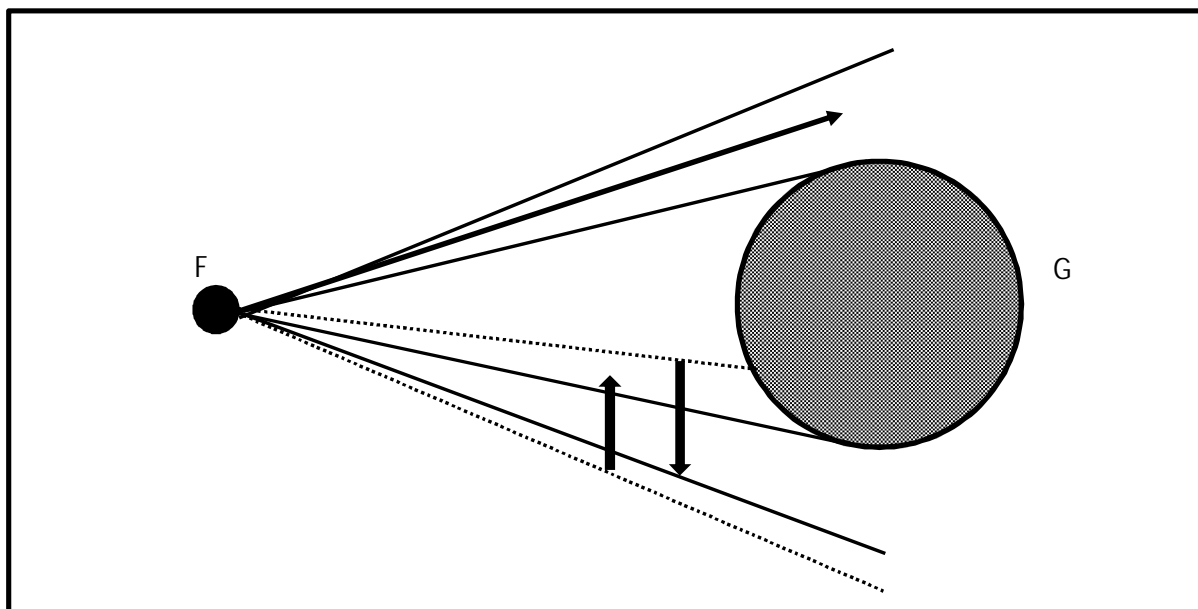


Figure 4. Closed-scale meaning of ohi 'past'. The solid arrow that starts from F illustrates an actual vector pointing 'past' G. The solid lines that extend from F to the sides of G are the inner boundaries of the search sector(s), which coincide with the outer boundaries of the contact sector. The two solid lines further away from G mark the outer boundaries of the search sector(s). The dotted lines represent two alternative approximative sectors, depending on the choice between a centrifugal and a centripetal conceptualization. The thick arrow pointing upwards illustrates the direction of the increasing degree in the centripetal meaning and the one pointing downwards in the centrifugal meaning.

Summing up, the meanings of kohti 'towards' and ohi 'past' are best characterized as involving an actual vector, the direction of which is assessed with respect to the contact sector and the ideal vector. The scalar meaning of kohti is based on a closed scale, and its search sector is the contact sector. The outer boundaries of the contact sector constitute a minimal-degree boundary, and the ideal vector the maximal-degree boundary of the relationship. In addition, an approximative sector is conceptualized as being outside the contact sector.

The scalar meaning of kohti 'towards' is centripetal, while that of ohi 'past' can be either centrifugal or centripetal. In the centrifugal conceptualization, the degree is directly proportional to the

deviation of the actual vector from the contact sector. In the centripetal conceptualization, the degree is directly proportional to the deviation.

Both *kohti* 'towards' and *ohi* 'past' accept closed-scale DMs only, in spite of the fact that *kohti* is a partitive-Ground adposition. In grammatical terms, closed-class DMs are compatible with both genitive-Ground and partitive-Ground grams. This is a feature we already observed in the discussion of topological grams in Section 3.1. An important grammatical difference between topological and directional grams is thus that only the latter reject open-scale DMs even in the partitive-Ground construction. More concretely again, '\*very towards' is ill-formed, while 'very near' and 'very far' are fine.

### 3.3 Targeting grams

The search domain of targeting grams resembles a point, which can be situated inside or outside the Ground. I will refer to this as the targeting point. If the Ground is a three-dimensional CONTAINER or a two-dimensional SURFACE, the targeting point can be situated within its volume or area. A typical example of a targeting gram is the Finnish *keskellä* 'in the middle of', which positions the targeting point at the center of a two- or three-dimensional Ground, or of a search domain in which multiple Grounds are situated (as in 'in the middle of the trees').

The meaning of targeting grams is gradable. They have stricter and looser uses, depending on how much the Figure's location deviates from the targeting point. For instance, in a loose sense of *keskellä* 'in the middle of', a cottage located 'in the middle of a forest' need not be at the exact middle point but somewhere around it. It may even suffice if the cottage is merely surrounded by forest on all sides, in which case being in its exact middle is irrelevant (Haukioja, 1998: 222–224). In such a case, the frame of reference is local and concerns only the cottage and its immediate surroundings, as opposed to a global frame of reference that takes the Ground (the forest) in its entirety into account (for local vs. global frames of reference, see Talmy, 2000: 130).

The scalar meaning of *keskellä* 'in the middle of' is centripetal with respect to the targeting point (not to the Ground in its entirety, as topological grams are). A Figure located precisely at the targeting point attains a maximal degree of the scalar relationship. The more the Figure's location deviates from the targeting point, the lower the degree expressed.

Grammatically, *keskellä* 'in the middle of' is flexible and resembles the topological *lähellä* 'near' (3.1.). It is a biposition and takes both genitive and partitive Grounds. The case marking of the Ground correlates with the gram's use as preposition vs. postposition. With a partitive Ground,

keskellä can only be a preposition (keskellä metsä-ä [in.the.middle.of forest-PAR] ‘In the middle of a/the forest’, not \*metsä-ä keskellä). A genitive Ground is only acceptable if keskellä is used as a postposition (metsä-n keskellä [forest-GEN in.the.middle.of] ‘In the middle of a/the forest’; for details, see Lestrade, 2010). In addition, keskellä can be used as an adverb.

Depending on the case marking of the Ground, keskellä accepts degree modifiers of both open (examples 28–29) and closed (31–33) scales. In this respect, keskellä resembles the topological lähellä ‘near’. However, the open-scale DMs in (28) and (29) are fully acceptable only if keskellä is used as an adverb without an overt Ground. The addition of the partitive Ground to these examples (in brackets) makes them less than fully acceptable.<sup>7</sup> As is typical, the postpositional construction with a genitive Ground rejects open-scale DMs (30).

(28) Mökki on aika keskellä (?metsä-ä).  
 cottage be.PRES.3SG rather in.the.middle.of forest-PAR  
 ‘The cottage is pretty much in the middle (of the forest).’

(29) Talo on hyvin keskellä (?pelto-ä).  
 house be.PRES.3SG very in.the.middle.of field-PAR  
 ‘The house is very much in the middle (of the field).’

(30) \*Mökki on hyvin metsä-n keskellä.  
 cottage be.PRES.3SG very forest-GEN in.the.middle.of  
 ‘\*The cottage is very much in the middle of the forest.’

The MODERATOR aika ‘rather; pretty much’ in (28) and the BOOSTER hyvin ‘very much’ in (29) illustrate the compatibility of keskellä ‘in the middle of’ with DMs of an open scale. These DMs are fully acceptable if the gram is used as an adverb, but only marginally so if the partitive Ground (in brackets) is expressed and the gram is thus an adposition. Example (30) shows the incompatibility of open-scale DMs with the genitive-Ground construction; the same incompatibility was observed in the other gram groups discussed in sections 3.1. and 3.2. Examples (31)–(33) below illustrate closed-scale DMs, which are compatible with both a partitive Ground, as in (31), and a genitive Ground, as in (32) and (33):

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<sup>7</sup> According to my own intuition and the intuition of other native speakers I have consulted to assess the acceptability of such expressions. In spite of this, one can find occurrences of the construction by searching the Internet.

- (31) Mökki on ihan keskellä metsä-ä.  
 cottage be.PRES.3SG quite in.the.middle.of forest-PAR  
 'The cottage is right in the middle of the forest.'
- (32) Talo on melkein pello-n keskellä.  
 house be.PRES.3SG almost field-GEN in.the.middle.of  
 'The house is almost in the middle of the field.'
- (33) Mökki on täsmälleen metsä-n keskellä.  
 cottage be.PRES.3SG exactly forest-GEN in.the.middle.of  
 'The cottage is exactly in the middle of the forest.'

Example (31) has a closed-scale DM, the DELIMITER *ihan* 'quite; right', in the preposition + partitive construction. The APPROXIMATOR *melkein* 'almost' in (32) and the FOCUSER *täsmälleen* 'exactly' in (33) illustrate closed-class DMs in the genitive-Ground + postposition construction. All kinds of closed-scale DMs illustrated in examples (31–33), i.e., DELIMITERS, APPROXIMATORS, and FOCUSERS, are acceptable in both the partitive-Ground and the genitive-Ground construction. Figure 5 illustrates the scalar meaning of *keskellä* 'in the middle of'.

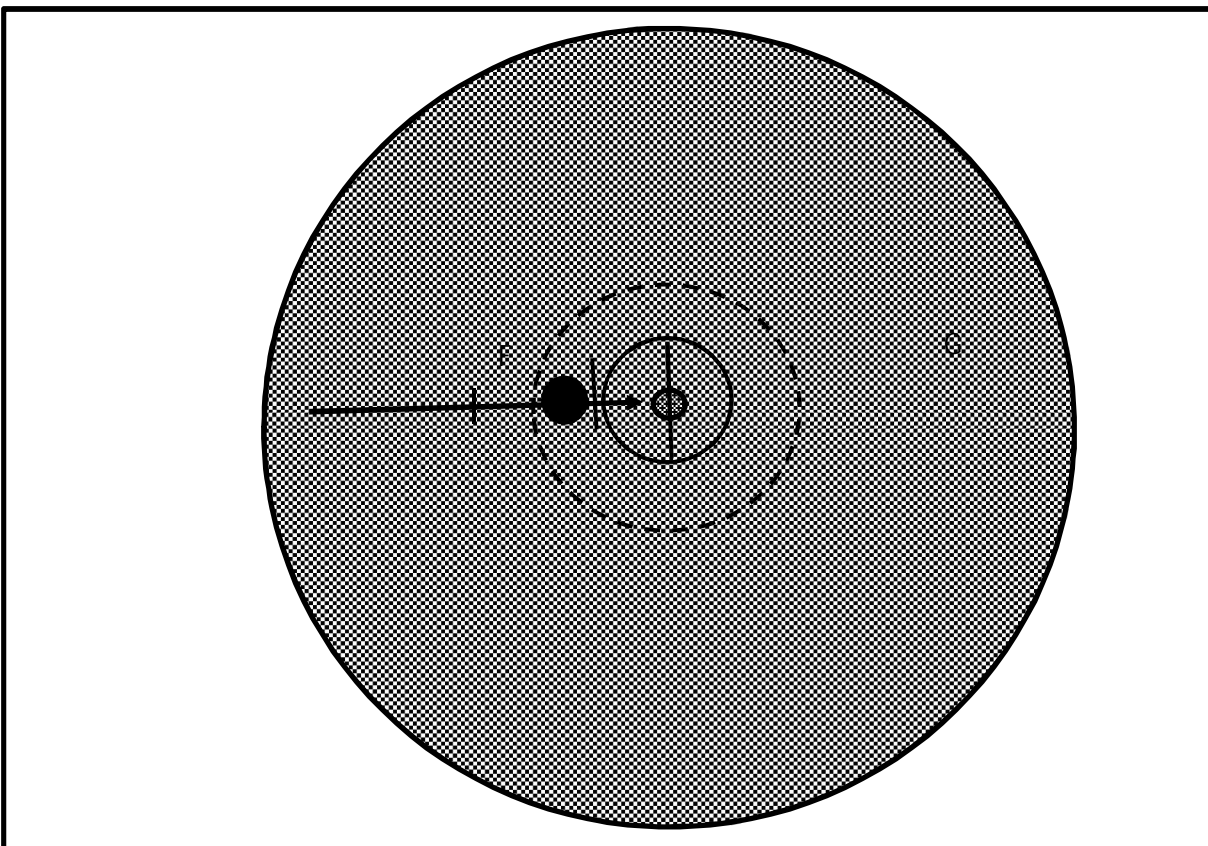


Figure 5. Closed-scale meaning of *keskellä* 'in the middle of'. F is inside G (the large grey circle). The small grey dot in the middle of G represents the targeting point, surrounded by a solid circle

that represents the search domain. The dotted circle around the search domain represents the approximative zone. Since F is in the approximative zone, it is 'almost in the middle of' G. The arrow pointing at G and the transverse lines across it represents the scalar meaning of keskellä.

Figure 5 shows that the open-scale meaning of keskellä 'in the middle of' resembles that of the centripetal-topological lähellä 'near' (in Figure 1), with the difference that the search domain of keskellä does not surround the Ground but lies within it and attains its maximal degree precisely at the targeting point, which is the exact center of the Ground. The meaning of keskellä is thus centripetal with respect to the targeting point. Unlike the topological lähellä 'near', however, targeting keskellä 'in the middle of' also allows many kinds of closed-scale DMs.

In the open-scale conceptualization, the search domain of keskellä 'in the middle of' lacks a clear outer, minimal-degree boundary. The expressed degree increases the closer the Figure is to the targeting point, without ever reaching a maximal degree (because the open-scale conceptualization excludes the maximal-degree boundary). This can be seen in the meaning of BOOSTERS such as äärimmäisen 'extremely' that indicate very high degrees on an open scale: when they modify keskellä, they still fail to explicitly express that the Figure is located precisely at the targeting point.

In the closed-scale conceptualization, the search domain of keskellä 'in the middle of' has both a minimal-degree outer boundary (surrounding the targeting point) and a maximal-degree boundary (the targeting point itself). The outer boundary surrounds the targeting point at a distance that depends on the conceptualizer's choices. Outside the outer boundary and surrounding it is the approximative region ('almost in the middle of', as in example 32). The maximal-degree boundary is reached by a Figure that is located precisely at the targeting point, as in examples (31) and (33). In the closed-scale conceptualization, the scalar meaning of keskellä resembles that of the topological luona 'at; by' (in Figure 2).

#### 4 Conclusions

The results of the study are summed up in Table 2, which shows the compatibility of each gram analyzed with different types of DMs.



TABLE 2. Compatibility of DMs and grams analyzed. The + symbol marks the well-formedness of an expression in which the DM modifies the gram. The – symbol means that the combination is ill-formed. The (+) symbol marks marginal acceptability.

	Open-scale DM	Closed-scale DMs		
	BOOSTER hyvin 'very'	DELIMITER ihan 'quite'	APPROXIMATOR melkein 'almost'	FOCUSER täsmälleen 'exactly'
<b>Topological</b>				
lähellä 'near'	+	+	-	-
kaukana 'far'	+	(+)	-	-
luona 'at;by'	-	+	+	-
<b>Directional</b>				
kohti 'towards'	-	+	+	+
ohi 'past'	-	+	+	-
<b>Targeting</b>				
keskellä 'in the middle of'	(+)	+	+	+

Closed-scale DMs are a more diverse category, and there are differences in acceptability between the subtypes of these DMs. The DELIMITERS *ihan* and *aivan* 'quite; right' have the widest range of uses. They are acceptable as modifiers of all grams analyzed in this study, though only conditionally with *kaukana* 'far' in uses where the context implies an outer, maximal-degree boundary to the search domain ('as far as one can see'). APPROXIMATORS can only modify grams with a meaning that involves a minimal-degree boundary. This is typically the outer boundary of the search domain or sector. APPROXIMATORS locate the Figure narrowly outside the search domain (or sector) in an approximative region (or sector).

FOCUSERS are only compatible with the directional gram *kohti* 'towards' and the targeting gram *keskellä* 'in the middle of', not with any other gram considered. For instance, *?täsmälleen ohi* '?exactly past [the Ground]', *?täsmälleen lähellä* '?exactly near [the Ground]' or *?täsmälleen kaukana* '?exactly far [from the Ground]' are infelicitous. The reason seems to be that FOCUSERS require a precise value to specify. The targeting point of *keskellä* 'in the middle of' and the ideal vector of *kohti* 'towards' instantiate such precise values. They also constitute maximal-degree boundaries to the scalar meanings of the grams. Such precision is missing from the maximal-degree meanings of the directional *ohi* 'past' and the topological *lähellä* 'near', *kaukana* 'far', and *luona* 'at; by', which all reject FOCUSERS. For instance, the maximal degree of *ohi* 'past' can be reached by many different vectors that point 'past' the Ground (on any side of the Ground in three-dimensional space). Furthermore, depending on the conceptualization of *ohi* 'past' as centripetal or centrifugal,

the maximal degree can coincide with the inner or outer boundary of the search sector. There is thus no single, precise value of the meaning of *ohi* 'past' for FOCUSERS to modify. Likewise in the meaning of the topological *lähellä* 'near' and *luona* 'at; by', a maximal degree is attained by a Figure located maximally close to the Ground, but these grams do not specify on which side of the Ground the Figure is situated; hence, there is no single precise value for the FOCUSERS to specify.

Table 2 does not show the grammatical constructions in which the grams are used. The discussion in Section 3, however, showed that there are differences between the postpositional genitive-Ground construction, the bipositional (or prepositional) partitive-Ground construction, and adverbial uses of the grams. The genitive-Ground construction poses the strictest constraints: it only allows closed-scale DMs and rejects DMs of an open scale. The partitive-Ground construction is more flexible and allows both kinds of DMs, depending on the semantics of the gram. The grammatical difference between the constructions is that the rigidly postpositional genitive-Ground construction does not allow the DM to be placed adjacent to the gram. The more flexible partitive-Ground construction allows the two to be adjacent, either by having the gram before the Ground as a preposition, as in example (3), or by allowing the DM to be placed between the Ground and the postpositional gram, as in (13). Adverbial constructions resemble partitive-Ground expressions in this respect, or are even more flexible. This seems to support Sadeniemi's (1943) hypothesis, according to which those Finnish adpositions that take a partitive Ground were originally adverbs; the partitive forms were either adverbials or grammatical objects.<sup>8</sup>

In the foregoing analysis, I have elaborated Talmy's (2017) division of grams into centripetal and centrifugal types. Among the grams considered here, this division applies best to the topological ones: their gradable meaning is directly based on the distance between Figure and Ground. For directional grams, distance as such is not relevant; rather, their gradable meaning is based on the direction of an actual vector and its deviation from the ideal vector or contact sector. If increasing deviation is seen as kindred to increasing distance, then the opposition centripetal vs. centrifugal applies to directional grams as well. These notions also suit the targeting grams, but instead of Figure's distance from the Ground, the relevant issue is its distance from a targeting point.

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<sup>8</sup> In present-day Finnish, there are still expressions that support this hypothesis, for example *Kiipes-i-n porta-i-ta* [climb-PST-1SG stair-PL-PAR] vs. *Kiipes-i-n porta-i-ta pitkin* [climb-PST-1SG stair-PL-PAR along] 'I climbed (along) the stairs', or *Tähtäs-i-n hän-tä* [aim-PST-1SG 3SG-PAR] vs. *Tähtäs-i-n hän-tä kohti* [aim-PST-1SG 3SG-PAR towards] 'I aimed (at) him/her'. The partitive forms *portaita* and *häntä* can occur alone, in which case they are analyzed as (non-canonical) objects indicating a ROUTE or a GOAL, or together with the grams *pitkin* or *kohti*, which are then analyzed as postpositions with the partitive forms as their complements (Grounds).

In this study I have analyzed three types of spatial grams, topological, directional, and targeting, from the point of view of their gradable meaning and their ability to take degree modifiers. The analysis could easily be extended to other classes of spatial grams, as well as to grams indicating temporal and other abstract relationships (e.g., 'slightly before Christmas', 'exactly at three o'clock'). Degree modifiers elaborate scalar meanings of the grams they modify. An analysis of these elements reveals similarities between grams and adjectives, which are the most typical word class to be modified by DMs. As pointed out by Paradis (2001) and Fleischhauer (2016), in a broad sense, the meaning of DMs also relates to matters such as quantification and aspect, which are all phenomena involving facets that are gradable.

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