Directional expressions cross-linguistically: Nanosyntax and lexicalization

Marina Pantcheva
CASTL, University of Tromsø

Abstract

In this paper, I investigate the syntactic structure underlying expressions of the three main types of Paths: Goal Path, Source Path and Route Path. I suggest that they are structurally different and propose a fine-grained syntactic structure for each of them, which is able to account for their morphological make-up. I explore how this structure is spelled out in various languages and show that a nanosyntactic approach to lexicalization captures the facts in an elegant way. In discussing the spell-out of the structure by prepositions and case affixes, I reach the conclusion that sometimes the verb has to 'reach down' and lexicalize heads which belong to the spatial domain (cf. Son and Svenonius 2008). I provide evidence from languages where I argue that this is the case.

1. Introduction: the diversity of Path expressions

The spatial systems of natural languages are subject to a massive cross-linguistic diversity when it comes to expressions of motion. Even if we limit ourselves only to languages that use case to denote spatial concepts, the variety is still striking. Consider, for example, the following sentences expressing motion across a Ground.[1]

(1)   Finnish, Finnic, Sulkala and Karjalainen (1992)

Pojat joksevat talo-n   edi-tse.
*boys   run.*3PL *house-*GEN *front-*PROL
'The boys are running across in front of the house'

(2)   Tabasaran, Daghestanian, Magometov (1965) (my glossing)

Izu ulṭurčʾəunuza niri-ll-an.
*I   jump.over   river.*ERG-SUP-ABL
'I jumped across the river'

(3)   Kayardild, Tangkic, Evans (1995)

Kamar-ra ngudi-ja   katharr-ir jirrka-an-kir!
*stone-*NOM *throw-*IMP *river-*ALL *north-*FROM-ALL
'Throw the stone from the north across the river!'

---

* I wish to thank Peter Svenonius for his comments on a previous draft of this paper. I am also grateful to Pavel Caha for discussions and data.

[1] A list of abbreviations used in the glosses can be found at the end of the paper.

(4) Czech, Slavic (P. Caha, p.c.)
Kluci pro-běhli před   dom-em.
boys   via-ran   in.front.of house-INS
'The boys ran across in front of the house'

Focusing on the different case marking that the languages in (1)-(4) make use of in Route expressions, we can observe a fairly big range of choices. Finnish employs the Prolative case, which is a case designated to the expression of Routes. Tabasaran makes use of the Ablative case, which typically expresses Sources. Kayardild marks the Ground DP by the Allative case — a case that otherwise denotes Goals. Finally, in Czech we have a combination of a preposition and a Ground DP marked by Instrumental. The same expression is also used to mark Location, as shown in (5).

(5) Kluci stáli před   dom-em.
boys   stood in.front.of house-INS
'The boys stood in front of the house'

The data is summarized in the following Table 1.[2]

Language	Expression used for Route	Expression is prototypically used for
Finnish	Prolative DP	Route paths
Tabasaran	Ablative DP	Source paths
Kayardild	Allative DP	Goal paths
Czech	P+Instrumental DP	Location[3]

Table 1: Cases used by languages to express a Route path "across"

The goal of this paper is to provide an analysis of path expressions which accounts for the diversity of their structure across languages, as well as the limitations they are subject to. I begin with a discussion of the types of paths denoted by expressions of motion (Section 2). Then I continue with an investigation of the syntactic structure underlying each type of path (Section 3). I argue that the structure of Path expressions is much more fine-grained than previously assumed and I lay out the decomposed Path structure in Section 4. The higher degree of granularity of the structure necessitates a lexicalization theory that allows single morphemes to spell out big chunks of syntactic structure. For that reason, I adopt the Nanosyntactic view on spell-out, which I outline in Section 5. In the sections which follow, I discuss the lexicalization of the syntactic structure

---

[2]This table gives a superficial representation of the facts. In Section 8, I give a more detailed analysis of the data and discuss the (fake) ambiguity of some of these Route expressions.

[3]The instrumental case by itself, of course, prototypically marks instruments. The point here is that the combination of a spatial preposition and an Instrumental-marked DP expresses Location.

underlying directional expressions. I first focus on the syncretisms predicted to be possible by the system (Section 6) and then proceed to the analysis of some "fake" syncretisms claimed to exist in languages (Section 7). In doing this, I explore the ways in which the verbal and the spatial domains interact to spell out Route paths (Section 8), Source paths (Section 9), and Goal paths (Section 10). Section 11 concludes the paper.

2. The main types of paths

Expressions of directed motion involve various types of paths. Consider, for instance, the following examples.

(6)   a.   Mary ran into the house.
      b.   Mary ran out of the house.
      c.   Mary ran past the house.

The three expressions of directed motion in (6) clearly refer to different situations. In the first case, Mary moves by running from a place that is not in the house to a place inside the house. This kind of path is called a Goal path (the house being the Goal of Mary's running). A Goal path is a path, where a certain locative condition applies to its end-point (in this case, the end-point of the path has to be in the house). Zwarts (2005; 2008) graphically represents Goal paths as shown in (7), where the plusses indicate location in the house, and the minuses represent location not in the house. The points 0 and 1 mark the starting point and the end-point of the path, respectively.

(7)   Goal path
      $- - - - - + + + + +$
      0   1   (Zwarts 2008:3)

The representation in (7) involves a single transition from one spatial domain (*not in the house*) to a complementary spatial domain (*in the house*). This covers the intuition that Goal paths have two stages — a negative and a positive phase (see also Fong's 1997 treatment of directional expressions, which are argued to encode a unique transition from a positive phase p to a negative phase $\neg p$, or vice versa).

   Let us turn now to the expression in (6b). What it means is actually the opposite of the expression in (6a). Here we have an event of running where Mary starts inside the house and reaches a place not in the house. This type of path is called a Source path, as the house is seen as the Source of Mary's motion. Source paths are visualized by Zwarts (2005) as follows.

(8)   Source path
      $+ + + + + - - - - -$
      0   1   (Zwarts 2008:3)

Source paths can be seen as reversed Goal paths, for they contain a transition, too, but they impose a locative condition on the starting point of the path, i.e., the beginning of the path must be in the house.

The motion expressed in (6c) is rather complex. Here Mary moves from a place that isn't at the house, to a place at the house and then to a place not at the house again. This kind of path is referred to as a Route path. Route paths involve a locative condition on the middle part and can be represented as follows.

(9)   Route path
       − − − − + + + + − − − −
       0   1   (Zwarts 2008:4)

A comparison between (8), (7), on the one hand, and (9), on the other hand, reveals one difference and one similarity. The difference is that in the denotation of Route paths, there are two transitions, while Goal and Source paths have exactly one. The similarity is that in all three kinds of paths, there is a unique positive phase – the portion of the path where the locative relationship between the Figure and the Ground obtains.

Route paths look as if they are composed of a Goal path concatenated with a Source path.

(10)   Route path
        $[- - - + + +]^\frown[+ + + - - -] = [- - - + + + + - - - -]$
         0   1 0   1 0   1
            Goal   Source   Route

Still, there is only one positive phase. In fact, it seems that no natural language spatial marker expresses the concatenation of a Source path with a Goal path, which would result in two positive phases.

(11) $*[+ + + - - -]^\frown[- - - + + +] = [+ + + - - - - + + +]$
          0   1 0   1 0   1
             Source   Goal   non-existing P

What would a spatial marker expressing the path in (11) mean? Let us imagine such a preposition and call it *tsap*, following the intuition that it is in a way the opposite of the Route preposition *past*. *Mary ran *tsap the house* should mean: she was at the house first, then not at the house and after that she was at the house again (imagine a situation in which Mary ran away from the house and then returned to the house again). It is a puzzle why such a "return-preposition" does not exist and it is an aim of this paper to devise a theory that provides an answer.

To sum up what has been said so far, I have discussed three types of paths: Source paths, Goal paths and Route paths, which have in common the fact that in their denotation they have just one positive phase. When it comes to the number of transitions, Source and Goal paths have one

transition. Route paths have two transitions which gave rise to the hypothesis that they are "more complex" and composed out of a Goal path concatenated with a Source path in this order. Thus, in a way, the "monotransitional" Source and Goal paths form a natural class to the exclusion of the "bi-transitional" Route paths.[4]

3. The syntactic structure of Goals, Sources and Routes

No matter how many types of paths there are, according to the existing works on the syntax of directional expressions there is one locus for path-encoding elements — the Path head (Koopman 2000, van Riemsdijk and Huybregts 2002, Svenonius to appear, den Dikken to appear). This Path head dominates a static Place projection and hosts directional elements that express various kind of paths.

Direct evidence for the structure [Path [Place ...]] comes from languages where a path expression morphologically contains a locative expression. Consider, for instance, the Arawakan language Yanesha (spoken in Peru), where the Goal phrase and the Source phrase in (13a,b), are built on top of the locative phrase, (12) (data from Duff-Tripp 1997).

(12)   non^{y}t^y-o
       canoe-LOC
       'in the canoe'

(13)   a.   non^{y}t^y-o-net   b.   non^{y}t^y-o-t^y
            canoe-LOC-ALL   *canoe*-LOC-ABL
            'towards the canoe'   'from the canoe'

Under the current view on the syntactic represention of directional phrases, the tree structures corresponding to the examples above are as shown below. (14) gives the tree diagram for the locative expression *in the canoe*. (15a,b) shows the diagram for the Goal and Source expression *towards the canoe* and *from the canoe*, respectively.[5]

(14)

---

[4]A similar grouping has been proposed by Jackendoff (1983:chap. 9), although the motivation for it has nothing to do with the number of transitions, but with the path's relationship to the location (the PLACE). Jackendoff unifies Source and Goal paths into one class, which he calls *bounded paths*. In bounded paths, the PLACE is an extreme point of the path: the starting point in Source paths and the endpoint in Goal paths. Route paths belong to their own class of paths, namely, *route paths*. There, the PLACE is related to some point interior to the path and the extremes of the path are not specified.

[5]I abstract away from other heads that have been proposed in the literature on spatial expressions, like Deg, AxPart, Deix, etc., since they are not relevant for the account developed in this paper.

(15)　a.

$$
\begin{array}{ccc}
& \text{Path} & \\
& | & \diagup\diagdown \\
& net & \text{Place} \quad \text{DP} \\
& & | \qquad\quad | \\
& & o \qquad non^y t^y
\end{array}
$$

b.

$$
\begin{array}{ccc}
& \text{Path} & \\
& | & \diagup\diagdown \\
& t^y & \text{Place} \quad \text{DP} \\
& & | \qquad\quad | \\
& & o \qquad non^y t^y
\end{array}
$$
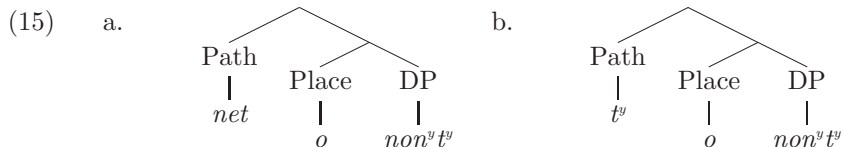
Thus, the structure for path expressions proposed in the literature finds support in the expressions for Goal and Source in Yanesha, where the Goal and the Source expression are equally complex in that they are both built on top of the locative expression by the addition of a dedicated morpheme.

However, languages provide evidence that different types of paths are of different complexity, indicating the existence of distinct syntactic structures for the various types of paths. The present section develops the idea that the Path head can be decomposed into several projections corresponding to different types of paths.

3.1. Goal and Source paths

The first clue regarding the decomposition of the Path head comes from the language Djingulu (Blake 1977, Pensalfini 2004). Djingulu has a spatial case system with a Locative case, expressing static location, an Allative case, expressing Goal-oriented paths, and an Ablative case, expressing Source-oriented paths. The intriguing fact is that the Allative marker in Djingulu is -ŋka, while the Ablative marker is -ŋkami (Blake 1977). On the face of it, it seems that the Ablative marker contains the Allative marker.

Djingulu is not alone in having the Source marker contain the Goal marker. The same pattern is observed for a number of other unrelated languages. Those are presented in Table 2.

	Quechua Arawakan (Adelaar 2004)	*Ingush* Nakh (Nichols 1994)	*Uchumataqu* Uru-Chipaya (Vellard 1967)	*Mansi* Ugric (Keresztes 1998)
LOC	*-pi*	*-ǧ*	*-tá*	*-t*
ALL	*-man*	*-ga*	*-ki*	*-n*
ABL	*-man-ta*	*-ga-ra*	*-ki-stani*	*-n-əl*

Table 2: Languages where the Ablative marker morphologically contains the Allative marker

So far I haven't come across a language where the reversed relationship obtains, that is, where a Goal expression morphologically contains a Source expression. Taking morphological complexity to be indicative of syntactic complexity, I propose that the syntactic structure of Source expressions embeds the syntactic structure for Goal expressions, as in the tree diagram below (see also Pantcheva to appear).

Path_Source   Path_Goal   PlaceP
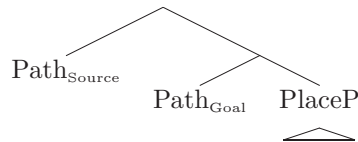
3.2. Route paths

In the previous section, I proposed that Goal and Source paths correspond to different syntactic structures, grounding my arguments in the fact that in some languages, the latter morphologically contain the former. Let us now turn to Route paths and see what their place is in a decomposed Path structure.

The Northeast Caucasian language Avar provides us with a clue about the structure of Route paths. Avar has a rich system of spatial cases, as most Nakh-Daghestanian languages do (Blake 1994, Comrie 1999). It has five "locative" case affixes, each encoding a different spatial configuration of Figure and Ground. Thus, the Locative case suffixes can be said to correspond to English prepositions representing different configurations, like *in, on, at*, etc. The Allative case expresses Goal paths and is built by adding the Allative suffix *-e* to a Locative-marked noun. Depending on which Locative marker is on the noun, i.e., 'in', 'on' or 'at', the complex suffix formed by the Locative+Allative endings means 'into', 'onto' and 'to', respectively. The Ablative expresses Source paths and is built by adding the Ablative suffix *-a* (or its allomorph *-ssa*) to a Locative-marked noun. There is the same dependency between the meaning of the Locative suffix and the meaning of the complex Locative+Ablative as there is in the case of Locative+Allative. Finally, there is a Perlative case, which is used to encode Route paths. The crucial fact is that the Perlative is formed by adding the Perlative ending *-n* to a noun marked by Ablative. The existence of an Ablative base for the Perlative form is supported by the fact that the allomorph of the Ablative case is preserved in the Perlative case.

	Locative (Location)	Allative (Goal)	Ablative (Source)	Perlative (Route)
on (top of)	*-da*	*-d-e*	*-da-ssa*	*-da-ssa-n*
at	*-q*	*-q-e*	*-q-a*	*-q-a-n*
under	*-ƛ'*	*-ƛ'-e*	*-ƛ'-a*	*-ƛ'-a-n*
in, among	*-ƛ*	*-ƛ-e*	*-ƛ-a*	*-ƛ-a-n*
in a hollow object	∅	∅*-e*	∅*-ssa*	∅*-ssa-n*

Table 3: Avar spatial cases. Table from Blake (1994:152)

The Avar data indicate that Route paths contain Source paths. This fact suggests the following syntactic structure for Route paths.
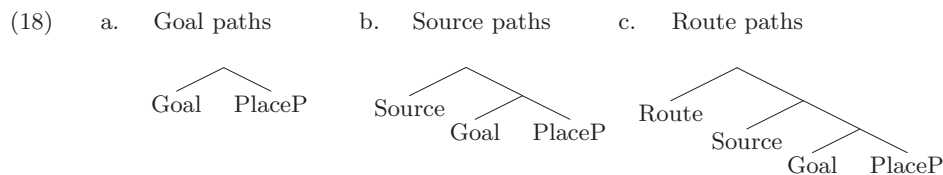
(16)

$$Path_{Route} \quad Path_{Source} \quad PlaceP$$

4. Decomposed Path

In the previous section, I established that the syntactic structure for Route paths embeds a Source path, and the syntactic structure for Source paths embeds a Goal path. By transitivity, the full-blown structure will be as in (17).

(17)

$$Path_{Route} \quad Path_{Source} \quad Path_{Goal} \quad PlaceP$$
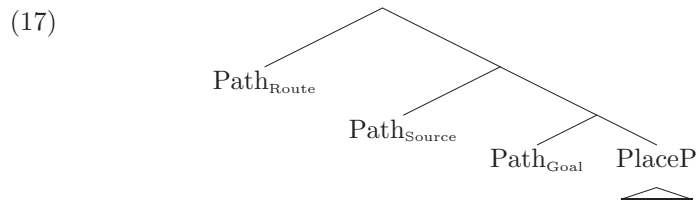
In the structure above, the "lowest" path, Goal, takes as its complement a Place phrase, complying with various proposals about a Path projection dominating a Place projection (Koopman 2000, van Riemsdijk and Huybregts 2002, Svenonius to appear, den Dikken to appear). The crucial difference compared to previous accounts is that Source and Route paths do not select a PlaceP but another path — Goal for Source paths and Source for Route paths. In this way, Goal paths turn out to be the simplest paths, while Route paths have the most complex syntax. So, we have three types of paths with the following corresponding structures.[6]

(18)   a.   Goal paths   b.   Source paths   c.   Route paths

Goal   PlaceP   Source   Goal   PlaceP   Route   Source   Goal   PlaceP

I take these structures to be universal across languages. Thus, Source paths are built on top of Goal paths in all languages – even in those where this in not morphologically transparent. The same applies to Route paths.

---

[6]I use the labels Route, Source and Goal to refer to Route paths, Source paths and Goal paths, respectively.

The important question is what role in syntax each of the heads I have postulated has and how they can be motivated from the point of view of compositional semantics. In what follows, I lay out a proposal concerning the functions of the three path heads.

4.1. Semantics of Place and Goal

Starting from the simplest structure – a locative expression constituting a PlaceP – I assume that the Place head encodes a spatial domain (in Zwart's 2005, 2008 terminology).

Proceeding to Goal expressions, I propose that the semantic role of the Goal head is to encode transition. This assumption is motivated by the fact that Goal paths have a two-stage structure (a negative phase and a positive phase where the locative relation between Figure and Ground obtains). However, it has to be noted that a Goal path is not simply a transition from one phase to a complementary phase. What is crucial for a Goal path is that the second phase is the positive phase, that is, the locative relation expressed by the Place projection has to hold of the *end* of the path, and not at its beginning.

One way to ensure that the Goal head denotes a transition *to* the spatial domain encoded by PlaceP is to simply postulate it. However, it is very likely that this restriction falls out from universal cognitive grounds and hence, need not be stated separately. There has been established a natural bias to encode end-points (Goals) over starting points (Sources) in non-linguistic motion event representations (see Lakusta 2005, Assadollahi et al. 2006, and references therein). This perceptual and attentional asymmetry is reflected in language acquisition and adult language (Lakusta and Landau 2005). Thus, it is possible that the Goal path interpretation of a structure like [Transition [Place ...]] is due to this asymmetry in the cognitive system and not to the syntax-semantics itself. In other words, I suggest that the reason for the transitional head dominating PlaceP to being interpreted as Goal-oriented lies in the general extra-linguistic bias for goals.[7]

To sum up, the semantic content of the Goal head is that of a transition and due to the cognitive bias towards the encoding of Goals (end-points) over Sources (starting points), the location denoted by the Place head holds of the end-point of the path p(1).

4.2. Semantics of the Source head

Let us now turn to the semantics of the Source head. Recall that Goal and Source paths grouped together to the exclusion of Route paths by the property of being mono-transitional (i.e., they both contain *one* transition).

---

[7]There is enough linguistic evidence that confirms the Goal bias. For instance, in Ramchand's (2008) decomposition of the verbal phrase, the dynamic *proc*[ess] projection takes as a complement a stative *res* projection, which is interpreted as the *result* of the process or change denoted by the *proc* head, hence its name.

In syntax, the Source head takes as a complement a Goal phrase, which already expresses a transition. Therefore, the semantics of the Source head cannot be that of a transition, as that would lead to a path with two transitions, and this is not a Source path.

What could then be the semantic contribution of the Source head? A comparison between Goal paths and Source paths shows that they are constructed in the same way, but are the mirror images of each other. In other words, Source paths can be seen as the opposite of Goal paths (as also discussed in Zwarts 2005; 2008). Therefore, I suggest that the Source head is the locus of a semantic reversal operation. Thus, the Source head just reverses the orientation of the path provided by the [Goal [Place]] configuration. More precisely, the Source head assigns to each point i in the interval [0,1] the position that is assigned to $1-i$ in the denotation of the Goal path, where 0 and 1 represent the starting point and the end-point of the path, respectively. In this way, the spatial domain encoded by the Place head (i.e., the positive phase) is interpreted as the *starting point* of the path, leading to a path of the type $+ + + - - -$.

The reversal encoded by the Source heads resembles a negation function. In this sense, my proposal is similar to the treatment of Source phrases by Arsenjević (2006) who analyses the so-called Source modifiers (for instance Slavic spatial prefixes like *iz-* 'from') as being more complex than Goal modifiers and crucially involving negation of Goals. In the same line, Svenonius (2009) suggests that English Source particles like *out* and *off* are endowed by the feature *neg*, accounting for the observation that they license NPIs (which otherwise occur in the scope of negation).

4.3. Semantics of the Route head

Let us now turn to the last head in the decomposed Path structure argued for in this paper — the Route head. The Route head takes as a complement a Source path. A Source path is, as already discussed, mono-transitional and has its first phase as the positive phase. Route paths are bi-transitional and they have the positive phase "in the middle", that is, the locative relation between the Figure and the Ground holds of some intermediate points of the path. On the basis of these observations, I suggest that the Route head is another transitional head. It encodes a transition to the first phase of the Source path in its complement, which is a positive phase. This particular proposal for Routes reflects two properties of Route paths: first, they consist of two transitions and, second, the first transition is to a positive phase, while the second transition is to a negative phase. If this is the right universal syntax-semantic structure for Route paths, then it is clear why prepositions such as *tsap in (11) do not exist.

4.4. Summary

Summing up the section, I have proposed a decomposition of the Path head into three distinct projections: a RouteP dominating a SourceP, which in turn dominates a GoalP. This is the universal structure underlying the three types of Paths in all languages: RouteP for Route paths, SourceP for Source paths and GoalP for Goal paths. The semantics of the Goal and Route heads is transitional, while the Source head is the locus of a reversal operation. Note that the semantics for the Source and Route paths is compositionally derived, that is, although the Source head by itself does not encode a transition, Source paths are transitional by virtue of the fact that the syntactic structure underlying a Source path contains the structure for the transitional Goal path. A similar reasoning applies to Route paths.

5. Nanosyntax and the lexicalization of structure

So far, I have established that the syntactic structure underlying directional spatial expressions is more complex than previously assumed. Specifically, I claim that the Path head is decomposable into several heads and the various types of paths have different structure with varying degree of complexity. The most complex path is the Route path – it consists of minimally three heads: Route, Source and Goal. Still, in many languages we see just one morpheme expressing a Route path, as in Lak, Daghestanian (data adapted from Friedman 2003).

(19) ša˹ra-j-x̌
      street-SUP-PROL
      'through the street'

In the Lak example above, there is one Place morpheme – the superessive ending -*j*, and one Route morpheme – the prolative ending -*x̌*, attached to the superessive case marker. Under the path decomposition argued for here, the Prolative morpheme -*x̌* has to lexicalize all the three heads which constitute a Route path. Thus, languages like Lak make it apparent that the terminal nodes which a Route path consists of can be, in fact, smaller than a morpheme.

This observation leads to the adoption of the Nanosyntactic approach to syntactic structure. Nanosyntax owes its existence to Michal Starke and is developed at CASTL, University of Tromsø. It is based on the proposal that the terminal nodes in the syntactic structure are very small, even smaller than a morpheme. In fact, each terminal corresponds to a feature, as has been assumed also by Borer (2005), Ramchand (2008), inter alia. The lexicalization of syntactic structure is a post-syntactic operation and a single morpheme can lexicalize several terminals in the syntactic tree. Which terminals exactly a morpheme lexicalizes depends on the morpheme's feature specification. Spell-out of more than one terminal can be achieved in vari-

ous ways: by head-movement (Borer 2005), by multi-attachment of a single lexical item to multiple terminals (Ramchand 2008), by "spanning" where one lexical item lexicalizes a whole stretch of syntactic structure (Svenonius 2009, Taraldsen 2009), or by phrasal spell-out which lets lexical items spell out non-terminal nodes (Starke 2007, Neeleman and Szendrői 2007, Caha 2008; 2009).

In Nanosyntax, lexicalization is governed by the so-called *Superset Principle*.

(20)   *Superset Principle* (originally proposed by Michal Starke in unpublished work, formulation of Caha 2009):
         A phonological exponent is inserted into a node if its lexical entry has a (sub-)constituent which matches that node.

Matching a node means that the lexical entry is identical to it. Thus, a lexical item A with the features $< \alpha, \beta, \gamma, \delta >$ can spell out all the structures below, as they are all (sub-)constituents of the structure A is specified for.

(21)   a.   d. α
                                         e. β
                                         f. γ
         b.   g. δ

         c.
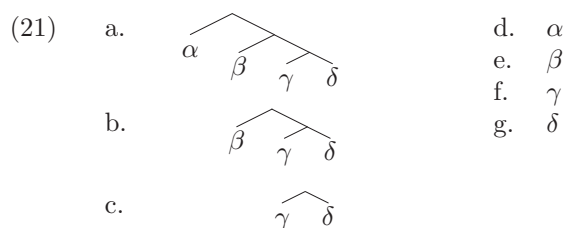
Matching ignores traces and spelled out constituents (Caha 2009). A node can thus be rendered invisible for the matching procedure if it gets lexicalized by a matching lexical item, or moved. For illustration, a lexical item A specified with the features $< \alpha, \beta >$ can lexicalize the syntactic structure in (22) only if γ has been spelled out, for instance, by B with the feature $< \gamma >$, (22a), or if γ has moved out, (22b).

(22)   a.   b.
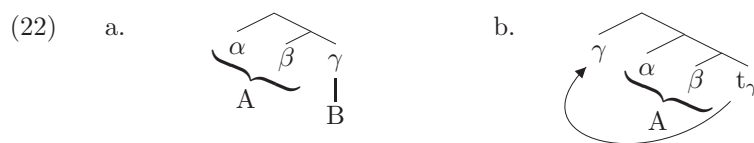
An important restriction on spell-out is the condition that a lexical entry can replace only syntactic structures that include its lowest feature, as defined by the functional sequence (Abels and Muriungi 2008). In other words, lexical entries are "anchored" at the bottom to a particular node in the syntactic structure. To illustrate how this *Anchor Condition* regulates lexicalization, consider the syntactic structure in (23) and the lexical items in (24), where A and B overlap in that they share a common feature β

(for a more detailed discussion of the *Anchor Condition* and Nanosyntax in general, I refer the reader to Caha 2009).

(23)
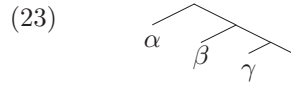
(24) a. A$< \alpha, \beta >$
      b. B$< \beta, \gamma >$
      c. C$< \gamma >$

There are two possible ways for the structure in (23) to be spelled out by the given lexical items.

(25)

(26) *
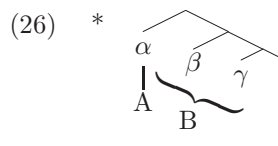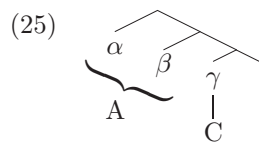
The lexicalization in (26) is, however, banned by the *Anchor Condition* because the lowest feature of the lexical item A is not matched against the syntactic structure. Thus, the structure in (23) is spelled out as A+C and not as A+B.

The *Superset Principle* allows for there to be more than one lexical item that matches a given syntactic structure and therefore can lexicalize it. The rule to regulate such cases is stated in (27).

(27) *Minimize Junk*:
      When two lexical items meet the conditions for insertion in a given node, the item with the fewest features not contained in the node gets inserted.

In other words, this rule says that when two lexical items are in competition to spell out a given syntactic structure, the one which wins is the one which contains fewest superfluous features (i.e., junk).

The *Minimize Junk* rule is not something peculiar to Nanosyntax. In fact, it follows from an independent principle, namely the *Elsewhere Condition* as formulated in Kiparsky (1973) (for how Minimize Junk is derived from the Elsewhere Condition, see Caha 2009, Pantcheva to appear).

As an illustration, consider the following lexical items with the respective feature specifications:

(28) a. A: $< \beta, \gamma, \delta >$
      b. B: $< \alpha, \beta, \gamma, \delta >$

And the syntactic structure in (29):

(29)
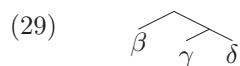
As the feature specification of the two lexical items is a superset of the features contained in the structure in (29), they are both eligible to spell it out (according to the *Superset Principle*) and are thus competitors. The winner of the competition is A, because it has fewer "superfluous" features than B. Specifically, A doesn't have the feature α, which it will not make use of when lexicalizing the structure in (29).

Under the Superset view of lexicalization, a lexical item is always specified for a superset of the features expressed in the node that the lexical item lexicalizes. As a consequence, underspecification of lexical items is disallowed. Thus, each terminal in the syntactic structure must be spelled out. This is the hunch behind the *Exhaustive Lexicalisation Principle* of Ramchand (2007) and Fábregas (2007), stating that each feature in the syntactic structure has to be lexicalized, otherwise the structure is ill-formed.

(30)   *Exhaustive Lexicalization Principle* (Ramchand 2007, Fábregas 2007):
         Every syntactic feature must be lexicalised.

In the subsequent section, I examine the lexicalization of the decomposed Path structure under the Nanosyntactic approach and the Superset view on lexicalization, described here.

6. Syncretisms in spatial expressions

An important consequence of the Superset Principle is that a given lexical item can spell out more than one syntactic structure. This is because a lexical item can legitimately spell out a given syntactic structure and any sub-tree of it, as long as it spells out the lowest feature of the structure in question.

What this means for the lexicalization of the decomposed Path structure is that a Route marker specified with the features <Route, Source, Goal, Place> should be able to spell out, apart from a Route path, a Source path, a Goal path and Location. In what follows, I provide evidence from Hindi, where the Route marker expresses not only Route.

Consider the Hindi examples below. Here we have a spatial expression marked by the Ablative case, which is ambiguous between a Route and a Source reading.

(31)   baccaa kaar-ke saamne-see calaa.
         child   car-GEN *front*-ABL   *walk*.PERF
         (i) 'The child walked from in front of the car'
         (ii) 'The child walked via in front of the car"

This ambiguity can be easily captured by the decomposed path structure and the Superset-driven lexicalization. I suggest that the Hindi case morpheme *-see* has the features <Route, Source, Goal, Place>. It can then lexicalize a full Route structure, as in (32a), as well as a Source structure,

as in (32b), in which case it spells out a sub-constituent of the structure it is specified for.
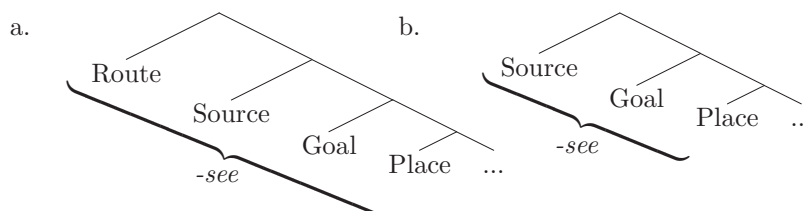
According to the lexical specification of *-see*, it can also lexicalize a Goal structure and a locative structure. However, this does not happen: Hindi uses the Dative marker *-koo* and one of the locative markers *-mee* or *par* to express a Goal path (32) and Location (33), respectively (data from Narasimhan 2008).

(32)   meez-koo
        table-DAT
        'to the table'

(33)   a.   kamree-mee
              room-LOC
              'in the room'
        b.   pharsh-par
              floor-LOC
              'on the floor'

The question is why we cannot use *-see* in (32) and (33). The answer lies in the feature specification of the Dative and the Locative markers. Let us focus on the Goal expression. Assuming that *-koo* has the features <Goal, Place>, it competes with *-see* to lexicalize GoalP, because both morphemes are specified in the lexicon for a superset of the features contained in the node. The morpheme *-see* loses the competition by virtue of the Minimize Junk rule. The suffix *-koo* has fewer (or no) superfluous features and is thus a better match. The same reasoning applies to Locations — *-mee* <Place> and *-par* <Place> are a better match for the spell-out of PlaceP than *-see*.

This system predicts the existence of spatial markers in the languages of the world that syncretize adjacent heads.[8] The Route-Source syncretism discussed above is one example of adjacent syncretism. It is found in numerous languages: Qiang, Tibeto-Burman (LaPolla 2003), Tabasaran, Daghestanian (Magometov 1965), Basque, isolate (Hualde and de Urbina 2003), Marathi, Indo-Iranian (Pandharipande 1997), etc.

Given that syncretism targets adjacent heads, we predict that the following syncretisms are possible:

---

[8] See Caha (2009) for an extensive study of syncretisms in the Nanosyntactic framework.

(34)   a.   Route and Source
       b.   Goal and Location
       c.   Source and Goal
       d.   Source, Goal and Location
       e.   Route, Source and Goal
       f.   Route, Source, Goal and Location

I already discussed an example of the syncretism in (34a). Now I proceed to the next syncretism – Goal and Location in (34b). This syncretism pattern is very common cross-linguistically. Languages which are claimed to have spatial markers ambiguous between Goal and Location are: Breton, Celtic (Ternes 1992), Kaulong, Oceanic (Ross 2002b), Dagur, Mongolic (Tsumagari 2003), Nar-Phu, Bodic (Noonan 2003), etc. Example here given from French (Michal Starke, p.c.).

(35)   J'ai   couru au   stade.
       I.have run   at/to.the stadium
       'I ran at the stadium' or 'I ran to the stadium'

The next syncretism in (34c) is unattested among languages, although predicted to be possible (see Andrews 1985:97, and the typological studies in Blake 1977, Noonan 2008, Rice and Kabata 2007, and Pantcheva to appear). I suggest that the reason for the non-existence of this syncretism is pragmatic. Recall that a Source path is construed as a reversed (or negated) Goal path. Thus, in a sense, a Source path is the "opposite" of a Goal path. This means that a language with a Goal-Source syncretism has one spatial marker that expresses a certain meaning and its opposite. From a pragmatic point of view it is unacceptable to have such a "contradictory" lexical item.[9] I suggest that it is for that reason that the syncretism pattern in (35c) is unattested, although it is possible. Notice that this does not exclude the possibility that a *given lexical item A* includes the features <Source> and <Goal> in its feature specification (as, for instance, the Hindi Ablative marker -*see*). As long as there is a disambiguating lexical item B that limits the use of A to one of the spatial roles only, the item A is not used in a contradictory way (this disambiguating item B in Hindi is the Dative marker -*koo*).

Proceeding to the remaining syncretisms in (34d-f), they should be unattested for exactly the same pragmatic reason as the Source-Goal syncretism

---

[9]There are potential counterexamples, for example those verbs that have both an ornative and a privative meaning like *seed*, *trim*, etc.

(i)   a.   seed the grapes = remove seeds from the grapes
      b.   seed the lawn = put seeds in the lawn

Buck (1997) investigates that type of verbs in English and convincingly argues that they do not express opposite meanings. Hence, these verbs are not an example of contradictory lexical items.

in (34c) – there cannot be a spatial marker ambiguous between a Goal path and its opposite Source path, no matter whether this spatial marker would express also other spatial roles (Route or Location). Nevertheless, there are claims in the literature that the syncretism Source-Goal-Location exists. Languages which are said to have it are, for instance, Nahuatl, Uto-Aztecan (Launey 1979), Mapudungun, isolate, South America (Wälchli and Zuñiga 2006), Lahu, Lolo-Burmese (Matisoff 2003), and 'Ala'ala, Oceanic (Ross 2002a). It is questionable, however, whether they really exhibit this syncretism pattern. Perhaps they do not, although they do use the same case marker or adposition in expressions of Goal, Source and Location. Such expressions, however, often take more than just an adposition. In the next sections, I address this issue and turn my attention to representatives of other categories that participate in expressions of directed motion alongside with case markers and adpositions. I then come back to the purported Source-Goal-Location syncretism at the end of Section 10.

7. Fake syncretisms

In the previous section, we saw that the Hindi Ablative marker *-see* syncretizes Route and Source paths. A closely related language, Persian, is also said to have that type of ambiguous marker – the preposition *æz* translated as 'from.' The preposition *æz* is used in Route expressions, however, only in combination with the verbs *gozæshtæn* 'to go/pass by' or *ræd shodæn* 'to pass by" (Mahootian 1997:166).

(36) a. Bæchche æz baq gozæsht.
          child   from garden pass.3SG
          'The child went via the garden'
      b. Bæchche æz pol ræd shod.
          child   from bridge pass became.3SG
          'The child passed by the bridge'

Any other motion verb combined with an *æz*-PP gives rise only to a Source interpretation and never to a Route interpretation.

(37) Bæchche æz baq doid.
      child   from garden ran
      'The child ran from the garden'
      *'The child ran via the garden'

It is obvious that the Persian facts are quite different from the Hindi facts in the sense that, in Persian, the Route meaning of the preposition *æz* requires a particular verb, while, in Hindi, the Route meaning of the Ablative *-see* can be obtained with a fairly unrestricted set of verbs. The conclusion is that the Persian *æz* is not really ambiguous between Route and Source, but expresses Source only. The issue is then what makes the Route mean-

ing in (36) possible. As the route interpretation is available only in the presence of one of the two "route verbs," it is logical to hypothesize that the verbs *gozæshtæn* 'to pass' and *ræd shodæn* 'to pass by' lexicalize the bit of syntactic structure that is necessary for a Source path to become a Route path. In other words, I suggest that *gozæshtæn* and *ræd shodæn* spell out not only the verbal portion of the functional sequence but also the Route head, thus leaving the SourceP in its complement position to be lexicalized by the Source preposition *æz*.

(38)
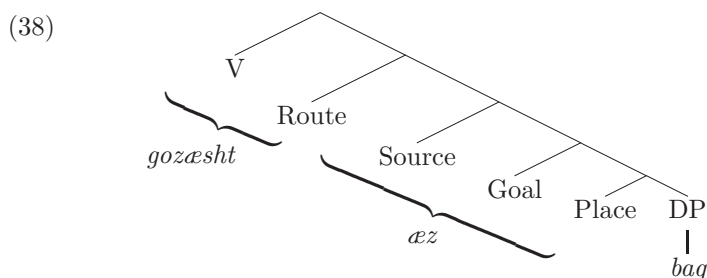
Such an analysis captures the fact that Persian verbs that do not belong to the set of "Route verbs" cannot express Route of motion with an *æz*-PP. The reason lies in the Exhaustive Lexicalization Principle and, more precisely, in the failure to lexicalize the Route head in the structure. This is exemplified below by the manner of motion verb *doidæn* 'run,' which, I propose, does not have the feature <Route>. For that reason, the Route reading for (37) is unavailable.

(39)
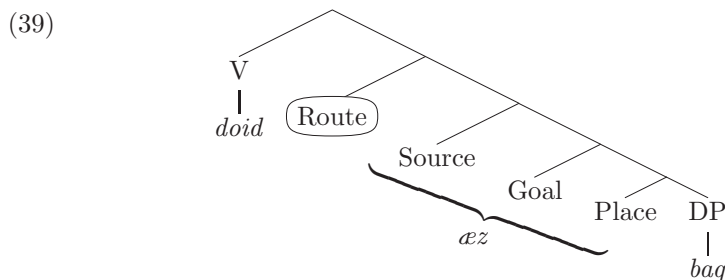
Thus, in Persian Route expressions, representatives of two categories collaborate to lexicalize a given syntactic structure: because there is no adposition that is specified in the lexicon as big enough to spell out a Route path, a special Route verb has to reach down into the spatial domain and lexicalize the Route head (cf. the analysis in Son and Svenonius 2008). The structure below the Route head, i.e., the Source phrase, is then lexicalized by the Source preposition *æz*, available in Persian. So, here we have an example of a verb lexicalizing a head in the syntactic structure, which in

other languages is lexicalized by a spatial adposition (e.g., *through*) or a case marker (e.g., Prolative). On the face of it, it seems then that Persian *æz* syncretizes a Route and a Source path, but in reality, it always spells out a Source structure and the Route-Source syncretism is fake.

8. Lexicalizing Route paths

Having revealed the fake Route-Source syncretism in Persian, it becomes intriguing to go back to the data we started from in the Introduction, repeated below from (1)-(4).

(40) Finnish, Finnic, Sulkala and Karjalainen (1992)
      Pojat joksevat talo-n   edi-tse.
      *boys run.*3PL *house-*GEN *front-*PROL
      'The boys are running across in front of the house'

(41) Tabasaran, Daghestanian, Magometov (1965) (my glossing)
      Izu ulṭurč°əunuza niri-ll-an.
      *I   jump.via   river.*ERG-SUP-ABL
      'I jumped across the river'

(42) Kayardild, Tangkic, Evans (1995)
      Kamar-ra ngudi-ja   katharr-ir jirrka-an-kir!
      *stone-*NOM *throw-*IMP *river-*ALL *north-*FROM-ALL
      'Throw the stone from the north across the river!'

(43) Czech, Slavic (P. Caha, p.c.)
      Kluci pro-běhli před   dom-em.
      *boys via-ran   in.front.of house-*INS
   'The boys ran across in front of the house'

As already shown in Table 1, there are a few syncretisms in this data set: in Route expressions, Tabasaran uses the Source-case Ablative, Kayardild uses the Goal-case Allative, and Czech uses a combination of a preposition and the Instrumental case, which otherwise is used in locative phrases. The legitimate question is whether here we are dealing with real or fake syncretisms.

Let us have a closer look at Czech, which employs a locative phrase in expressions of Location and Route paths. We are looking for a clue whether something other than the expression consisting of a preposition and an instrumental-DP brings about the Route reading. The data in (44) reveals that this is indeed the case.

(44) Czech, P. Caha, p.c.
a.   Had pro-lezl   před   vchod-em.
      *snake via-crawled in.front.of entrance-*INS
      'The snake crawled via in front of the entrance'

b.　　Had　lezl　před　　vchod-em.
　　　snake crawled in.front.of entrance-INS
　　　'The snake crawled in front of the entrance' (Locative reading)

In (44), the a-example bears a Route meaning and consists of a *pro-* prefixed verb combined with a locative phrase. The b-example has an unprefixed verb combined with a locative phrase, and the only available interpretation is the locative one. Thus, a logical conclusion is that *pro-* lexicalizes the heads that are between the verb and the Place projection in a Route structure, as depicted in the tree diagram below.

(45)
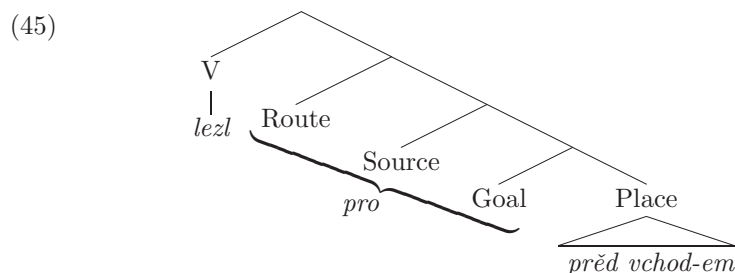
So, in Czech we have an instance of a fake syncretism: although we have the same structure P+DP-INS in expressions of Location and Route path, it cannot express both notions. I suggest that P+DP-INS is locative only and, in the case of Route paths, it needs the support of a special prefix that lexicalizes the Goal, Source and Route heads. The Czech prefix *pre-* thus lexicalizes a portion of the spatial domain below the verb. This is in line with analyses where Slavic lexical prefixes spell out prepositional material in the complement of the verb, as in, for instance, Svenonius (2004).

Let us now have a look at the other languages in the initial data set. I turn to the Tabasaran Route-Source syncretism and take some more data under investigation in order to see whether something other that the Ablative case triggers the Route reading, that is, lexicalizes the Route head.

Consider the data below.

(46)　　Tabasaran, Magometov (1965) (my glossing)
　　　a.　　Izu ulṭurč°əunuza qəan-di-ll-an.
　　　　　I　jump.via　　stone-ERG-SUPERESS-ABL
　　　　　'I jumped over the stone'
　　　b.　　Izu qəirč°əunuza qəan-di-ll-an.
　　　　　I　jump　　　stone-ERG-SUPERESS-ABL
　　　　　'I jumped off the stone'

In this minimal pair, the a-example expresses a Route path, while the b-example expresses a Source path. A comparison between the two reveals that the two sentences differ with respect to the prefix attached to the verb. Specifically, the verb in the Route expression is prefixed by *ulṭur-*,

which I gloss as 'via,' while the verb in the Source expression is prefixed by a different affix *qəir-*, the meaning of which is not given in Magometov's grammar and is impossible to determine precisely due to insufficient data. Crucially, the verb in the Route expression in (41) also bears the prefix *ulṭur-*. It is then highly probable that the prefix *ulṭur-* is the little element that turns a Source expression into a Route expression by lexicalizing the Route head. The tree diagram below represents the lexicalization of the example in (41).

(47)
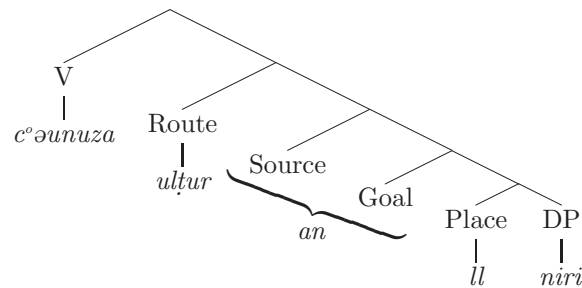
As can be seen from the spell-out of the Route structure in (47), the Tabasaran Route-Source syncretism is a fake one, too. The Tabasaran Ablative case marker cannot express a Route path. It can lexicalize the structure only up to the Source head, and therefore, in Route phrases, we need a special prefix to lexicalize the Route head.

Let us now have a look at the other languages in the initial data set. Considering the fact that neither in Czech nor in Tabasaran are we dealing with a real ambiguity, we can suspect that the Kayardild Allative case in (42) does not syncretize Route and Goal either. This hypothesis gains support from the data in (48).

(48)   Kurrka-tha nga-ku-l-da   natha-r   nga-ku-lu-wan-jir!
        take-IMP   1-INC-PL-NOM *camp*-ALL 1-INC-PL-POSS-ALL
        'Let's take (it) to our camp!'

If the Allative case were really ambiguous between Route and Goal, then the example in (48) would have a second interpretation 'Let's take it via our camp!'. As this reading is not said to be available in Evans (1995), it is plausible that the verb translated as *throw* in (42) lexicalizes the Route and Source heads, which the Allative case fails to lexicalize.

To sum up, in this section I discussed the lexicalization of Route paths in several languages and showed how the syntactic structure of Routes can be sliced up in different portions, each of which is lexicalized by a separate lexical item. The situation can be summarized like this:

(49)

	V	Route	Source	Goal	Place
Finnish	verb	PROL			
Persian	verb		æz		
Tabasaran	verb	ulṭur	ABL		SUP
Kayardild	verb			ALL	
Czech	verb	pro			P+INS

In Finnish, the Prolative marker covers the whole structure up to the Route head. In Persian, two special "Route verbs" reach down to the Route head and the remaining portion of the structure is lexicalized by a Source preposition. In Tabasaran, the Ablative marker lexicalizes the structure up to the Source head, leaving the Route head to be spelled out by the prefix *ulṭur-*. In Kayardild, the Allative marker goes up to the Goal head, and the verb has to lexicalize the Route and Source heads. Finally, in Czech, the prefix *pro-* lexicalizes Route, Source, Goal and the rest of the structure is spelled out as a locative expression.

The lexicalizations shown in (49) are just a few examples of the logically possible lexicalizations of the structure. The stretch between V and Place can be carved up in eleven other ways. I give here two more examples. One comes from Slovak, where Route expressions contain a special preposition that combines with a GoalP, see (50) (data from P. Caha, p.c.).

(50) Na Forum Roman-um vstupujeme po-pod oblúk-∅ Tita.
On Forum Romanum-ACC *enter*.1PL *po-under arch*-ACC *of.Tito*
'We entered Forum Romanum via under Tito's arch'

The following data shows that without the preposition *po*, the PP has a Goal reading.

(51) Slamu dal pod stôl-∅.
hay put.3SG *under table*-ACC
'He put the hay under the table'

The second example comes from Yukatek Maya. Yukatek Maya is a language, where spatial prepositional phrases express only Locations (Bohnemeyer and Stolz 2006). Thus, no spatial preposition lexicalizes structure higher than the Place head. Given that, in the Route expression in (52), we have a verb combined with a locative expression, I suggest that the verb extends down to the Place head (data from Bohnemeyer in prep).

(52)   Le=ríiyo=o'   h-máan   ich le=bàaye=o'.
           DET=*river*=DIST PRV-*pass*.3SG *in* DET=*valley*=DIST
           'The river, it passed through the valley'

The lexicalizations in Slovak and Yukatek Maya can then be represented as follows:

(53)

	V	Route	Source	Goal	Place
Slovak	verb	po		P+ACC	
Yukatek Maya		verb			ich

    To recapitulate, the fine-grained syntactic structure of Route expressions allows us to capture the diversity in the lexicalization patterns across languages. The same strategy can be applied also to the other two types of paths, which I analyze in the subsequent sections.

9. Lexicalizing Source paths

Let us now turn to the lexicalization of Source paths cross-linguistically. There are in total eight logically possible ways to partition the syntactic structure underlying a Source expression. They can be subsumed under the following three general scenarios.

(54)   a.   Verb+Source expression
         b.   Verb+Goal expression
         c.   Verb+Locative expression

The first lexicalization possibility is represented by English.

(55)   He ran from the house.

In (55), the verb *run* takes a Source phrase where the Source, Goal and Place heads are lexicalized by the preposition *from*.

    An example of the second lexicalization pattern is found in the Kartvelian language Laz. This language has the so-called Motative case, which is claimed to express Source and Goal of motion (Broschart and Dawuda 1999, Kutscher 2001). First, I will demonstrate that this is a fake syncretism and that the Motative case expresses the notion of Goal only. Then I will show how Laz lexicalizes a Source structure by the use of a prefixed verb combined with a Goal expression.

    Laz has two spatial cases: the null-marked Locative with the exponent -∅, (56), and the Motative case, whose ending is -*şa*. The latter is used in Goal and Source expressions, see (57) (data from Broschart and Dawuda 1999).

29

(56) Peteri livadi-∅   on.
      Peter garden-LOC COPULA.3SG
      'Peter is in the garden'

(57) a. Peteri oxori-şa   ulu-n.
          Peter home-MOT *go*-PRES
          'Peter goes home'
      b. Peteri oxori-şa   mulu-n.
          Peter home-MOT *come*-PRES
          'Peter comes from home'

The data in (57) immediately arouses suspicion, as a comparison between the Goal and the Source example shows that in the latter there is a morpheme *m-* prefixed to the verb. Thus, it is conceivable that the Motative in Laz expresses Goal only and a Source expression needs an additional prefix. Indeed, according to the data elicited in Kutscher (2001), the only possible reading of an unprefixed verb taking a motative DP is one of Goal of motion, and never Source of motion.

(58) Oxori-ša   b-ulu-r.
      house-MOT 1SG-*go*-1SG.PRES
      'I go into the house'
      *'I go out of the house'

What this means is that the Motative case ending *-şa*, in fact, spells out the structure as high as the Goal head, as shown in (59).

(59)
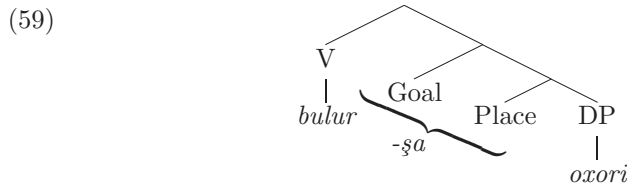
This proposal finds further support in the fact that when the verb *bulur* 'I go' combines with a Locative-marked DP, the Goal reading is ungrammatical.
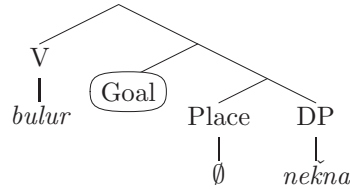
(60) a. Nečkna-ša b-ulu-r.
          door-MOT 1SG-*go*-1SG.PRES
          'I go to the door'
      b. *Nečkna-∅   b-ulu-r.
          door-LOC 1SG-*go*-1SG.PRES

The reason is a violation of *Exhaustive lexicalization*, as the Goal head remains not lexicalized.[10]

---

[10]Note that Laz has a null morpheme to mark Location (Broschart and Dawuda 1999, Kutscher 2001), but does not have a null morpheme to mark Goals. If that were the

(61)

```
              V
              |          (Goal)
            bulur           Place   DP
                              |      |
                              ∅    nekna
```
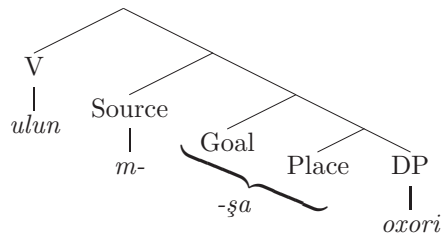
To recapitulate, I argue that the Motative case in Laz unambiguously marks Goals. Hence, the Source expression in (62), repeated below, is an example of a verb combining with a Goal phrase, thus illustrating the lexicalization strategy in (54b).

(62) Peteri oxori-şa   mulu-n.
      Peter home-MOT *come*-PRES
      'Peter comes from home'

I suggest that the prefix *m-* spells out the Source head in Laz. The tree diagram is then as follows:

(63)

```
          V
          |     Source
        ulun      |       Goal
                 m-               Place   DP
                      -şa                  |
                                         oxori
```

Finally, let us have a look at a language that spells out the structure according to the scenario in (54c). Yukatek Maya is a plausible candidate given that its spatial PPs express only Location, as claimed in Bohnemeyer and Stolz (2006). Indeed, Goal paths are encoded exclusively in the verb (Bohnemeyer and Báez 2008). In the following example, the Goal meaning is contributed by the verb, which combines with a locative expression.

(64) e=kàaro=o'   h-hòok   ich le=kàaha=o'
      DET=*cart*=DIST PRV-*exit*.3SG *in* DET=*box*=DIST
      'The cart, it exited (lit. in) the box'

Consequently, the verb translated as 'exit' in Yukatek Maya spells out the Source and Goal heads in the syntactic structure leaving the Place head to be lexicalized by the locative preposition *ich* 'in.'

The lexicalizations presented in this section can be summed up in the following way.

---

case, then the example in (60) would have been grammatical.

(65)

	V	Source	Goal	Place
English	verb		from	
Laz	verb	m-	MOT	
Yukatek Maya	verb		ich	

10. Lexicalizing Goal paths

Let us now proceed to the lexicalization of the last structure left to discuss — a Goal path. There are two general strategies to spell out such a path.

(66)   a.   Verb+Goal expression
        b.   Verb+Locative expression

Let us start with a the first strategy. A language that exemplifies it is Evenki (data from Nedjalkov 1997).

(67)   Bejumimni hokto-tki tuksa-d'ara-n.
       hunter   road-ALL *run*-PRES-3SG
       'The hunter is running to(wards) the road'

In Evenki, the Allative ending -*tki* spells out the Place and Goal heads. Another language with the same pattern is Lezgian (data from Haspelmath 1993, my glossing).

(68)   Sik' mark.uni-w-di   fe-na.
       fox   stack-ADES-ALL *go*-PAST
       'The fox went toward the stack'

The following tree diagrams illustrate how the Goal structure is spelled out in Evenki, (69), and in Lezgian, (70).

(69)   (70)
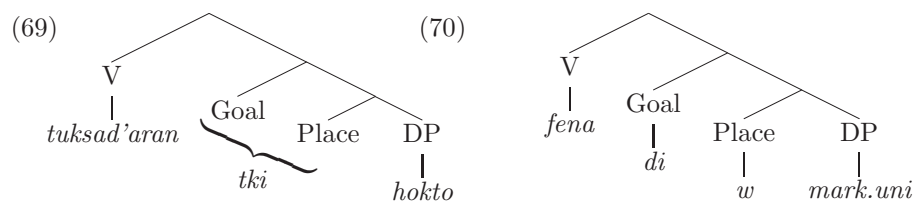
The second lexicalization strategy – the one where a verb takes a locative expression – can be found in numerous languages where the path is encoded on the verb rather than on the adpositional phrase. In fact, this what we find in the so-called verb-framed languages discussed by Talmy (2000), in which the path of motion is expressed via the verb.

(71)   Korean (Son 2006)
       Mary-ka   cip-an-ey   tul-e-ka-(a)ss-ta.
       Mary-NOM *house-inside*-LOC *enter*-CON-*go*-PAST-DC
       'Mary went into the house'

Not surprisingly, this is also the lexicalization strategy used in Yukatek
Maya. As we already know, the verb in Yukatek Maya encodes the path,
thus a Goal expression consists of a "Goal-verb" plus a locative phrase
(data from Bohnemeyer and Báez 2008).

(72)   Le=kàaro=o'   h-òok   ich le=kàaha=o'.
       DET=*cart*=DIST PRV-*enter*.3SG *in* DET=*box*=DIST
       'The cart, it entered (lit. in) the box'

The corresponding tree diagram in shown in (73) (see also the analysis of
Goal expressions in Son and Svenonius 2008).

(73)
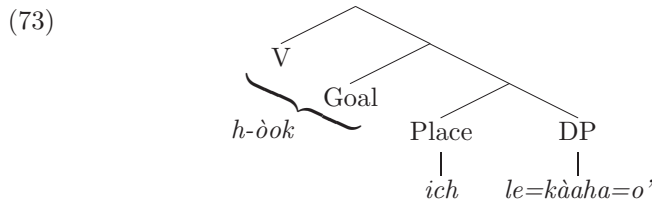
    To sum up, I discussed various ways in which languages partition the
structure underlying Goal paths when they spell it out. The situation can
be summarized as follows.

(74)

    Before concluding this section, a note about Yukatek Maya and the
languages like it is in order. Yukatek Maya is a language which has just
two spatial prepositions: *ich* 'in' and *ti'* 'at' (Bohnemeyer and Báez 2008).
Both of these prepositions are locative. Therefore, any kind of spatial
expression contains a PP headed by one of these two locative prepositions.
That means that a phrase headed by *ich*, for example, will be part of a
Source expression and a Goal expression for the lack of a dedicated Source
and, respectively, Goal preposition. However, it is incorrect to state that
the prepositions *ich* and *ti'* syncretize all the three spatial roles Source,
Goal and Location. As we saw, the path of motion is encoded by the verb

in that the verb spells out one or more of the "path heads" in the syntactic structure. Hence, the syncretism Source-Goal-Location in Yukatek Maya is a fake syncretism.

I mentioned in Section 6 that any syncretism that encompasses the Source and Goal heads should be excluded by pragmatic reasons. However, there are claims in the literature that the syncretism Source-Goal-Location exists. A closer look at the languages claimed to have it reveals that they work exactly like Yukatek Maya. That is, they have at their disposal a set of verbs which encode a particular type of path, and these path verbs combine with a locative expression. Under the proposal developed here, then, the path verbs in these languages extend into the spatial domain and lexicalize the heads, which in languages like English are spelled out by spatial prepositions.

11. Conclusion

In this paper, I investigated the way different paths are expressed in languages, focussing on their morphological composition. This investigation led to the conclusion that certain types of path markers are more complex than others such that the former morphologically contain the latter. I took this to indicate a more complex underlying syntactic structure.

On the basis of this finding, I proposed the existence of a Route head, a Source head and a Goal head, all of which are part of the portion of syntactic structure where paths are encoded. This fairly fine-grained structure of Route, Source and Goal paths and the fact that in many languages they are expressed by non-decomposable lexical items, strongly suggests a Nanosyntactic view on the matter. I adopted this approach and in the remainder of the paper, I explored the ways languages lexicalize Route, Source and Goal paths. In doing this, I discussed the two common syncretisms — Route-Source and Goal-Location. In addition, I analyzed a couple of fake syncretisms and showed why they are fake and how the system deals with them.

List of abbreviations

1	1st person	ERG	Ergative	PERF	Perfect
2	2nd person	GEN	Genitive	PL	Plural
3	3rd person	IMP	Imperative	POSS	Possessive
ABL	Ablative	INC	Inchoative	PRES	Present
ALL	Allative	INS	Instrumental	PROL	Prolative
CON	Connective morpheme	LOC	Locative	PRV	Preverb
DC	Declarative	MOT	Motative	SG	Singular
DET	Determiner	NOM	Nominative	SUP	Superessive
DIST	Distal	PAST	Past tense		

References

Abels, Klaus and Peter Muriungi. 2008. The focus marker in Kîîtharaka: Syntax and semantics. *Lingua* 118 5: 687–731.

Adelaar, Willem F. H. *with the collaboration of* Pieter C. Muysken. 2004. *The Languages of the Andes*. Cambridge Language Surveys. Cambridge University Press, Cambridge.

Andrews, Avery. 1985. The major functions of the noun phrase. In *Language Typology and Syntactic Description*, edited by Timothy Shopen, vol. 1, pp. 62–154. Cambridge University Press, Cambridge.

Arsenjević, Boban. 2006. *Inner Aspect and Telicity: The Decompositional Nature of Eventualities at the Syntax-Semantics Interface*. Ph.D. thesis, Leiden University.

Assadollahi, Ramin, Wilhelm Geuder, and Matthias Weisgerber. 2006. 'Convergent' vs. 'divergent' verbs and the asymmetry between source and goal. Paper presented at *Sinn und Bedeutung 11* in Barcelona, September 2006.

Blake, Barry J. 1977. *Case Marking in Australian Languages*. No. 23 in Linguistic Series. Australian Institute of Aboriginal Studies, Canberra.

Blake, Barry J. 1994. *Case*. Cambridge University Press, Cambridge, second edn.

Bohnemeyer, Jürgen. in prep. When going means becoming gone: Framing motion as state change in Yukatek. Available at http://www.acsu.buffalo.edu/~jb77/CoL_model_chapter_yuk.pdf.

Bohnemeyer, Jürgen and Gabriela Pérez Báez. 2008. Object to path in Mesoamerica: Semantic composition of locative and motion descriptions in Yucatec Maya and Juchitán Zapotec. In *Memoria del IX Encuentro Internacional De Lingüística En El Noroeste*, vol. 2, pp. 269–284. Editorial UniSon, Hermosillo, Sonora, Mexico.

Bohnemeyer, Jürgen and Christel Stolz. 2006. Spatial reference in Yukatek Maya: A survey. In *Grammars of Space*, edited by Stephen C. Levinson and David P. Wilkins, pp. 273–310. Cambridge University Press, Cambridge.

Borer, Hagit. 2005. *Structuring Sense: An Exo-Skeletal Trilogy*. Oxford University Press, New York.

Broschart, Jürgen and Carmen Dawuda. 1999. Beyond nouns and verbs: a typological study in lexical categorization. *Arbeiten des Sonderforschungsbereichs 282 "Theorie des Lexikons"* 113.

Buck, Rosemary A. 1997. Words that are their opposites: Noun to verb conversion in English. *Word* 48 1: 1–14.

Caha, Pavel. 2008. The case hierarchy as functional sequence. In *Scales*, edited by Marc Richards and Andrej L. Malchukov, no. 86 in Linguistische Arbeits Berichte, pp. 247–276. University of Leipzig, Leipzig.

Caha, Pavel. 2009. *The Nanosyntax of Case*. Ph.D. thesis, University of Tromsø.

Comrie, Bernard. 1999. Spatial cases in Daghestanian languages. *Sprachtypologie und Universalienforschung* 52 2: 108–117.

den Dikken, Marcel. to appear. On the functional structure of locative and directional PPs. In *The Cartography of Syntactic Structure, vol. 6*, edited by Guglielmo Cinque and Luigi Rizzi. Oxford University Press, New York.

Duff-Tripp, Martha. 1997. *Gramática del idioma Yanesha'*, vol. 47 of *Serie Lingüística Peruana*. Instituto Lingüístico de Verano, Lima.

Evans, Nicholas. 1995. *A Grammar of Kayardild*. Mouton de Gruyter, Berlin.

Fábregas, Antonio. 2007. The Exhaustive Lexicalization Principle. In *Tromsø Working Papers on Language and Linguistics: Nordlyd 34.2,* Special issue on Space, Motion, and Result, edited by Monika Bašić, Marina Pantcheva, Minjeong Son, and Peter Svenonius, pp. 165–199. University of Tromsø, Tromsø. CASTL, Tromsø. Available at http://www.ub.uit.no/baser/nordlyd/.

Fong, Vivianne. 1997. *The Order of Things. What Syntactic Locatives Denote*. Ph.D. thesis, Stanford University.

Friedman, Victor A. 2003. Lak folktales: Materials for a bilingual reader: Part two. In *Current Trends in Caucasian, East European and Inner Asian Linguistics: Papers in honor of Howard I. Aronson*, edited by Ann Dee Holinsky and Kevin Tuite, no. 246 in Current Issues in Linguistic Theory, pp. 75–83. John Benjamins.

Haspelmath, Martin. 1993. *A Grammar of Lezgian*. No. 9 in Mouton Grammar Library. Mouton de Gruyter, Berlin.

Hualde, José Ignacio and Jon Ortiz de Urbina (eds.) . 2003. *A Grammar of Basque*. Mouton de Gruyter, Berlin/New York.

Jackendoff, Ray. 1983. *Semantics and Cognition*. MIT Press, Cambridge, Ma.

Keresztes, László. 1998. Mansi. In *The Uralic languages*, edited by Daniel Abondolo, Routledge Language Family Descriptions, pp. 387–427. Routledge, London and New York.

Kiparsky, Paul. 1973. 'Elsewhere' in phonology. In *A Festschrift for Morris Halle*, edited by Paul Kiparsky and Steven Anderson, pp. 93–106. Holt, Rinehart and Winston, New York.

Koopman, Hilda. 2000. Prepositions, postpositions, circumpositions, and particles. In *The Syntax of Specifiers and Heads*, edited by Hilda Koopman, pp. 204–260. Routledge, London.

Kutscher, Silvia. 2001. *Nomen und nominalen Syntagma im Lasischen: Eine deskriptive Analyse des Dialekts von Ardeşen*. Lincom Europa, Munich.

Lakusta, Laura. 2005. *Source and Goal Asymmetry in Non-linguistic Motion Event Representations*. Ph.D. thesis, Johns Hopkins University, Maryland.

Lakusta, Laura and Barbara Landau. 2005. Starting at the end: The im-

portance of goals in spatial language. *Cognition* 96: 1–33.

LaPolla, Randy J. 2003. Qiang. In *The Sino-Tibetan Languages*, edited by Graham Thurgood and Randy J. LaPolla, pp. 573–587. Routledge, London and New-York.

Launey, Michel. 1979. *Introduction à la langue et à la littérature aztèques*, vol. 1: grammaire. L'Harmattan, Paris.

Magometov, Aleksandr Arnarovich. 1965. *Табасаранский язык: исследование и тексты [The Tabasaran Language: Investigation and Texts]*. Мецниереба [Mecniereba], Tbilisi.

Mahootian, Shahrzad. 1997. *Persian*. Routledge, London.

Matisoff, James A. 2003. Lahu. In *The Sino-Tibetan Languages*, edited by Graham Thurgood and Randy J. LaPolla, pp. 208–221. Routledge, London and New-York.

Narasimhan, Bhuvana. 2008. Motion events and the lexicon: A case study of Hindi. *Lingua* 113: 123–160.

Nedjalkov, Igor. 1997. *Evenki*. Routledge, London and New York.

Neeleman, Ad and Kriszta Szendrői. 2007. Radical pro-drop and the morphology of pronouns. *Linguistic Inquiry* 38 4: 671–714.

Nichols, Johanna. 1994. Ingush. In *North East Caucasian Languages, Part 2*, edited by Rieks Smeets, vol. 4 of *The Indigenous Languages of the Caucasus*. Caravan books, Delmar, New York.

Noonan, Michael. 2003. Nar-phu. In *The Sino-Tibetan Languages*, edited by Graham Thurgood and Randy J. LaPolla, pp. 336–352. Routledge, London and New-York.

Noonan, Michael. 2008. Patterns of development, patterns of syncretism of relational morphology in the Bodic languages. In *The Role of Semantics and Pragmatics in the Development of Case*, edited by Jóhanna Bardal and Shobhana Cheliah, pp. 261–281. John Benjamins, Amsterdam.

Pandharipande, Rajeshwari. 1997. *Marathi*. Routledge, London.

Pantcheva, Marina. to appear. The syntactic structure of Locations, Goals and Sources. To appear in *Linguistics*. Available for download at *http://ling.auf.net/lingBuzz/000763*.

Pensalfini, Rob. 2004. Towards a typology of configurationality. *Natural Language & Linguistic Theory* 22: 359–408.

Ramchand, Gillian. 2007. Selection, conflation and denominal verbs. Talk given at the Workshop on Argument Structure. Vittoria-Gasteiz, the Basque Country, May 2007.

Ramchand, Gillian. 2008. *Verb Meaning and the Lexicon: A First Phase Syntax*. Cambridge University Press.

Rice, Sally and Kaori Kabata. 2007. Crosslinguistic grammaticalization patterns of the ALLATIVE. *Linguistic Typology* 11: 451–514.

van Riemsdijk, Henk and Riny Huybregts. 2002. Location and locality. In *Progress in Grammar: Articles at the 20th Anniversary of the Comparison of Grammatical Models Group in Tilburg*, edited by Marc

van Oostendorp and Elena Anagnostopoulou, pp. 1–23. Meertens Instituut, Amsterdam.

Ross, Malcolm. 2002a. ʻAlaʻala. In *The Oceanic languages*, edited by John Lynch, Malcolm Ross, and Terry Crowley, Curzon Language Family Series, pp. 347–361. Curzon, Richmond, Surrey.

Ross, Malcolm. 2002b. Kaulong. In *The Oceanic languages*, edited by John Lynch, Malcolm Ross, and Terry Crowley, Curzon Language Family Series, pp. 387–409. Curzon, Richmond, Surrey.

Son, Minjeong. 2006. Directed motion and non-predicative path P in Korean. In *Tromsø Working Papers on Language and Linguistics: Nordlyd 33.1, special issue on Adpositions*, edited by Peter Svenonius, pp. 176–199. University of Tromsø, Tromsø.

Son, Minjeong and Peter Svenonius. 2008. Microparameters of cross-linguistic variation: Directed motion and resultatives. In *Proccedings of the 27th West Coast Conference on Formal Linguistics*, edited by Natasha Abner and Jason Bishop, pp. 388–396. Cascadilla, Somerville, Ma.

Starke, Michal. 2007. Nanosyntax class lectures. Fall 2007, CASTL, University of Tromsø.

Sulkala, Helena and Merja Karjalainen. 1992. *Finnish*. Routledge, London.

Svenonius, Peter. 2004. Slavic prefixes inside and outside VP. In *Nordlyd 32.2: Special issue on Slavic prefixes*, edited by Peter Svenonius, pp. 205–253. University of Tromsø, Tromsø. Available at www.ub.uit.no/munin/nordlyd/.

Svenonius, Peter. 2009. The composition of particles. Class lectures, Space Seminar, May 11, 2009. University of Tromsø.

Svenonius, Peter. to appear. Spatial P in English. In *The Cartography of Syntactic Structure, vol. 6*, edited by Guglielmo Cinque and Luigi Rizzi. Oxford University Press, Oxford. Available at http://ling.auf.net/lingBuzz/000001.

Talmy, Leonard. 2000. *Toward a Cognitive Semantics: Concept Structuring Systems*, vol. I. MIT Press, Cambridge, Ma.

Taraldsen, Knut Tarald. 2009. The nanosyntax of Nguni noun class prefixes and concords. Ms. University of Tromsø, available at http://ling.auf.net/lingBuzz/000876.

Ternes, Elmar. 1992. The Breton language. In *The Celtic Languages*, edited by Donald Macaulay, Cambridge Language Surveys, pp. 371–452. Cambridge University Press, Cambridge.

Tsumagari, Toshiro. 2003. Dagur. In *The Mongolic Languages*, edited by Juha Janhunen, Routledge Language Family Series, pp. 129–153. Routledge, London and New York.

Vellard, Jahen A. 1967. *Contribución al estudo de la lenga uru*. Universidad de Buenos Aires, Facultad de Filisofía y Letras, Buenos Aires.

Wälchli, Bernard and Fernando Zuñiga. 2006. Source-goal (in)difference and the typology of motion events in the clause. *Sprachtypologie und*

Universalienforschung 59 3: 284–303.

Zwarts, Joost. 2005. Prepositional aspect and the algebra of paths. *Linguistics and Philosophy* 28: 739–779.

Zwarts, Joost. 2008. Aspect of a typology of direction. In *Theoretical and Crosslinguistic Approaches to the Semantics of Aspects*, edited by Susan Rothstein, pp. 79–106. John Benjamins, Amsterdam.