Chapter 1

DIRECTIONALITY SELECTION

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Abstract   It has frequently been observed that locative PPs are bimorphemic, consisting of two heads: one specifying the location, and the other one specifying the path or directionality. This bipartite structure carries over to other PPs (predicatives and habitives). This structure is problematic for standard syntactic theory. For ordinary selection of those locatives consists in the selection of *two* heads rather than one, contrary to theory. On the other hand, there is a kind of selection that selects just one of them, namely the outer one, which specifies directionality. This is the **directionality selection** that is the topic of this paper. We shall study this type of selection in various languages. It will emerge that directionality selection is not at all marginal, and that it is responsible for systematic differences between various languages.

Keywords: locatives, selection, syntax, directionality

1.   Introduction

The proper understanding of the way space is encoded in language is of extreme importance. Moreover, language is filled with expressions that originate one way or another in spatial talk. Whenever a language has a rich case system it is because it has plenty of local cases. Languages which have few cases, on the other hand, do have adpositions that fulfil the same function (English, French and German are a case in point). It turns out that the mechanics of the PPs is the same as that of the local cases.

In the last years, space and spatial expressions have received growing interest (see for example the collection [4], [7], [20], [18], [17], [5], [12] and [10]).

Primarily, the emphasis has been on the study of locations and location denoting expressions or on the metaphorical use of space. We have stressed in [10] that the mechanics of directionality is an integral part of locatives, something which is often neglected in favour of the purely locational aspect.

In this paper I shall be concerned with locative expressions and the interaction of syntax and semantics. Locatives have the following structure (order irrelevant):

(1.1)
$$\text{[from} \quad \text{[behind} \quad \text{[the car]]]}$$
$$\text{[M} \quad \text{[L} \quad \text{DP]]}$$

We call DP the **landmark**, L the **localiser**, and M the **modalizer**. L+DP is the **location phrase**, M+L+DP the **mode phrase**. Semantically, the landmark contributes an object (car), which may or may not move in space. L+DP returns a set of spatial regions ('neighbourhoods'), which may change through time (behind the car). Finally, M+L+DP describes the way in which a certain element changes its position with respect to this (possibly changing) neighbourhood (from behind the car).

Directionality was studied from a semantic point of view by [5]. Fong argues that directionals denote phase quantifiers in the sense of [13], and that verbs may either denote a single phase (in which case they are static) or two successive phases. Directionals either specify a property of the first phase (coinitial), or of the second phase (cofinal). Fong views the phases as completely formal objects, which allows verbs to select directionals even when no change in state or location occurs. This approach turns the exact directional meaning of the directionals into a mystery (see [10]). Instead, we have proposed that the directional meaning is removed upon selection. (An inverse scenario, that directional meaning is added upon selection, is also conceivable, but I see no way to implement it.) Yet, this argument, although workable, ignores that the particular choice of directionals in Finnish is to a large extent predictable.

2.   Modes

The meanings of modalisers are called **modes**. In the literature there is no consensus on the name for these meanings; typically, modes express properties of the motion of the trajector. So, they can often — but not always — be viewed as modifying the **path** of the trajector. There are several basic modes (see [16]): **static** (the object is at rest inside the neighbourhood during event time), **cofinal** (the object moves into the location), **coinitial** (the object moves out of the location), **transitory** (the object moves into and then out of the location), **approximative** (the object approaches the location), **recessive** (the object goes away from the location). The object of which the directional asserts change of

location is called the **mover** (some call it **trajector**). We have argued in [10] that static locatives indicate event location rather than participant location.

Our paper is mainly based on Finno–Ugric languages, with comparison to some Indo–European languages. Proto–Finno–Ugric is said to have distinguished by means of cases only mode, not location. It had three grammaticalized modes: static, cofinal and coinitial. This threefold distinction is clearly visible still today. It should be noted that (as in many other languages), mode heads are not only used to derive spatial (locative) expressions; they naturally expand into other cognitive domains; for example, they can typically also denote predicative expressions, and habitives. [2], based on work by Paavo Siro, has studied the meaning of locatives in Finnish and Cheremiss (today called Mari). He gives the following table of cases, where items in the same row have identical mode:

Locative cases	Predicative cases	Habitive–locative cases
Inessive	Essive	Adessive
Illative	Translative	Allative
Elative	Elative	Ablative

In Finnish grammar the cases of the first column are called **inner locatives**, the ones in the last **outer locatives**. Notice that the outer locatives serve a dual purpose: on the one hand they are locatives (`talolla` 'at the house') on the other hand they denote possession (`minulla on talo` 'I have a house'). For example, the Finnish essive `laivana` means 'being a ship' or 'as a ship', the transformative `laivaksi` means 'transforming (changing) into a ship'. Notice that the third entry in this column is the elative, originally a locative case, but used in many other connections, too, for example, as a substitute for the partitive.

It is irrelevant for syntactic and semantic purposes in which way these elements are realized (that is whether they are cases, nouns, or adpositions). We have shown in [11] that within one language, local DPs and local PPs are syntactically and semantically alike, only their morphology is different. For example, English has no cases, and the locatives are mainly realized through prepositions. However, there are subtle details. First, the distinction between static and cofinal has become marginalised. On the other hand, it still exists in the pair `in`/`into` (and `on`/`onto`). (In colloquial speech, this distinction is less and less observed.) The coinitial counterpart is `out`, which selects the genitive (realized by `of`). In German the contrast static/cofinal is encoded by the dative versus accusative on the DP (`an der Wand` 'on the wall', `an die Wand` 'onto the wall'). Finnish and Hungarian both have a fair amount of local cases. For example, Finnish has six cases, corresponding — roughly — to the trias `in`/`into`/`out of` and `at`/`to`/`from`. Hungarian adds `on`/`onto`/`from onto`. In these languages, other Ls (= localisers) are expressed by means of adpositions (for example Hu. `alatt` 'under'), and it is possible to coordinate a locative

DP with a locative PP. We shall therefore consider the realization immaterial. This is why we shall talk also of an allative in German (realized by an+ACC). Cases are such markers that are selected by a higher head. Notice that in German (and for example in many Indo–Aryan languages) as many as three (or even four) elements make up the marking of a DP (see [15]). These are (a) M, (b) L, and (c) the case of the DP (which in Hindi is once again a postposition governing oblique case).

3.   One Word — Three Meanings

We shall outline the basic analysis from [11]. Language is a set of signs, and a **grammar** is a language together with a family of operations. A **sign** is a triple $\langle e, c, m \rangle$, e being the **exponent** (typically a string), c the **category** (formed from attribute value structures (AVSs) using directional slashes) and m its **meaning** (typically a typed λ–term). For example,

(1.2) $\text{MAN} = \langle \texttt{man}, \text{N}, \lambda x.\mathsf{man}'(x) \rangle$

s a sign of English (simplifying matters greatly). Another sign is

(1.3) $\text{A} = \langle \texttt{a}, \text{DP/N}, \lambda \mathcal{P}.\lambda \mathcal{Q}.\exists x.\mathcal{P}(x) \wedge \mathcal{Q}(x) \rangle$

There is a binary operation '∘' (called **merge**) which on the side of exponents concatenates the strings (with a blank interspersed), on the side of categories applies slash–cancellation (according to the rules $\alpha/\beta \cdot \beta = \alpha$, and $\beta \cdot \alpha \backslash \beta = \alpha$) and on the side of meanings applies the functor to its argument. Thus, $\text{A} \circ \text{MAN}$ is a sign and we have

(1.4) $\text{A} \circ \text{MAN} = \langle \text{a man}, \text{DP}, \lambda \mathcal{Q}.\exists x.\mathsf{man}'(x) \wedge \mathcal{Q}(x) \rangle$

Obviously, in a realistic model we should expect that the indefinite changes to an before vowel, that man can be modified by adjectives (and so the determiner can take not only bare nouns), and so on. However, these are matters of detail and do not bear on what we have to say in the sequel.

To say that MAN is a sign of English is to say that the string man if occurring as a syntactic object of category N has the meaning $\lambda x.\mathsf{man}'(x)$ (which, by the way, is nothing else but man'). It is possible to have any number of signs with identical exponent, category or meaning. For example, the lexicon of English will contain at least two entries for bank as a common noun, one that has meaning roughly paraphrasable as 'is a bank of a river' and the other has meaning roughly paraphrasable as 'is a financial institution'. The frameworks that come closest in spirit to this setup are Montague grammar and categorial grammar. However, as the exponents can be trees rather than strings, and even complex functions on them, various other frameworks can be rendered into this form, ensuring that the approach we take is maximally neutral. However, in the

course of this paper we shall make specific proposals as to how the categories shall look like and what operations other than ∘ the grammar shall contain. How the requirements can factually be reconciled with particular frameworks, is another matter that lies outside the scope of this paper.

We assume in particular that the categories are attribute value structures, and that they contain a pair $[\text{CASE} : \vec{\alpha}]$. Here $\vec{\alpha}$ is the **syntactic case** of the relevant element. We assume that cases are *sequences of morphemes* (formed with the help of ';'). Thus, there is no need for extra features to define cases. Roots have empty case. However, they may select items with a particular case.

As said, cases are sequences of morphemes, not just individual morphemes. A particular case in point, we argue, is constituted by the locatives. Morphologically, a locative is formed from a DP by the addition of two heads. This addition can proceed in two ways.

Function Application The meaning of the head is a function, and this function is applied to the meaning of the argument. Syntactically the operation performs slash–cancellation. This is the standard mechanism of categorial grammar, denoted by ∘.

Case Stacking The exponent e of the head is stacked as a case marker on the case stack. It replaces $[\text{CASE} : \vec{\alpha}]$ by $[\text{CASE} : \vec{\alpha}^\frown e]$. Semantically, no change occurs. We denote this operation by Ⓡ.

We shall outline our analysis using the Finnish phrase `laivalta`, the ablative form of `laiva` ('ship'). It is composed from three signs,

$$(1.5) \qquad \text{LAIVA} := \langle \text{LAIVA}, DP[\text{CASE} : \varepsilon], \mathsf{ship}' \rangle$$

$$(1.6) \qquad \text{AT} := \langle \mathtt{l}, DP \backslash LP, \mathsf{at}' \rangle$$

$$(1.7) \qquad \text{COI} := \langle \mathtt{ta}, LP \backslash MP, \mathsf{from}' \rangle$$

It can mean three things:

(a) It can mean 'from the ship'. In this case we say that it has **null syntactic case**. Its structure is

$$(\text{LAIVA} \circ \text{AT}) \circ \text{COF} = \langle \mathtt{laivalta}, MP, \mathsf{from}'(\mathsf{at}'(\mathsf{ship}')) \rangle$$

(b) It can mean 'at the ship'. In this case we say that its **syntactic case** is the **cofinal**. Its structure is

$$(\text{LAIVA} \circ \text{AT})\text{Ⓡ}\text{COF} = \langle \mathtt{laivalta}, LP[\text{CASE} : \mathtt{ta}], \mathsf{at}'(\mathsf{ship}') \rangle$$

(c) It can mean 'the ship'. In this case we say that it has **ablative syntactic case**. Its structure is

$$(\text{LAIVA}\text{Ⓡ}\text{AT})\text{Ⓡ}\text{COF} = \langle \mathtt{laivalta}, DP[\text{CASE} : \mathtt{l; ta}], \mathsf{ship}' \rangle$$

(Notice that $\mathtt{l;ta} \neq \mathtt{l^\frown ta} = \mathtt{lta}$. The reason why we have to keep the two distinct is not apparent from the discussion of this paper.) The expression in (a) is an adverbial. It enters with its full meaning. Moreover, it is this meaning that motivates the case name 'ablative'. (c) arises in case selection. For example, the verb `tuntua` selects ablative case:

(1.8) Tämä tuntuu laiva-lta/*auto-sta.

       this resembles ship-ABL/*car-ELA

       *'This looks like a ship/*out of a car.'*

The reason why this is full case selection is that there is no choice: only ablative marked DPs can be used. Finally, the selection that gives rise to the meaning in (b) we call **directionality selection**. It occurs with verbs selecting only the directionality. It can be diagnosed by the fact that in place of the expression we can put in another one or a PP that has the same directionality.

(1.9) Jussi löysi raha-nsa laiva-lta/auto-sta.

       Jussi found money-HIS ship-ABL/car-ELA

       'Jussi found his money on the ship/in the car.'

Notice that in all three cases, the morphological realization is the same. Only the syntactic case and the meaning are different. Also, there is a competition between syntax and semantics: if the case is added as a syntactic marker, it is semantically void, and if the case enters with its proper meaning, then it cannot be stacked as a case marker. For more syntactic and semantic arguments in favour of this analysis see [11].

4.   Selection

Any PP can in principle also be selected by a verb. For example, German `Angst haben` ('to be afraid') selects `vor`+DAT (translated: 'in front of'). (In [11] I argued that the selected case consists of three morphemes, not just two, as one might initially think.) In Hungarian, `félni` ('to be afraid of') selects ablative case, so it selects both M and L. In addition to these types of selection, there exist also the possibility of selecting just the M, not the entire case marker. This is directionality selection. Suppose for simplicity that the morpheme for cofinality in Finnish is `-seen` (in fact, this marker only appears after long vowels, but we do not intend to make things more complicated). Then the verb `saapua` is the exponent of the following sign (which we contrast with the one for English):

(1.10) SAAPUA := $\langle \mathtt{saapu}, V/LP[\text{CASE} : \mathtt{een}], \mathsf{arrive}' \rangle$

(1.11) ARRIVE := $\langle \mathtt{arrive}, V/LP[\text{CASE} : \varepsilon], \mathsf{arrive}' \rangle$

Contrast this with a verb that selects a case (that is, both M and L):

(1.12)   TUNTUA := $\langle$`tuntu`, $V/DP[\text{CASE} : \text{l}; \text{ta}]$, resemble$'\rangle$

Here is an example.

(1.13)   `Saavuimme Lontoo-seen.`
arrived-we London-ILL
'We arrived in London.'

The case that must be used here is the illative (movement into). This has two reasons. (a) The state of being in a city is encoded using inner locative cases (except for a few Finnish places such as Turku), (b) the verb selects cofinal mode; hence, in place of the expected inessive (no movement), we find illative. To show that this is an instance of directionality selection and not ordinary case selection, we exchange `Lontoo` by `ranta` 'coast'. Then allative case is mandatory.

(1.14)   `Saavuimme rannalle.`
arrived-we coast-ALL
'We arrived at the coast.'

Notice that English does not tolerate cofinal mode. Neither does Finnish tolerate static mode.

(1.15)   *`We arrived into London.`

(1.16)   *`Saavuimme Lontoossa.`
arrived.we London-INE

Finnish has many verbs that are similar: `jäädä` 'to stay, remain', `unohtaa` 'to forget' (cofinal), `löytää` 'to find' (coinitial) (see [5], and other examples below). If M is a separate head, we expect that verbs which select only M will do so even with predicative and habitive cases. Moreover, the semantic contribution of M should be cancelled. We expect, for example, that the verb `jäädä` selects translative rather than inessive for predicatives, and allative rather then adessive for habitives. On the other hand, the verb `pysyä` 'to remain' selects static mode. Consequently, it chooses the essive, not the translative (in the same meaning). (See [6] for an analysis along the lines of the earlier [5].)

(1.17)   `Kuningatar jäi leske-ksi/`*` leske-nä.`
queen remained widow-TRANS/*widow-ESS

(1.18)   `Kuningatar pysyi `*`leske-ksi/leske-nä.`
queen remained *widow-TRANS/widow-ESS
The queen remained a widow.

Similarly, look at the following contrast with habitives:

(1.19)   Talo pysyi minulla.

house remained me-ADE

(1.20)   Talo jäi minulle.

house remained me-ALL

Notice that in our analysis jäädä selects not only *LP*s in cofinal mode, but also predicative phrases and habitives. Each of the different arguments has a different semantics, since the three are type–theoretically different. This is to be expected. Other verbs are not that flexible (for example väsyä 'to get enough of, get tired').

Hungarian enjoys selectional properties that are much closer to German than to Finnish. However, it also has verbs that select the cofinal, where the German (and English) counterparts select static mode. One example is bújni 'to hide'. Another example is

(1.21)   (Hu.) Közel vagyunk a pályaudvar-hoz.

close we.are the train.station-ALL

'We are close to (sic!) the train station.'

[9] claims that in Finno–Ugric languages the cofinal mode is the least marked one, while in Indo–European it is the static mode (see also [1]).

5.   Significance for Interpretation

The primary difference between selected and unselected properties of a constituent is that the selected properties are semantically inert. For example, if Hu. félni selects a DP in ablative case, the ablative will not contribute to the meaning. This can be seen as a universal claim or just as a matter of coding. Surely, if a head selects an argument with such and such property (say, in cofinal mode), we can write whatever meaning this property contributes to the complex expression into the meaning of the head. However, if some property (say, cofinality) is unselected, then its contribution is its normal one and there should be no need to encode it anywhere. To see the point here, notice that it is somehow reasonable that the cofinal appears with the Finnish verb saapua, as it is not necessarily logical that ankommen in German selects static mode. It is conceivable that there is a representation that makes this difference fall out. If we used such representations, however, we would implicitly claim that saapua means something different than ankommen. This would make translation next to impossible, though. The simplest approach is therefore to treat this as an instance of selection and give both verbs the same semantics.

The posture verbs are interesting in this connection. Some of them actually allow to use a directional (always the cofinal), in which case the verb denotes

motion–to–posture. A case in point is provided by Hu. `llni`. When used with a static mode it is a posture verb (German `stehen`), while when used with a directional it is a verb of motion–to–posture (German `sich stellen`):

(1.22)   `Romano Prodi`[...]`a Berlin-Párizsi vonal mellé áll.`

       R. P. the Berlin–Paris line near–COF stand.

       'Romano Prodi adopted the position of Berlin and Paris.'

(Népszabadság Feb 13, 2003, commenting on the dispute between France, Germany and the USA.) In German, the distinction between posture and motion–to–posture is made lexically (see the example above and `sitzen` 'to sit' and `sich setzen` 'to sit down'). The contrast static/cofinal is actually signalled not by the preposition but by the dative/accusative contrast on the DP, as can be seen with pure motion verbs:

(1.23)   `Sie liefen in den Wald.`

       They ran in the-ACC forest

(1.24)   `Sie liefen in dem Wald.`

       They ran in the-DAT forest

With pure motion verbs, no difference in verb meaning arises, however. (The same contrast is coded in Mari (= Cheremiss) using the illative/lative contrast.) Some verbs in German can denote both posture and motion–to–posture without there being a visible difference. An example is `sich stützen auf` ('to rest on'). A similar verb is `sich verstecken` ('to hide'), which in contrast to Hungarian selects static. Thus, all four options are realized for motion and posture verbs:

(1) The verb does not select mode. Different modes denote different paths of motion. (Example: motion verbs)

(2) The verb does not select mode. Different modes induce different verbal meanings. (Example: posture and motion–to–posture contrast with Hu. `állni`)

(3) The verb selects static case. (Example: Ge. `sich verstecken`)

(4) The verb selects cofinal case. (Example: Hu. `bújni`)

Case (2) could be analysed as involving two homophonous roots. However, the contrast is quite systematic so that this account would miss the general pattern.

6. Predicting Selectional Properties

Uralic languages are often very different from Indo–European languages as concerns the selection of M. For example, verbs of change of state often select

coinitial or cofinal mode. (See [5] and [8].)

(1.25) (Fi.) `Rakennamme uuden hotellin Turkuun.`
        build-we new hotel Turku-ILLA
        'We are building a new hotel in Turku.'

(1.26) (Fi.) `Ukko väsyi tie-lle.`
        old.man got.tired way-ALL
        'The old man got tired on (lit. onto) the road.'

(1.27) (Fi.) `Joulu-na Jumala syntyi hevon heinähuonee-seen.`
        Christmas-ESS God was.born horse stable-ILL
        'At Christmas, God was born in (lit. into) a horse stable.'

(1.28) (Fi.) `Somap' on sota-han kuolla.`
        sweet is war-ILL to.die
        'It is sweet to die in (lit. into) war.'

(1.29) (Fi.) `Tää-ltä pyrkii häviämään tavaroita.`
        this-ABL tends disappear things
        '(From) here, things tend to disappear.'

(1.30) (Fi.) `Metsästäjä ampui karhun metsä-än.`
        hunter shot bear forest-ILL
        'The hunter shot the bear in (lit. into) the forest.'

(1.31) (Mari) `Wə·δeško·lê̂šê̂wo·l'ê̂k.`
        'The animal died in (lit. into) the water.'

The explanation according to Fong is as follows: the meaning of the verb has two phases (this is generally the case with verbs of creation, verbs of action, and verbs of change of state). If the property holds at the end state, cofinal mode is used, if the property holds at the begin state, coinitial mode is used. To make this idea work, the directional meaning of `tielle` ('onto the way') and `metsään` ('into the forest') must be cancelled. Moreover, it would predict that a static locative is generally impossible — but the verb `pysyä` does select static mode.

Some of these examples could be dealt with inside a structured theory of the lexicon in the spirit of [19]. We may postulate a generic verb of creation and coming to existence, which select cofinals for the location of its transitive object/subject. This solves (1.25) and (1.27) in a principled manner. Notice that static selection of English and German in these sentences might be deemed no less problematic, since the static mode seems to require the existence of the theme throughout the event time. Hence, for these verbs we have to allow for the fact that the object only exists at some subinterval. However, facts are com-

plex; we have argued that static locatives predicate over the event location. It is only when we unfold the temporal patterns of these verbs that we see what this *actually* means. In the case of (1.25) we contend that the event of building takes place at a certain location inside Turku (the buidling site), which is independent of the existence of the building itself. Finnish employs a different metaphor: it considers the building a mover onto which the directional locative hooks. It predicates a change of location figuratively from somewhere into Turku. (An analogous analysis will work for (1.29), which does not require the existence of objects beyond their moment of disappearance.) However, if we wrote that into the meaning of the cofinal mode, there would be no principled way to stop it from overgeneralising. Hence, cofinality selection seems to be the best option.

A comparable case is that of coinitial locatives. We find here that Indo–European languages do use them more in line with Finnish (cf. (1.29)). They are also used in the meaning of 'location of source', for example with verbs of communication.

(1.32)   `Er rief ihnen von einem Stein aus etwas zu.`

         he shouted them-DAT from a stone PREP something to

(1.33)   `Er zielte vom Hochsitz aus auf den Bären.`

         he aimed from.the raised.hide PREP at the bear

(1.34)   `Er rief seinen Anwalt von London aus an.`

         he rang his lawyer from London PREP up

Notice that the circumposition `von`+NP[DAT] `aus` does not code the source (source is subject); rather, it encodes the location of the subject. If a plain inessive is used, that encodes either the location of the subject or that of the object (the position of the locative partially disambiguates, see [14]):

(1.35)   `Er rief seinen Anwalt in London an.`

         he rang his lawyer in London up (object/subject)

(1.36)   `Er rief in London seinen Anwalt an.`

         he rang in London his lawyer up (subject)

However, cofinal mode is impossible. Notice that with other places (`die Bahamas` 'the Bahamas'), superessive replaces inessive (`auf den Bahamas anrufen` 'to give a call in the Bahamas'), once again demonstrating that this is a case of directionality selection.

7.   Mode Heads: Evidence from Mari

In [3] it is assumed that there is selection of directionality, and that it is a matter of binary choice ([±directional]). This would allow to save the account

of single head selection, since now M and L are one head. Although languages have various modes, most of them are not grammaticalized (I know of no grammaticalisation of the recessive mode in German, for example). Mostly, the distinction between directional and nondirectional takes care of everything, particularly since the choice of the type of directional mode (coinitial/cofinal) seems to be predictable. Still, it seems that the best way is to assume that directionality selection is a case of head selection (which implies that it can have many more choices in principle). In an extensive study, [1] has investigated the use and distribution of the lative and illative in Mari. Both are directional cases, and both the lative in the illative express cofinal mode. Alhoniemi notes that where a directional in Mari (and other Finno–Ugric languages) corresponds to a static locative in Indo–European, it is typically expressed by a lative (this is the case with the examples given above). For example, the place where someone undergoes change is expressed in the lative, quite unlike other Finno–Ugric languages. On the other hand, lative and illative sometimes are in free variation, sometimes not. Verbs of eating and drinking, for example, require a lative. There seems to be no theory in terms of the meaning that explains this. For such a theory would have to tell us which arguments may count as undergoing change; for these are the arguments that are predicated of using the lative. The choice lative versus other locative can only be predicted if we know independently which argument is changing. I know of no theory that can fulfill this. For notice that any argument in a verb that expresses a change undergoes change of some sort: its relation to the other arguments changes. For example, if I cook spaghetti, then not only the spaghetti change from uncooked to cooked, also I change: from someone standing in front of a pot of uncooked spaghetti into someone who does not. There is as far as I know no theory that defines the cut–off point between the good cases and the bad ones. I conclude that there is every reason to believe that directionality selection is an instance of head selection, and that languages may have quite different sets of mode heads.

8. Conclusion

I have argued that locatives consist of minimally two parts, one specifying the mode, the other the place. There is, as far as I can see, no difference between the various realizations, be it by cases, be it by adpositions. Moreover, selection can take place either by selecting both heads or by just selecting one. Interestingly, the typical scenario of a PP selected by a head consists — under this analysis — of a selection of two, sometimes even three heads (see [11]). This is quite unlike what is assumed in current syntactic theories, where a head can only select the highest head inside its immediate complement. Interestingly, the case of selection of a single head does exist. This is what we call

directionality selection. It has only rarely been studied. A proper understanding of its mechanics is however vital for many areas of linguistics and computational linguistics (we only mention machine translation, and man–machine interaction as cases in point).

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