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Sommaire

On constructing a working typology of the expression of *path*

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This paper presents the perspective taken by the Trajectoire project to discuss aspects of the cross-linguistic variation one can expect to find in the expression of PATH. It singles out the notion of PATH that has been central to the discussion of the expression of motion events, and redefines it as a spatial notion not necessarily linked to motion and of a particular linguistic complexity. The admitted goal of this first typological exercise has been primarily to explore the multidimensional nature of what a comprehensive description of the expression of PATH in any language could be, whether in a yet un(der)-described language or a well-known language revisited for that purpose. The exercise has been limited so far to the investigation of the expression of PATH in its spatial semantic dimension, and has been focused on the grammatical means used for it. Therefore, for the moment, it has little new to say on the interaction of PATH with aspectual and metaphorical expressions, or on the encoding of path in verb lexical semantics. The aim has been to encourage linguists working on the grammatical description of languages to cover the particular sub-domain of the expression of space corresponding to the notion of PATH as newly defined.

It would seem that much has already been said about PATH, starting with Talmy (1985), followed by a myriad of further explorations by Talmy himself (e.g., 1991, 2000) and numerous reactions he has inspired (Matsumoto 2003, Slobin 2004 inter alia), and keeps inspiring up to this day (Beavers et al 2010, Croft et al 2010, also inter alia). But it is worth noting that most of the discussion about PATH has taken place within the wider context of discussions of the various components of motion events, while we will propose here to shift the focus to the notion of PATH itself, in order to inspect its various conceptual and formal components. And our main focus has been so far to foster more comprehensive and detailed descriptions of specifically the morpho-syntactic systems involved in the expression of the complex notion of PATH.

The paper opens with a general discussion of the exercise of doing typology, starting with some thoughts on the approach to typological work the project has espoused, followed by the essentials of the general functional-typological framework that is being adopted for this study.

The second part addresses first the notion of PATH at its conceptual level and proposes a componential analysis of its elements. The issue of the cross-linguistic

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variation found in the formal expression of PATH is considered next, looking beyond verb semantics and into the varied grammatical means used. It includes a sketch of the various dimensions to be considered, from the level of morpho-syntactic systems to the level of the syntactic constructions these systems are a part of. It extends also an invitation to take a pan-chronic approach typical of the framework espoused, by evoking considerations of the dynamics of the systems that complete descriptions of the expression of PATH.

The third part presents a case study of the expression of PATH in a Mayan language, to demonstrate what is meant by the notion of a working typology, recalling the steps followed in the description and typological study of its elaborate system of directionals. Concluding remarks remind the reader of the progress made and the path ahead, with a final wink at the fact to this discussion of PATH in Jakaltek Popti' is in direct continuation of the original discussion of PATH in Atsugewi, in recognition of the contribution of oral tradition languages, many of them very endangered today, to the development of typological linguistics.

1. ABOUT DOING TYPOLOGY

These general considerations about doing typology have been presented on numerous occasions and discussed with a number of linguists over the last years, and are part of a general reflection on what the exercise of producing "typologies of X" consists of, aims at doing, why and how.[1] They stem from a felt need to contextualize this particular "typologizing" exercise on the very specific theme of the expression of PATH, and to reveal some of its raison d'être and some of its specificities.

One can find an interesting collective discussion of the relation between theory and typology, as well as the present state of typology, in the special 2007 10th anniversary issue of the journal of Linguistic Typology that assembles the major names of typology today. What follows are some notes on the respective rankings of description, theory and typology within linguistics over the last decades seen through the admittedly very personal experience of the present author. It has been a linguistic career of intertwined practice of all three approaches, over four decades and across three continents (the two academic worlds of France and North America and the linguistic field world of Latin America.)[2] This is therefore a personal testimony of major shifts in hierarchical arrangements and rankings of

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[1] This presentation is a synthesis of various presentations and writings, originally based on efforts at building a typology of classification systems, such as for the 2005 Paris conference on « La typologie en France aujourd'hui » and a 2008 update for the Société Linguistique de Paris and various presentations for the COST 21 project on systems of classification in Kent in 2008, and Paris in 2010. As it applies to a typology of PATH, it has been presented on several occasions during meetings of the Trajectoire project and was part of discussions in 2009 with Comrie and Koenig (AERES evaluation of DDL) and 2010 with Corbett at DDL.

[2] Much of this has been told recently in French in Grinevald 2010a and b, who published under the name of Craig until 1997.

academic disciplines, and in this case of subdisciplines of linguistics, over time and space.

The author's interest in combining productively the practices of description, theory and typology[3] has been steadily fed by an interest in doing fieldwork on yet under-described languages, in her case native languages of Central America of the Mayan and Chibchan families. The confrontation with the field reality of their being vulnerable to severely endangered led to an interest in questions of field methods and data reliability in the context of ethics in fieldwork. The descriptive challenges these languages presented included categories, constructions and grammatical workings like nothing she was taught in graduate school at MIT or Harvard in the seventies (if one thinks of phenomena like ergativity by verbal indexing, rigid VSO word order, as well as so-called directionals, relational preverbs and noun classifier systems).

This is mentioned to reveal that somewhere at the origin of this search for a typology of the expression of PATH was the need to account for the intricate and elaborate system of directional suffixes of Jakaltek Popti' (a Mayan language of Guatemala) that took a long time to master. And as usual, once a framework for analysis became available (functional-typological grammar) and the questions to ask were cleared up (such as issues of grammaticalization, or the concept of (a-)symmetry in the expression of source and goal), the systematic description of the system followed, as shown in section 3 below.

1.1. About Theory vs. Description vs. Typology in time and space perspective

Writing a description of the syntax of a Mayan language for a thesis in linguistics in the early 70's, while being a graduate student in syntax at MIT and Harvard, was definitely a challenge. The tension was high between the aim of producing a description that attended to the specificities of the morphosyntax of the language and the questions it raised, and the need to answer some of the issues raised by the brand of formal generative syntax practiced at the time there, principally still conceived then on the basis of the structure of English[4]. The dissertation (Craig 1977) only mentioned directionals in passing, the interest in that particular system taking more than a decade to develop, and several decades to flourish.

1.1.1. Typology in time and space : The US East Coast born tension between theory and description that marked the 70's-80's pinned the growing field of Chomskyan generative syntax against established anthropological linguistics. It

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[3] This order is meant to mirror the actual order in which these three practices were encountered by the author, first reading descriptions of Mayan languages, while studying syntactic theory, then trying to make the two interact, and later only discovering typology declared as such. This in response to the suggestion by Marianne Mithun-who is here profusely thanked for a native speaker careful check of the manuscript- to put them in the description-typology-theory unmarked order of present day discussions.
[4] Hence the hierarchical order chosen in the subtitle: theory first and description there and then clearly underdog in those quarters.

opposed field linguists traditionally located in anthropology departments to Chomskyan linguists in linguistics departments. A value-laden hierarchical vision establishing the superiority of 'theory' (Chomskyan formal model, based on native intuition) over 'description' produced through field linguistics dominated the discipline of linguistics. Craig (1977) was a tightrope exercise in trying to combine both.

While the East Coast was taken over by Chomskyan formal linguistics, the West Coast opened up as a territory for non-generative linguistics. From the pioneer typology project led by Greenberg at Stanford starting in the sixties, to the creation of functionally-oriented departments like the one at the University of Oregon later in the seventies (where the author was a faculty member from 1974 until 1996), and the parallel emergence of cognitive linguistics in California in the eighties, typology became linked up and down the West Coast to language description and theory making. In Europe the creation of typologically-oriented programs included the Köln UNITYP[5] project in the seventies led by Hansjakob Seiler, followed by programs at the two Max Planck Institutes, that all opened new horizons. The MPI at Nijmegen under the direction of Levinson coordinated studies of space, originally on languages of the Mayan family, while the MPI of Leipzig later developed, under the direction of Comrie, what became the World Atlas of Linguistic Structure project.[6]

The typological boom that took place around the turn of the XXIth century is to be linked to various developments at the same time: to a very sharp rise in the number of new descriptions of yet under- to un-described languages, to the development of new data collecting methodologies (particularly different types of visual stimuli developed at MPI-Nijmegen) and to the increased availability of new technologies facilitating treatment of large corpora, and general data processing, including various modes of automatic glossing. The 2007 Tenth Anniversary edition of the European based journal of "Linguistic Typology" is a testimony to this development of typology in recent decades.

In France, the CERLITYP program under the direction of Gilbert Lazard mobilized linguists interested in typology and the creation of the Fédération de Typologie later opened up new spaces for this approach to linguistics, the present Trajectoire project being one of its programs since 2006 (see the Introduction to this set of articles).[7] As already mentioned, The impetus came in part from the

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[5] The program's title is "Cognitive-Conceptual Structure and Linguistic Encoding: Language Universals and Typology".
[6] The author participated as an outsider in programs of both MPI. See Grinevald (2000) for a typology of nominal classification systems and Grinevald (2006) for a typology of Basic Locative Constructions. Her grammars of Jakaltek Popti' (Craig 1977, then Jacaltec) and of Rama (Grinevald 1987) are also part of the database of WALS.
[7] The present Trajectoire project was created in the wake of a Groupe de Recherche (GDR) program on general issues of the linguistics of Space (S. Robert, director of both GDR and Fédération de Typologie). It is anchored in the CNRS laboratory "Dynamique du Langage" of the University of Lyon2, through its research group of Description-Typologie-Variation.

new sub-discipline of "endangered language documentation and archiving", spearheaded by the DoBeS[8] program of the German Volkswagen Foundation.

1.1.2. On the relation between description, typology and theory today : Today it is broadly acknowledged that the hierarchical views of decades before are being replaced by a sense of the interdependency of description/ typology/theory. As stated by Evans & Dench (2006),

> "in our view there is a triadic and **mutually complementary relationship** between descriptive linguistics (of which the writing of grammars is but one part), linguistic typology, and formal linguistics" (p. 2).

What they mean by "**descriptive linguistics**" is also far from the view of it held by Chomskyan linguists at that time:

> "The job of descriptive linguistics is to describe individual languages as perceptively and rigorously as possible, with maximal accountability to a naturalistic corpus of data ideally collected within a broad program of language documentation (Himmelmann 1998) to ensure that the full spectrum of language structures are represented."(p. 3).

They further define **linguistic typology** as

> "the subfield of linguistics concerned with developing a body of analytically compatible concepts or general conceptual framework valid across all the world's languages"

and take note of the fact that **"formal linguistics"**

> "seeks a more rigorous formulation of linguistic patterning than is generally possible in a normal descriptive grammar."

1.1.3. About different ways of doing typology : It would be interesting to do a **typology of typological approaches** and schools today. From a North American and Anglophone point of view, one has seen, over a few decades, the rise of collective projects (such as the typological project led by Greenberg at Stanford) before the time of new technologies[9], the development of a « **Functional-Typological approach** » to grammar among the linguists said of the West Coast functionalist leanings [10], the institutional organization of typologically oriented research programs at two MPI institutes with both field-based and library-based collection of data and development of data collection tools[11]. On one hand, one

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[8] Dokumentation Bedrohter Sprachen (DoBeS)

[9] To trace filiations it is worth noting that Givon participated in this project and Croft was a student of Greenberg.

[10] This network met bi-annually for a period and initiated the Benjamins TSL series, some of its main coordinators being for instance Givon, Bybee, Hopper, Thompson, Haiman, Heine.

[11] Such as the space projects of the MPI at Nijmegen, with the "Bowped" questionnaire for Basic Locative Construction, and the "Put and Take" stimulus for caused motion events.

can find "desk linguistics" type of typological research programs relying on published or available material, concerned with questions of language samplings and statistical approaches, and on the other hand, programs oriented to the collection of new data through elicitation tools specifically created for the projects. The multiplication of textbooks in "typology" certainly signals the mainstreaming of the discipline within linguistics (such as Comrie 1989, Croft 1990, 2003, Whaley 1996).

The approach now known under the label of « **Canonical Typology** » (Corbett 2004) offers another way of doing typology. Applied so far to morphosyntactic phenomena of restricted scope, such as gender and number, it offers an interesting exploration of possible constraints on the variety of linguistic features of the world's languages. It is conceived in a simpler two dimensional framework than the one used in this project, although the concept of projecting all possibilities and seeing which ones are found and which ones remain unidentified underlies some of its work (see for instance the inventory of constructions in the article by Fortis and Vittrant).

It would seem that doing typology takes many shapes today, linguists tending to espouse approaches and issues according to the kinds of relations they have to language data, to the types of languages they work with, and certainly according to both their linguistic training and personal preferences. If the Trajectoire project were to be catalogued, it would fall into a project carried out by "language linguists", working with data they are gathering themselves, data sometimes collected in difficult field situations on languages never described before. The emphasis has been therefore on the collection and analysis of new data, and on revisiting known languages with new questions, and on the use of a combination of methodologies. It has emphasized fieldwork and new data collections, as well as working on established databases, rather than relying on pre-existing publications. The analysis has followed multidimensional descriptive strategies, in a feeding type of relation between description and typology, producing a model of "working typology".

1.2. The Trajectoire Project approach to typology

The collective work of the members of the Trajectoire Project has been proceeding in steps: It has been collecting language analyses following some descriptive strategies cast in a particular framework, in the spirit of constructing a working typology.

1.2.1. The chosen "functional-typological grammar" framework : The functional-typological framework of linguistic analysis espoused here was outlined and argued for originally in Givon (1971, 1979), and further developed in Givón (2001).[12] This is identifiable in several ways in this paper:

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[12] Grinevald du DDL = ex-Craig, from the University of Oregon (from 1974 to 1996), ex-colleague of Givón, deLancey, Tomlin, D.L. Payne, T. Payne.

    a.   through the exploration of the typological variety found in the expression of a **particular functional domain**, here that of the expression of PATH, a sub-domain of the omnipresent domain of spatial expression,

    b.   by the consideration of **strategies** of linguistic expression, taken in the context of **constructions,** and placed in their **discourse context**,

    c.   and by opting for an approach to categorization that appeals to the concepts of **prototypes and continua** rather than discrete categories,

    d.   by attending to the **dynamic aspects of grammar building**, directly through **grammaticalization**, and indirectly through lexicalization.

1.2.2. The notion of "descriptive strategies" to foster new descriptions : It might be worth reiterating and underlining, for "desk linguists" with no experience of fieldwork[13] or linguists of major languages with extensive available linguistic material, that the data necessary for descriptions of the type sought here are not like flowers to be picked in a field, but the result of laborious work at constructing a description. Hence the felt need to develop typologically oriented 'descriptive strategies', in order to encourage the production of comprehensive descriptions of specific themes (here PATH) for a large variety of languages. These descriptive strategies need to be developed in the form of essays conceived in a typological approach, of the kind to be outlined here for the notion of PATH.[14]

The process of constructing a "descriptive strategy" to feed into a "working typology" of the expression of PATH, could be conceived of as following the steps outlined below.

Step 1: to identify a "domain"[15] and work at its definition (delimitation)

Within the vast domain of the linguistic expression of SPACE, the focus is here on PATH itself, to be dissociated from other information packaged in the expression of motion events, such as manner of movement and characteristics of the spatial entities involved, for instance. To attend specifically to the functional domain of **PATH**, the first step will be to delimit that domain and provide a definition of it.

Step 2: to identity/justify the existence of a linguistic SYSTEM (subsystems, construction types) to express the chosen functional domain

Beyond verbal semantics, morpho-syntactic (sub)systems and constructions are to be counted among the "resources" specific to a language in general. An illustration of this step can be found in work done on establishing the existence of

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[13] A more usual term is "armchair linguists", with a double connotation of home comfort and of data coming only from introspection.

[14] Essays with illustrative examples, rather than plain questionnaires for direct elicitation. This material is primarily aimed at fieldworkers, particularly those far from academic centers but closer to speakers that most of us academics will ever be (as already argued in Grinevald 2006).

[15] Clearly an "onomasiologic" approach, as Professeur Pottier would certainly want me to specify.

different types of "nominal classification systems". A first step was to distinguish lexical systems (class nouns, compounding) from various types of grammatical systems, (such as gender, noun class systems etc, besides classifier systems). Then came the identification of different "types of classifiers" (numeral, genitival etc), as argued in Grinevald (1999, 2000).

In the case of the expression of PATH, this means that, besides the lexical verbal inventories, one checks for the existence of morphosyntactic systems, such as adpositional and case systems, as well as path satellite systems (known under labels such as "directionals" or "preverbs" etc). The exercise includes considering also other possible strategies such as event sequencing, serial verb constructions and complex verb systems (see the article of Imbert, Grinevald & Sőrés).

Step 3: to analyze the (sub)system(s) identified, i.e. to produce the "description" of their use for the expression of X function

Such an analysis attends to the syntagmatic and paradigmatic dimensions of those (sub-)systems. It requires first the identification of each (sub)system and the study of its **(morpho-)syntactic characteristics**, and then the production of an **inventory of the elements** of the (sub)system. Once the paradigm is constituted, it is necessary to study the categorizing principles implied by the **semantics** of the subsystem in general (what is it concerned with primarily?), as well as the semantics of its individual elements.[16]

Step 4: to consider the dynamics of the (sub-)system as per a functional-typological framework

This implies studying the lexical origins and steps of evolution of the systems (for instance the PATH satellites) through grammaticalization processes (looking for evidence of emergence, stabilization and decay of the system), and possible further fossilization (idiomaticization/lexicalization). It means also studying the interaction of (sub)systems with each other, addressing the issue of the "distribution" of information within a construction ; for instance between lexical and grammatical systems, such as verbs and adpositions, but also between grammatical systems such as adpositions, cases and preverbs when they co-exist in a language. Furthermore it calls for considering the dynamics of this distribution of information between (sub-)systems and constructions in terms of their discursive/genre contexts[17].

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[16] For instance, the application of this step to the study of the Jakaltek Popti' noun classifier system (Craig 1986, 1987) first established that, from a morphosyntactic point of view, it was a new type of classifier system (not numeral nor possessive) and that from a paradigmatic point of view it counted 24 elements, with a general semantic profile relying on the characterization of the substance of physical entities (animal, plant, rock, dirt matter…). Thus the system was doubly opposed to other classifier systems, both by morphosyntax and by semantics, the numeral classifier systems appealing primarily to notions of dimensions of spatial entities (1D vs. 2D vs. 3D etc…) and the possessive (genitive) classifiers more to functionality of the entities (as argued in Grinevald 1993, 1999, 2000).

[17] For instance, in the classifier domain and for the Jakaltek system, one notes the clear nominal origin of the great majority of classifiers (ex plant cl < tree, animal cl <animal).

Step 5: to trace the use of elements of the overall system in other functional domains...

Beyond attending to the distribution of PATH information, and the possible overlapping mapping of some notions of PATH (such as between satellite and adpositional phrase, or verb semantics and satellite), one may need to re-situate the (sub)systems considered within their larger usage in the language. One could call this approach a "periscope approach", where one investigates if and how the subsystems of a particular domain "leak" into other domains.[18] In the case of elements of PATH expression, it would mean, for instance, considering the extension of their use for metaphors or their function in the TAM system, in particular the aspectual system (if a localistic stance is taken).

Once again, these steps are primarily conceived as a schematic guide to the conduct of fieldwork, outlining the steps to progress through a systematic research of all the dimensions of a phenomenon, from semantics to (morpho-)syntax to discourse, from categories to constructions, from a strict focus on specific items for a specific function to an exploration of the place of those items in a general view of the workings of the language, and, of particular interest here, the making of its grammar.

All these steps will be illustrated later in section 3 with a case study of the development over three decades of the description of the Jakaltek Popti' (Maya) system of directionals.

1.2.3. The notion of a « working typology »[19] : The notion of a "working typology" is to be understood in the sense of a typology helping the description of X, a particular theme in Y language, and in return using the description as an input to rework the typology, as needed, in the sense of the "feeding" relationship described by Evans and Dench (2006). In this perspective, the fundamental posture of the project is that we need new and highly reliable data, to be collected for the purpose at hand, i.e. the expression of PATH, in a way that can address the array of questions mentioned in the 5 steps of the descriptive strategy outlined above.

The collection of appropriate data and their specific analysis will certainly produce the need for new definitions that will become new starting points. Areas

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The dynamics observed also included the cases of class extensions (of rock to include glass or metal objects, for instance) of the period of colonization, but the rigidity of the system later (refusing to classify coca cola or plastic object).

[18] To pursue the exemplification with the case of the Jakaltek noun classifiers, this meant studying how they constituted a system of anaphoric pronouns (exceptional in the Mayan family) that exhibited very particular syntactic behaviour characteristics (such as complex rules of anaphoric deletion (explained in Craig 1977). They were therefore very informative as a (typologically rare) referent tracking system.

[19] This approach has been applied in parallel over time for the construction of "working typologies" in three domains: (a) the morphosyntactic phenomena of **classification** systems (Craig 1987, Grinevald 2000, 2004, etc), (b) the expression of SPACE, such as the Basic Locative Construction (Grinevald 2006), (c) the sociolinguistic domain of the variety of speakers of Endangered languages (Bert and Grinevald 2010, Grinevald and Bert 2011).

in the study of PATH where such a moving boundary has been felt are, for instance, the definition of the domain of PATH itself, from having it originally linked to motion events to taking it now as independent of motion itself, or the definition of SATELLITES, challenged by the cases of isolating languages and the issue of the boundaries of serialization (as Burmese demands it). The basic posture is that one does not "falsify" a typology of X, one reworks it and expands it as new data, better and more extensively described, gets incorporated into it.

As an example of this adaptive strategy to building typology, consider the discussion in Grinevald (2004) of a supposedly counter proposal by Wilkins (2000) who was reacting to original typological proposals by Craig 1992 (found also in Grinevald 2000). The issue was that the original definition of noun classifiers had been made on the basis of the Mayan Jakaltek system (very grammaticalized), a definition unfit for the reality of the Arrernte Australian system (little grammaticalized). So the typology originally proposed in 1987 had to be adjusted to include the grammaticalization cline, complexifying it therefore by that new factor. But then, this newly incorporated grammaticalization cline was exactly what made later for an interesting comparison of noun class systems in African vs. Amazonian languages (Grinevald and Seifart 2004), when the challenge was to understand the workings of the little grammaticalized Miraña classification system (Seifart 2005).

2. ABOUT A TYPOLOGICAL APPROACH TO THE EXPRESSION OF "PATH"[20]

It would appear that the term PATH was always taken in a narrow sense, and treated, more or less directly, as part of a constellation of elements said to be constitutive of the expression of motion events. The proposition to be made here will be to regroup several of those elements and suggest they be part of a wider scope concept of PATH.

2.1. First approximation of path as element of the expression of space

The notion of PATH appeared in the very initial discussions of the expression of motion events, as an essential element. It was the key to the first proposal of a typology of languages based on its mode of expression, as either lexical (by conflation in verb of motion) or grammatical (in the form of satellite).

2.1.1. Some basics of the expression of space: framework and references : Some preliminaries to the study of PATH would be to consider some essential terms that have been extensively used in discussion of the expression of motion event. They include, at a conceptual level:

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[20] Parts of this section are excerpts from Grinevald (2011). Previous versions of this discussion have been presented on several occasions in working sessions of the Trajectoire project, as well as outside, such as at the University of Oregon in 2010 and the University of California at Santa Barbara in 2011. The author is very grateful to Dan Slobin for provocative and productive discussions of it in Berkeley in October 2011.

a.   the three elements of **figure, ground and spatial relation** (as per Talmy 1985, Vandeloise 1986)
b.   the two major types of situations where PATH may be expressed:
primarily **Motion events,** which can be spontaneous or caused motion, including non-motion static location, to which must be added the cases of **'fictive motion'** (as in *the river crosses town*), or **'path of vision'**(*he looked through the window into the hut*). But see an alternative proposal in section *2.2.* below,

to be complemented by

c.   The initial typology of languages (Talmy 1985, 2000) as either **verb-framed** (with lexical conflation of PATH in verb, as in the French '*monter/descendre*', or **satellite-framed** (with a grammatical expression of PATH, as in the English '*go up/go down*'). But see the article of Fortis and Vittrant for a more diversified typology of constructions,

to which one should add the notions of

d.   the encoding being **overt** vs. covert,
e.   and the spatial information being **distributed** throughout the construction, across the different elements carrying spatial information (Talmy 1985, 2000) and Sinha & Kuteva (1995).

2.1.2. PATH considered as a basic element of motion events : PATH is commonly mentioned as a core element of the expression of motion events, in discussions that involve other notions such as manner, or cause/result. Three examples of how PATH has been treated by researchers working on the linguistics of motion events will be quickly mentioned next. Two will be instances of listing of elements, in which path is presented on an equal footing with other elements as a concept constitutive of the motion event. The third one is interesting for its skirting around the notion of PATH, admitting in between lines its complexity, but without tackling that complexity directly.

• **Slobin[21], essentially from Talmy.**
In this listing, PATH is among seven elements identified for the expression of motion events. It is treated (in 2), as a concept limited to the 'direction' of movement.

1. Figure	individual or group type (human, animal,bird, etc.), posture (change of posture at beginning or end of path)
2. Path	direction of movement (forward, up, north, etc.)
3. Deixis	(direction with regard to viewpoint of narrator)
4. Contour	(curved, zigzag, etc.)
5. Extent	spatial extent of motion temporal/aspectual duration, limits of motion (initiation, conclusion) relation of motion event to another point in space (far, high, etc.)
6. Manner	motor pattern required to execute movement, force dynamics, means of conveyance (by animal, car, airplane, etc.) rate

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[21] Courtesy of Dan Slobin, pc handout dating from 2005.

7. Ground   source (initial location ±boundary) goal (final location
±boundary) milestone (location passed along path), linear
substrate (path, bridge, etc.) medium, terrain (field, river, etc.)
non-solid environment (air, fog, storm, darkness, etc.)

As will be proposed below, this restrictive PATH concept can be considered as
pertaining to a larger concept of PATH to which several other elements of the list
will be said to belong, such as deixis (3), contour (4) and extent (5). Meanwhile
figure (1) and ground (7) stand in a relation to PATH that is   differently
construed, in a relation of association, as proposed in *2.2.5.* below.

- **Levinson (2008)' list**[22] includes the following items, among which PATH
  does not appear per se, but one finds trajectory (6):

  1. Figure; 2.Source; 3.Goal; 4.Via; 5. Vector; 6. Trajectory; 7. Vehicle
  8. Instrument; 9. Medium; 10. Landscape; 11. Rate; 12. Kinematics.
  13. Translocation; 14. Aspect; 15. Deixis; 16. Affect.

At first sight one notices that the list is longer, and that the categorization of
the elements is somewhat different, with several items directly associated to the
spatial aspects of motion events such as source, goal and via (2, 3. 4) on one
hand, and vector (5) just before trajectory (6), but much before deixis (15), while
a number of the items seem to mention elements of a less spatial nature. The
point is not to review all the items but to notice that they seem to be listed in no
particularly reasoned order. Meanwhile, one senses that a clustering of some of
the items listed could be done around a wider notion of PATH, keeping aside
clearly non spatial concepts.

- **Beaver et al (2010)** do not offer any list, but work with Talmy's notion of
  core schema, which posits the centrality of a notion of PATH. They propose a
  "reconceptualization" of the question of the encoding of motion events, where
  the notion of PATH peaks through their specification of "directed" motion
  events (p. 332). A generic notion of PATH appears in their mention of a very
  broad semantic category "that includes PATH, result, aspect and other notions
  that may shape the temporal structure of the event" (p. 332). PATH seems again
  to be hinted at in the course of their discussion of serial verbs and E-framing,
  during which they acknowledge the existence of "subclasses of deictic path
  verbs (come and go)" and talk of the "distribution of path component of a
  motion event across several elements" (p. 352). Their mention of possibilities of
  "finer grained encoding of PATH" (p. 353) indicates their awareness of the
  complexity of the concept of PATH, but they do not offer any more information
  of what they might consider specifically as components of that concept.

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[22] The actual listing is literally taken out of the handout but essentially the same
information was already in Levinson & Wilkins (2006). The numbering was added for the
sake of presentation.

    This is just what the next section will attempt to do: to decompose the complex notion of PATH.

2.2. Decomposing the complex notion of PATH

    The analysis of the components of the notion of PATH to be presented below tries to capture the variety of language resources observed in the languages studied by the members of the project. It does not yet pretend to be exhaustive, but it aims to establish a way of thinking about PATH as a complex notion, and to identify some of its most common elements. This has the form of a proposal to be elaborated upon, which, once again, focuses on the grammatical expression of PATH, emphasizing what the grammars of certain languages systematically capture of it in their morpho-syntax or constructions.

    2.2.1. Definition of the notion of PATH : The Trajectoire project being oriented towards the study of the overt expression of PATH, the definition of the notion of PATH has admittedly a somewhat circular relation to this fact. This, to the extent that it is meant to cover the variety of elements that have been observed in languages to express notions intuitively felt to express PATH, particularly through morphosyntactic means.[23]
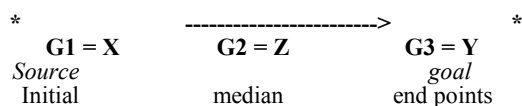   The definition of PATH taken here combines the following notions: those of a vector, consisting of a line in space that is continuous, delimited by two points and oriented between those points. Notably absent from this approach to the definition of PATH are the notions of a path followed by a figure moving, i.e. of PATH being linked to a motion event, and absent also the related notion of PATH being therefore tied to both space and time. PATH is here construed as a mental calculation by a speaker of a particular spatial relation between several spatial entities. [24]

    2.2.2. Core elements of the notion of PATH / The continuous line of PATH is considered straight by default, but it may be specified in some languages as having a certain contour (straight /curved/crooked), although so far all the examples to that effect are of lexical nature and not expressed through grammatical means.
    This continuous line is conceived in relation to several grounds, which delimit a vector at both ends with end points (*source X, goal Y*) and allow for points in between (*median Z*). A process of windowing of attention (Talmy 1996) will result in the expression of any one or several of those points of the line (G = ground):

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[23] This is an a priori position based on the limitations of fieldwork on oral tradition languages with no possibility of direct access to native speakers intuition, hence limited reliability of lexical semantic nuances. It is considered that the challenge of accounting for the morphosyntax of those languages is already enough fuel for a discussion of the notion of PATH as it is overtly expressed grammatically in a variety of such languages.
[24] Following in that the definition worked out by Papahagi (2005, chapter 2).

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    *            ----------------------->           *
  G1 = X            G2 = Z              G3 = Y
  Source                                 goal
  Initial           median          end points
```

This line is by definition oriented, this spatial orientation being possibly overtly specified. Different modes of orientation can be identified in the linguistic expression of PATH, the most usual, for European languages, being the absolute orientation of gravity contrasted with a horizontal orientation. In some languages the orientation can be an angled one (ex: *up/down or at angle vs. horizontal =* ↑↓ / ↗ / →). Other systems exist, orienting PATH according to other frames of reference: the absolute frame of cardinal points for instance (ex: *north/south)* or the intrinsic frame referring to characteristics of the landscape (ex: *'up hill'*), or yet the more complex and rarer relative frame or reference (ex: *left/right).*[25]

2.2.3. PATH "calculated" from deictic anchoring : Besides the delimitation of the lines by points that determines the orientation of the line, the core elements of PATH include a calculation of a deictic anchoring from which the PATH is conceived. The evidence of such deictic calculation can be found in the phenomenon of PATH satellites that have often been identified and inventoried, but probably also often misinterpreted.

Deixis is often said to be linked to the motion of a figure, or calculated with respect to a ground, or a protagonist, or even the speaker of a sentence. The position taken here is that the deictic element of PATH is not linked to motion in space, although it may appear to be so in the context of a motion event. The directionals of Mayan languages were long interpreted that way, with discussions of which argument (agent or patient) was moving etc. However, it is agreed today that these directionals express an abstract notion of PATH, independent of the actual motion of a figure, agent or patient (Zavala 1993, Craig 1993, Grinevald 2004, 2011). They can be analyzed as abstract PATH satellites expressing the kind of mental spatial calculation mentioned above. The concept of deictic anchoring could be said to resemble the choice by the speaker of a camera viewpoint on a scene. This approach accounts well for the use of directionals in a language like Jakaltek Popti', as will be shown in section 3 below. The same analysis can be proposed for the use of PATH satellites in non-motion events in other languages. This would mean, for instance, not needing to account for the presence of spatial verb particles with verbs of perception in English (as in *to look up away)* and reconsidering the usefulness of the label of "fictive ".[26]

2.2.4. PATH and the conceptualization of the ground: boundary crossing : Another element of the calculation of PATH resides in different ways of

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[25] See the work of the Space project of the MPI of Nijmegen, in particular Levinson and Wilkins 2006.
[26] It applies equally to the presence of verbal particles in Basic Locative Constructions (*it is over there down under the bed)* or fictive motion (*the road zigzags through town, she looks out to the other side of the river, her voice comes out through the open window).*

conceptualizing the ground, as being more or less bounded. Source, median and goal grounds can be conceived simply as points in space, i.e. as non-dimensional spatial entities;[27] they are then considered to be non-bounded. However, the same grounds can be alternatively conceived as being two or three dimensional spatial entities with boundaries, in which case they are said to be bounded. In this case, one talks of boundary crossing, in or out of the ground:

	G1 source	**G2 median**	**G3 goal**
– bounded	•	—•—	•
+ bounded	] "ex]it"		["en[ter"
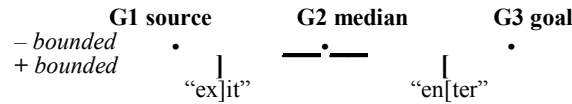
2.2.5. Further elements of the conceptual complexity of PATH : This inventory of the elements of the complex of PATH can be expanded along language specific types of conflations and associations. Conflation refers to a well known semantic process (as in French *monter* conflating motion+up direction) that was used by Talmy to establish a dichotomous typology (of languages) based on alternate conflation of motion with either PATH or manner. The term "association" is proposed here to refer to a phenomenon of syntagmatic nature, i.e. to the way in which PATH is sometimes systematically associated in some languages with additional information. Notions associated with PATH include the much discussed manner of motion (in cases of PATH of motion events), but also posture or configuration of a figure or ground.[28]

If the notion of PATH is taken as a super category, then it follows from that that the different components that belong to that super category are likely to appear in constructions in some specific order. The question is then what combinations of grammatical PATH elements are possible with what kinds of verbs, and with what other grammatical PATH elements, and in the end, what kind of stacking of PATH elements are allowed in what order, following what other constraints (the Jakaltek case study in section 3 below will illustrate this notion).

2.2.6. Conclusion: PATH as a super category : The proposal is therefore the notion of a super category of PATH. This super category is a complex concept, made of the clustering of distinct spatial notions that have been identified in the literature but have not been necessarily closely associated or regrouped in any special way. This super category includes the notion of a line, with possible marked contour, conceived following some direction, calculated between the spatial entities of figure and ground placed at different points of the line, with the ground possibly being considered as bounded, and the whole PATH schema being calculated spatially with respect to a deictic anchoring point. In addition, this super category of PATH is known to be associated with a number of other

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[27] The terminology of "spatial entities" is taken from Aurnague, see in particular Aurnague et al 2007.

[28] As in the case of posture verbs necessarily used with motion events in Eje Ejja (Vuillermet 2009).

concepts, not only manner of motion, if motion there is, but also information on the configuration of the ground or the posture of the figure.

2.3. Diversity and complexity in the expression of PATH

If one is to account for the diversity and complexity of the expression of PATH, a multidimensional approach to the description of the phenomenon is called for. What is needed first is in-depth language specific studies, before serious efforts at translinguistic generalisations. The first question is that of the forms being used to convey the different elements of the PATH, then that of the mutual interactions of these forms within constructions, all the while keeping an eye on the dynamics of those individual forms and of the constructions to which they belong.

2.3.1. Lexical and grammatical forms : The main lexical forms carrying PATH information that have been studied are verbs[29], said to express spontaneous or caused motion, with which any of the elements of the complex notion of PATH listed above can be 'conflated'. Conflation with PATH was the basis for the proposed dichotomy of verb framed vs. satellite framed languages originally proposed by Talmy.

It is worth noting here that the issue of identifying whether a form carrying PATH information is lexical or grammatical is more complex than would appear at first sight. There is at the start the question of a prior definition of what is considered lexical vs. grammatical, some taking for instance adpositions as grammatical, from the perspective of their forming a closed set of elements in specific configurations, and others paying more attention to their semantic content and treating them more as lexical.

Basically the issue is one of the existence of a lexico-grammatical continuum and of gradient categories. Although this issue is not related to the issue of the expression of PATH itself, it emerges in discussions of PATH adpositionals and PATH satellites (see the article by Papahagi and the article by Imbert, Grinevald, Sőrés, respectively). And the discussion of continuum extends further, beyond the scope of monoclausal constructions into the ways the expression of PATH crosses over into multiclausal constructions (see the article by Fortis and Vittrant).

2.3.2. Language-specific resources, i.e. inventory of (lexical and) grammatical categories available to encode PATH : It is worth making a note of the fact that the grammatical categories to be listed below are not uniquely dedicated to the expression of space, but rather that part of their inventories is systematically used to express the notions of PATH under consideration here, as underlined also amply in Beavers et al. (2010).

- the ***adnominal system,*** a complex category of itself, of a more functional than categorical nature (as argued for satellites also, see below). It is composed

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[29] And less the lexical category of nouns, as discussed in the article of Fortis and Vittrant.

mainly of ***adpositional*** and CASE systems, the boundary between the two types of systems being sometimes difficult to establish. Care must also be taken to include in descriptions all the adpositional material, including complex and compounded adpositions often left out of the discussions. Within the cover term of adpositionals one should, for instance, include the phenomenon of RELATIONAL NOUNS[30] (such as "*at the foot of X*", "*in front of X*") more common in many Native American languages than standard invariable adpositions of European languages, as well as the challenge of the so-called adpositional verbs of Chinese.

- sets of ***verb 'satellites'***, affixed or free morphemes, with their more or less traditional terminology for certain language families. See for instance the 'verb(al) particles' of English (derived from either prepositions or adverbs, studied under the label of phrasal verbs), the directionals (free particles or affixes derived from motion verbs) of Mayan languages, or the 'preverbs' of German, Polish or Hungarian. See the article by Imbert, Grinevald, Sőrés, for a discussion of origins, variant forms and functional nature of this satellite category.

- *the types of **constructions** to which those categories pertain,* the inventory being much more diversified than the simple verb- vs. satellite frame dichotomy, even when an equipollent frame is added (see the article by Fortis and Vittrant).

2.3.3. Language specific variations regarding a number of variables : The fine description of the system of expression of PATH necessitates paying attention to the following notions:

- the ***density of the encoding***[31] of elements expressing PATH within the inventories of certain systems, like adpositional or motion verbs systems. For instance, how many points between origin and end points of a PATH are identified in a language. Consider, for instance, the succession of English prepositions that can express the goal or end point of a PATH: "*toward Y... to Y... almost to Y... all the way to Y'... into Y*". Another example would be the different inventories of motion verbs, with, for instance the possibility of a multiplication of arriving verbs due to conflation of deictic PATH elements, as in "*arrive here, arrive there, arrive back here, arrive back there*".

- a rather common ***a-symmetry of encoding of source and goal***, in those cases when the point of origin is not being treated the same way as the end point, whether by different inventories of adpositions, or different types of constructions (See article by Kopecka and Ishibashi,).[32]

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[30] Known in the French literature on space as Noms de Localisation Interne (or NLI). See Aurnague (1996), and Aurnague, Hickmann & Vieu (2007).
[31] On semantic granularity of adpositions, see the article by Papahagi, as well as Kopecka (to appear).
[32] A fine description must take into account the nature of the a-symmetries between source vs. goal ground: they may be first a difference between overt or covert expression,

- **the markedness of boundary crossing**, in that boundary crossing would appear to be more salient than time linearity. This can be illustrated by the specific order of prepositions and particles in English, where the marker of boundary crossing takes linear priority over that of the marker of either extreme point, whether origin or end of the PATH, in a mixed spatio-temporal line, as in "*to get **out off***" vs. "*to go **into (* to in)***".

- **the conflation** (at a lexical level) **or the association** (at a (morpho)syntactic level) **of information** provided about Figure and Ground in the overall expression of PATH. For instance, adpositions may specify, by semantic conflation, the **nature of the ground** together with purely spatial information. The conflation may combine topological information and ground information, as in adpositions meaning "*in-water*" vs. "*in-forest*" etc…a situation reported for a number of Native American languages.[33] On the other hand, **information about the spatial entity of the figure** may also be systematically associated to the expression of PATH, as when adpositions are sensitive to the human/non-human nature of the figure, or a motion verb must be accompanied by indication of the posture of the figure.

Approaching the description of the modes of expression of PATH in a given language within this multidimensional framework is therefore a complex task. Espousing this framework can still bring out new insights in languages considered already well known and studied, while it guides the exploration of the expression of PATH in yet under- or un-described languages. When the evolution of the languages is well attested, as in European languages, taking a diachronic approach allows also for insights in how subsystems and constructions emerge and stabilise over time, to possibly disappear later (see article by Fagard and Iacobini). Meanwhile, for languages yet underdescribed, a grammaticalization approach can do much to give a sense of the dynamics that must have operated in those languages.

3. ABOUT A "WORKING" TYPOLOGY OF PATH: A CASE STUDY

The descriptive strategies mentioned above have been applied to a variety of languages within the Trajectoire project. Some well-known European languages have been re-visited by native speakers, such as Polish (by Kopecka) and Hungarian (by Sőrés), and an ancient language such as Homeric Greek has been re-explored (by Imbert). Romance languages have offered the possibility of a diachronic perspective on the development of systems of PATH expression, such as French (by Kopecka and Fagard) and Italian (by Iacobini). The challenge of

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or of a differential morphosyntactic treatment of the two types of ground (such as one preposition for source like 'from' vs. a wealth of prepositions for goal as shown above). Both cases are illustrated with Japanese examples by Ishibashi (to appear). See also the Jakaltek Popti' case of unexpected morphosyntactic symmetry (Grinevald 2011 and section 3.6. below).

[33] Mithun (1999) is a rich source of such information for the languages of North America.

incorporating more isolating languages into a typological discussion built around issues of morphosyntax has been raised through the study of Asian languages like Burmese (by Vittrant[34]). A characteristic of the project is its sample of languages from the Americas, particularly Latin America, which are all oral tradition language, more or less endangered, and all little- to un-described before the descriptions produced by the linguists of the project (Huastek for Kondic, Jakaltek Popti' and Rama for Grinevald, Ye'kwana for Caceres, Tanimuka for Eraso, Esse Eja for Vuillermet, Cavineña for Guillaume).[35]

A case study of the evolving analysis of the expression of PATH in such a language indigenous to Mesoamerica will be used here to demonstrate the mutually feeding relationship between description and typology and what is meant by the notion of a "working typology". It will recall the steps followed in the description of a particularly elaborate morpho-syntactic system, to show how its specificities originally provided fuel for the typology and how it was, in turn, productively revisited on the basis of proposals coming from the typology of PATH expression being worked out within the project.

3.1. The phenomenon of the Jakaltek Popti' (Mayan) "directionals"

Directionals are one of several interesting pan-Mayan phenomena; they appear under several forms across various, but not all, branches of the family. The syntax-oriented grammar of Jakaltek Popti' (Craig 1977 where the language is spelled Jacaltec) had nothing particular to say about them, for lack of a framework that would have provided a way to show what was interesting about them. Although they were intuitively felt to be of special interest, and were therefore mentioned in Craig 1979, in a chapter meant to show new students of linguistics some striking characteristics of the language.[36]

The desire to place the description of this particular system of verbal suffixes of the Jakaltek Popti' Mayan language of Guatemala in a typological perspective was actually one of the reasons behind creating the Trajectoire project.

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[34] Much of the reasoning on issues of the expression of PATH in the project was originally driven by the descriptive needs of Amerindian languages with clear agglutinating traits. More attention needs now to be paid to how to incorporate the phenomenon of serialisation (as in Vittrant 2006) into the discussion of satellites, for instance.

[35] For active members of the project from DDL, there are also a number of languages described by associates of the project, such as Yuhup for Ana Maria Ospina, Yanomami for Marie-Claude Mattei-Muller, Itonama for Milly Crevels, Kwaza for Hein van der Voort.

[36] In a collection written for a general audience entitled "Languages and their Speakers" where authors (including Charles Bird, Tim Shopen, Ed Keenan & Elinor Ochs, John Haviland, and Kyoko Inoue) were asked by its editor Tim Shopen, to address the question: "what kind of language is it among the languages of the world?" This was in times of Chomskyan revolution in linguistics. For Jakaltek Popti' the three characteristics chosen for discussion were three yet little to unknown themes: ergativity, noun classifiers and directionals.

Below is a basic example of Jakaltek Popti' directionals, showing a verb followed by two suffixes of PATH semantics, one specifying a lateral horizontal motion (aside) and the second a centrifugal one (away). In the discourse context of a referential event, the presence of such directionals is obligatory to complete the verb form.[37]

(1)   xk-ach hin-ten-**ik'-toj**
         ASP-you-I-push-aside-away
         'I pushed you (aside away)

Jakaltek Popti' directionals are part of a rich inflectional system typical of Mayan languages. Table 1 is a schema of the maximal verb extension in that language, where one finds directionals between voice suffixes and final mood and transitivity markers, these directionals consisting in fact of three sets of suffixes, rigidly ordered as DIR1-DIR2-DIR3:[38]

ASP	*setB* (ABS)	*set A* (ERG)	*VERB*	*–voice*	*M*	***–dir***	*M*	*–theme*
		_C _V	radical derived	PASS/ AP	IRR	**DIR1-2-3**	IRR	TR/INTR

Table 1. Jalkatek Popti' Maximal Verb Extensions

3.2. Directionals resulting from the grammaticalization of motion verbs

It is not until the development of discussions on grammaticalization in the late 80's that these directionals became of particular interest, because of the fact that they were clearly verbal suffixes resulting from the grammaticalization of lexical verbs of motion. Craig 1993 is a description of the system, with a discussion of this grammaticalization phenomenon and of the widespread use of the resulting directionals in this particular Mayan language, as demonstrated through narrative text counts.

The ten directionals of Jakaltek Popti' are clearly grammaticalized forms of verbs of motion, only one of them without a clear lexical source. This inventory of verbs of motion and corresponding directionals is widespread in the family, although in each language with directionals the system is somewhat different, in

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[37] Interestingly, the same issue of referentiality dictates the presence of noun classifiers in noun phrases in this language (Craig 1987). Both systems, classifiers and directionals are clearly "secondary systems" of relatively recent creation through grammaticalisation, and share a discourse pragmatic function.

[38] Mayan languages have a rich verbal morphology, including an ergative alignment marked by indexation of person markers traditionally called set A (for ergative) and set B (for absolutive). The Ergative has allomorphs depending on the first segment of verbal root (V- or C-); voices include passive and antipassive, modality includes irrealis, final vowel indicates transitive vs. intransitive verb complex. The sets of directionals precede mood and final theme vowel, and are therefore considered a case of verbal suffixation, and not serialization as in some other Mayan languages.

inventory and functioning. In table 2 below the directionals are presented in the order of their frequency of use, DIR3 being by far the more frequent.

That there had been complete grammaticalization of a motion verb into verbal suffixes was easily argued through evidence of their phonological reduction, particularly with DIR2, and of their overall semantic bleaching, from motion to PATH for all, and further to aspect or manner for DIR1. This degree of grammaticalization as suffixes is specific to that language.

DIRECTIONALS (satellites)	from	MOTION VERBS (lexical)
DIR3	*Perspectivizing/ deictic*	
-toj[20]	'away'	*to-yi 'to go'*
-tij	'toward'	*tit-a*
DIR2	*orientation in space*	
-(a)h[21]	'up'	*ah-i*
-(a)y-	'down'	*ay-i*
-(e/i)k'-	'across'	*ek'-i*
OR	*boundary crossing*	
-(o/e/i)k-	'inward ''	*ok-i*
-(e/i)l-	'outward'	*el-i*
	Spatial/adverbial	
	(manner/aspect)	
DIR1 *-pax-*	'back, again'	*pax-i 'to return'*
-kan-	'still, for good';	*kan-i*
-kanh-	'upward, suddenly'	?

Table 2: Directionals (DIR) of Jakaltek-Popti'

3.3. Directionals with semantics of PATH

Another contribution of the Jakaltek directionals to the typological study of the expression of PATH was to bring evidence of PATH as an abstract notion, one of a line calculated in space and not necessarily linked to motion (see section 2.1.). The ubiquitous presence of directionals in this language is in fact due to their conveying such an abstract notion of PATH, which means that they are found, not only in the context of the expression of spontaneous and caused motion (2), but also in the expression of non-motion events, such as basic locative constructions (3) and the expression of vision (4) or locution events (5).

(2) Caused motion:
a**.**   *a'aytij hunuj wetan!*
     a'-ay-tij   hun-uj   w-et   an
     CAUSE-DIR2-DIR3   one-IRR   my-for   1P.PART
     'throw one [**down.toward**] for me! (talking of an injerto fruit)'
     (seen from down)

b.   *xhwa'aytoj hunuj hawet.*
     xh-ø-w-a'-**ay-toj**   hun-uj   haw-et
     ASP-it -I-CAUSE-DIR2-DIR3.   one-IRR   you-for
     'I'll throw one [**down.away**] for you' (seen from up)

(3) Basic locative construction:
a.   *ahatojno' ni'an konejo swi' te' chulul*
    ay-**ah-toj**   no'   ni'an   konejo   **s-wi'**   te'   chulul
    exist-Dɪʀ2-Dɪʀ3 Cʟ   small   rabbit   its-top Cʟ   injerto tree
    'the little rabbit was [**up.away**] **on top of** an injerto tree'
    (seen from down)

b.   *ay hune' keso ahaytoj yul ha ha'*
    ay   hune'   keso   ay-**ay-toj**   y-ul   ha'   ha'
    exist a   cheese exist-Dɪʀ2-Dɪʀ3 its-in   Cʟ   water
    'There is a cheese that's [**down.away**] in the water' (seen from up)

(4) PATH of vision:
a.   *xilahtoj naj tet ix*
    x-ø-y-il-**ah-toj**   naj   tet   ix
    Asp-her-he-see-Dɪʀ2-Dɪʀ3   Cʟ/he   to   Cʟ/her
    'he saw her [up.away]' (seen from down)

b.   *xilaytij ix naj*
    x-ø-y-il-**ay-tij**   ix   naj
    Asp-him-she-see-Dɪʀ2-Dɪʀ3   Cʟ/she   Cʟ/him
    'she saw him [down.toward]' (seen from down again)

(5) PATH of locution:
a.   *xtiyoxhliahtij naj tet ix*
    x-ø-tiyoxhli-**ah-tij**   naj   tet   ix
    Asp-he-salute-Dɪʀ2-Dɪʀ3   Cʟ/he   to   Cʟ/her
    'he said hello [up.toward] to her' (seen from up)

b.   *xta'wiaytoj ix tet naj*
    x-ø-ta'wi-**ay-toj**   ix   tet   naj
    Asp-she-respond-Dɪʀ2-Dɪʀ3   Cʟ/she to   Cʟ/him
    'she answered him [down.away]' (seen from up again)

3.4. Jakaltek Popti' directionals as PATH SATELLITES

In the context of the Trajectoire Project, these Jakaltek Popti' directionals were revisited to claim that they represent prototypical SATELLITES, by their semantics of PATH and their status as dependents of the verb. They turn out to be of particular interest because they represent satellites of verbal origin, while much of the discussion of satellites has centered on satellites of adnominal origin, such as the verbal particles of English, or the preverbs of German, Polish or Hungarian. They therefore exemplify perfectly the type of grammaticalization process that the article by Imbert, Grinevald, Sőrés proposes to call a 'satellization' process. Satellisation is a more advanced degree of grammaticalisation than most serialisation processes, but before a stage of lexicalisation that erases the productive syntactic and discourse use of satellites.

3.5. An interesting case of stacked directionals

Another contribution of Jakaltek Popti' directionals to the discussions of the Trajectoire project is their ability to be stacked as DIR1-DIR2-DIR3 in a rigid manner. This phenomenon of stacked directionals is actually one of the sources for thinking of a hyper category of PATH of the sort presented in section 2 above.

The example below shows a relatively rare display of the maximum extension of this stacking of directionals, the combination of two being much more common. This sentence is in the final episode of a long chase story, marking the finally successful capture, killing and burial of the main protagonist: *kan* 'once and for all' because he has escaped them several times before, *ay* 'down' because they bury him in the ground, and *toj* 'away' because they bury him deep into the ground, to get rid of him in doing so:

(6)   *xmujkanaytoj heb' naj naj*
       x-ø-s-muj-**kan-ay-toj**   heb'   naj   naj
       ASP-him-he-bury-**DIR1-DIR2-DIR3**   PL   CL/they   CL/him
       They buried him (once and for all-down-away)'

Several interesting remarks can be made about this stacking of three sets of directionals, when considered in a functional and typological perspective.

One is that the three slots correspond actually to four semantic sets, since the speaker must chose for the DIR2 slot between directionals expressing absolute direction in space (up/down/across) and boundary crossing motion (in/out). This means that further study of the choices of speakers might contribute further data to the issue of whether boundary crossing is more marked than absolute direction. Another one is the issue of the semantics and pragmatics of the rigid ordering. Within a functional approach, one could ask whether there is some reason for that particular order of directionals.[39] One cannot escape noticing the placement of the two extreme sets, with the aspect-like directionals (DIR1) closest to the verb root, and the deictic ones (DIR3) the most external to the verb form. Finally, also in a functional perspective, one could ask about the variable frequency of the use of those sets and the omnipresence in discourse of the DIR3, which anchors the expression of PATH in a specific spatial perspective.

3.6. A case of "symmetry" of expression of Source and Goal

Another case of feeding back from typology to description is the revisiting of the Jakaltek directionals data to respond to new questions about the expression of source and goal. While a prevalent asymmetry is being reported in many languages of world (see the article of Kopecka & Ishibashi), Jakaltek Popti' demonstrates an interesting case of symmetry, as recently argued in Grinevald (2011). There are two facets to this symmetry. The first one relies on a fact that had been observed much earlier (Craig 1979, Grinevald 2006), about the function

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[39] In the line of work on Tense-Aspect-Modality affixation by Bybee et al 1994.

of adpositional phrases in this language (and Mayan languages at large), which is that the relator nouns functioning as adpositions only express static relations. The second is that, in contrast to the neutralised use of the adpositional element, the directionals carry the weight of informing on the PATH itself, and do so in a symmetrical way. Therefore, that the adpositional phrase was static had been remarked from the start but what is new is to cast this known fact about this Mayan language within the context of discussions of the (a-)symmetry of the expression of source and goal.

In this language, adpositions/relator nouns are strictly locative and express the static topological relation of figure and ground, whether as starting point or end point of a motion event. In the examples below, the adpositional phrase situates the person 'inside the bus', whether that position is the end point of the pushing or the initial point of the pulling. Meanwhile, the directionals contrast the two motions, expressing opposite boundary crossing motions (entering or getting out), in both cases seen from the same perspective and with contrasting deictics (away or towards):

(7) a. *xkin hateniktoj yul karo*
         xk-in   ha-ten-**ik-toj**   y-ul   karo
         Asp-me   you-move-**Dir2-Dir3**   **its-IN**   truck
         lit : you moved me in-away in the truck
         'you pushed me into the truck'

    b. *xkin hateniltij yul karo*
         xk-in   ha-ten-**il-tij**   y-ul   karo
         Asp-me   you-move-**Dir2 -Dir3**   **its-IN**   truck
         lit : you moved me out-toward in the truck
         'you pulled me out of the truck'

Here is how the distribution of information about source and goal in Jakaltek Popti' can be said to be symmetrical: the verb is neutral with respect to PATH, the directionals express different elements of the PATH while the adpositional material remains neutral with respect to PATH, only pointing to a static spatial and functional relation between figure and ground.

3.7. Much more about directionals in the Mayan family

As already mentioned, the Mayan languages offer a very fertile ground for the investigation of the diversified fate of the motion verbs of the family. The case of the Jakaltek Popti' directionals considered here is only one pattern, probably the most grammaticalized case of the family. It contrasts with various other patterns: less grammaticalized cases resembling serialization more than verbal suffixation in other Q'anjob'alan languages; preverbation of directionals in the Mamean branch, and independent post verbal clitics in Tzeltalan languages (Zavala 1993). To which one must add the cases of the Yucatecan and Huastecan languages that did not develop directionals and rely on strategies of event sequencing (Bohnmeyer et al 2007, Kondic 2011, mentioned in the articles by Fortis and Vittrant, and Imbert, Grinevald and Sőrés). It remains to compare, across the

whole family, what semantics the directionals express. As argued here, it is clearly semantics of PATH in Jakaltek Popti', but probably more than known so far, also semantics of associated motion in Tzeltalan languages, as hinted by Haviland (1991,1993).[40]

4. BY WAY OF A WORKING CONCLUSION

This paper presented an outline of the approach taken by the Trajectoire project to the exercise of building a typology of PATH. It aimed mostly at situating the posture taken so far with respect to other approaches to the practice of typology, here a typological practice anchored in extensive descriptions, with descriptions fed by typological proposals, in a mutually feeding relation that allows for the elaboration of a "working typology".

The paper has specifically proposed a clarification of the functional domain of spatial PATH, with a road map to how to go about exploring the diverse ways of expressing it. It is hoped that it has established that PATH is to be taken as a super category, and should be conceived as a complex regrouping elements that have not been systematically regrouped this way before.

Much remains to clear out about the terminology to be used, after thorough comparison of what is meant by the terms used in different linguistic traditions. It remains for instance to revisit systematically the proposed lists of elements of motion events, and in particular to work more on what notions associate across languages with the strict notion of PATH, such as manner of motion, temporal aspectual associations, but also information on ground and figure.

It is probably worth underlining again that the emphasis has been on the morphosyntactic and syntactic diversity and complexity of the expression of PATH, rather than on the complexity of verbal semantics developed elsewhere. It is also important to emphasize the impact of the chosen functional-typological framework which demands systematic attention to the dynamic aspects of the expression of PATH. It invites panchronic description, systematically incorporating discussions of grammaticalization patterns, opting for a typology of constructions and not of languages, and allowing for the existence of languages with mixed systems.

Finally, a characteristic of the approach of this project is to combine results of very detailed descriptions of languages without long literary traditions with those of languages with such traditions, all done by specialists of those languages, who can provide ample data with a high degree of reliability. And in this spirit, it is worth noting that the analyses of the complexity of PATH proposed here, both at the conceptual and formal expression levels, originated for the present author in descriptive challenges encountered in the field, in the case study presented in the last section, in data from a language of the Mayan family. This is quite reminiscent of the way in which Talmy was inspired to launch his study of

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[40] Associated motion of the kind first discussed on the basis of Australian languages by Wilkins, but described now extensively for some South American languages, such as the Takanan languages of Bolivia (Guillaume 2009, Vuillermet 2009).

motion events and initiate typological discussions of the expression of PATH
because of earlier challenges with facts of Atsugewi, a language of California.
And so the wheel has turned, and native languages of the Americas continue
helping linguists understand better the varied nature of languages and their
underlying similarities.

ABRÉVIATIONS

1P.PART	first person particle	ERG	ergative
ABS	absolutive	INTR	intransitive
AP	antipassive	IRR	irrealis
ASP	aspect	M	modality
C	consonant	PASS	passive
CL	noun classifier	TR	transitive
DIR	directional	V	vowel

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