

A Grid for Decoding Motion Encoding*

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Abstract

The need of cumulability of data and replicability of results in motion event description has led to the construction of a prototype of an annotation tool named Modeg (MOtion DEcoding Grid). This classification grid allows to encode the most relevant formal and semantic elements implied in the linguistic expression of motion events. Modeg identifies a set of comparative concepts and their possible values that can be annotated with respect to their expression in four loci (satellite, adnominal, verb, noun) as well as to their distribution in the sentence. The software on which Modeg is tested should be considered not as a final product, but rather as a tool developed to demonstrate the applicability of the criteria we have identified. The results that can be obtained with Modeg are shown with examples mostly related to parallel corpora analysis.

Introduction

The aim of this article is to present a prototype of an annotation tool for the linguistic analysis of motion event encoding. This tool was originally thought of as a classificatory grid which we have called Modeg (an acronym for MOtion DEcoding Grid). This proposal stems from the necessities emerged during the elaboration of previous as well as on-going corpus-based research works concerning motion events encoding, which aim not only to distinguish languages according to typological macro-categories but also to account for both cross-linguistic and intra-linguistic (typological) variation.

The methodologies put forward so far to analyze the linguistic expression of motion are not easy to handle, compare and replicate. Even the studies based on corpora analysis that are meant to explain the variation found both at cross- and intra-linguistic level are not usually designed to allow for replicability or extension of data to new language samples, since (with the notable exception of Slobin's framework for the coding of motion events in narrative texts¹) either they do not make the analysis criteria explicit, or they are specifically designed for a narrow language sample.

The present article is an attempt to provide the scientific community with a grid through which a handy annotation of all the most relevant formal and semantic units implied in motion event encoding at an appropriate level of generalization can be made

possible, without scattering into excessively fine-grained classifications or passing over revealing bits of information.

We have identified four loci (satellite, adnominal, verb, noun) into which information relevant for motion encoding can be expressed. For each locus, we have pointed out a list of possible categories and related values. Such a choice allows to hierarchically identify what we claim to be the relevant comparative concepts (as well as their lexical and semantic articulation) for the encoding of motion events, also combining the identification of such comparative concepts with more specific information concerning the descriptive categories of individual languages². The solution adopted in this study allows data coding and interpretation at different levels of detail, also granting the possibility to add more descriptive categories or to specify additional values without jeopardizing data comparability. The validity of our proposal will be proven by showing some applicative uses of Modeg. However, it is worth bearing in mind that the classificatory grid presented here should be understood as a prototype of an annotation tool whose aim is the cumulability and replicability of research results obtained through an annotation process based on explicitly defined categories. Thus, the software presented here should be considered not as a final product, but rather as a tool developed to demonstrate the applicability of the criteria identified. In fact, the analysis framework underlying Modeg can be implemented through several programs that are currently available for the annotation of linguistic data, such as ANALEC, ELAN, GATE³, to mention a few.

The paper is organized as follows: in the next section, we outline the theoretical perspective on which our research is based. In section two, we clarify our choice to resort to a grid as a means to analyze our data in a typological perspective, providing a description of the concepts, categories and values proposed. In section three, we show some examples of Modeg's application. Finally, in section four, we draw the conclusions to which our study has led.

I

Theoretical framework

Due to the high incisiveness of motion in human experience and its consequent omnipresence in languages, the research domain of motion events encoding represents a prolific area of typological studies. In the synopsis provided in this section, we will point out the main notions and theoretical tenets set forth in the literature on such a topic and we will particularly focus on those which turned out to be fundamental in the elaboration of our annotation grid for motion event analysis.

1.1. Talmy's model

Among the several studies on motion events encoding, the most ground-breaking and popular work is certainly Talmy's theory of lexicalization strategies⁴, which was the first systematic study on such issues and still represents the most widespread theoretical

and terminological reference frame for the typological description of motion-related linguistic expressions.

From a cognitive point of view, Talmy identifies five basic semantic components of motion events: motion, figure, path, ground, and a co-event representing either manner or cause.

The conceptual components and subcomponents of motion, however, were labeled slightly differently in Talmy's earlier studies. The terminology used above refers to his 2000 work, which represents the most organic exposition of his findings⁵.

In a previous phase of his theorizing, Talmy's research was characterized by a generative approach, which gradually drifted towards the cognitive framework shown in his 1985 study. At this stage, Talmy had pointed out three possible motion encoding types, based on the meaning units conflated into the verb root: *motion + path*, *motion + co-event*, *motion + figure*. This three-way typology, however, showed a methodological restraint: since the verb was the only formal element taken into account in lexical analysis, all the information encoded within other syntactic loci was inevitably ignored.

Talmy himself recognized the need for an integration to this verb-based semasiological typology⁶. Therefore, in order to allow for a better investigation of the relations between the levels of semantics and morphosyntax, a complementary classification was put forward.

In his 1991 article, Talmy reversed his study perspective, switching to an onomasiological approach. Here and in subsequent studies, the semantic component of path was kept as a constant analysis item and all syntactic slots were investigated in order to identify which of them and to what extent was involved in the encoding of such a conceptual constituent. The result was the well-known two-way typology distinguishing between *verb-framed languages* (VF) – path incorporated within the verb slot and manner within an adverb or verbal adjunct – and *satellite-framed languages* (SF) – path incorporated within a satellite, i.e. a formal unit depending directly on the verb, and manner (or other co-events) conflated into the verb.

1.2. Revisions and new proposals to Talmy's typological investigation

Talmy's typology has undergone a number of revisions in recent years. Probably, the most substantial and complete revisions of Talmy's theories have been put forward by Dan Isaac Slobin. From a classificational point of view, Slobin proposes two main revisions. The first one consists in the addition of a third motion encoding type, that is, the *equipollently-framed* group, where manner and path are both expressed by elements of equal syntactic status⁷. The second one distinguishes between *path-in-verb* (PIV) languages and *path-in-nonverb* (PIN) languages⁸, based on the observation that some VF languages do show manner verbs constructions with path encoded outside the verb, often expressed by non-satellites (i.e. adpositions and directional adverbs). From a theoretical point of view, the main contribution of Slobin's studies concerns manner. In a 2004 study⁹, Slobin proposes to distinguish languages according to how easy or natural

it is to add manner information to path expressions. Based on this, languages are put on a cline of manner salience ranging from *high-manner-salient* languages (with high syntactic accessibility for manner encoding) to *low-manner-salient* languages (where manner is subordinated to path expression).

The cruciality of extra-grammatical factors such as salience is also at the basis of the typological model proposed by Beavers, Levin and Tham¹⁰, who claim that motion events encoding is conditioned by a number of *motion independent properties* which govern the morphological, lexical and syntactic resources available to languages. The hypothesis put forward by Beavers, Levin and Tham in this respect is that languages prefer to express path selecting the strategy which requires the least effort and allows the highest processability. Moreover, the variation between VF and SF patterns appears to be conditioned by pragmatic and cognitive factors. Following the study proposed in 2006 by Papafragou, Massey and Gleitman¹¹ on manner encoding in English (SF) and Greek (VF), Beavers, Levin and Tham argue that the path component tends to be overtly expressed when not inferable from the context.

William Croft and colleagues¹² claim that Talmy's classification should be applied not so much to linguistic types, but rather to complex event constructions: «the basic unit of comparison and contrast across languages is not the language as a whole, but each construction that is used to express an equivalent state of affairs»¹³. The contrastive constructional analysis carried out in the study leads to the conclusion that there are implicational scales governing the encoding of complex events, and that the space of cross-linguistic variation in the encoding of motion events tends to be limited.

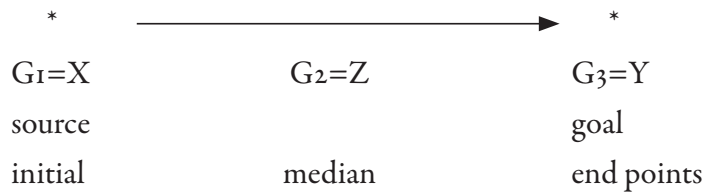
1.3. Cognitive and linguistic salience of path

As mentioned above, since the earliest stages of the investigation of motion events encoding, path has always been regarded as an essential and typologically revelatory element. Talmy himself considered path as the *core schema* of motion events, defining it as «the relating function [which] sets the figural entity into a particular relationship with the ground entity». Such an assumption is motivated as follows:

Since the figural entity of any particular framing event is generally set by context and since activating process generally has either of only two values, the portion of the framing event that most determines its particular characters and distinguishes it from other framing events is the schematic pattern of association with selected ground elements into which the figural entity enters. Accordingly, either the relating function alone or this together with the particular selection of involved ground elements can be considered the schematic core of the framing event¹⁴.

The typological relevance of path gave rise to a number of studies aimed at describing its complexity as a non-unitary notion¹⁵. Among the attempts to describe path subcomponents, the study by Colette Grinevald¹⁶ offers a thorough and balanced overview on this issue and represents a reference point for our study. The author defines path as a

FIGURE 1
Path-defining grounds¹⁷



vector «consisting of a line in space that is continuous, delimited by two points and oriented between those points. [...] 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*)»¹⁸, as represented by Figure 1.

Grounds can be conceived as either non-dimensional points in space or bi-/three-dimensional entities. In the first case, they are said to be non-bounded. In the latter, they can be conceived either as bounded or non-bounded. When a figure moves into or out of a bounded ground, the crossing of a boundary becomes a relevant sub-component of path¹⁹.

In addition to being related to grounds, path is generally conceived as an oriented line and several orientation patterns can be found. The examples mentioned by Grinevald are: (i) those of European languages, which contrast the absolute orientation of gravity with a horizontal orientation; (ii) languages adopting angled orientation systems; (iii) orientation according to the absolute reference frame of cardinal points; (iv) orientation according to the intrinsic relative reference frame of landscape; (v) and orientation according to a relative reference frame, where the figure is oriented in relation to the perceiver (mostly human body) a ground-object and the figure itself²⁰. Spatial orientation is called *vector* in Talmy (2000)²¹.

Besides boundary-crossing and spatial orientation, deictic anchoring is also mentioned by many as a path subcomponent. «In languages that include it in their characteristic representation of motion event, the deictic component of path typically has only the two member notions TOWARD THE SPEAKER and IN A DIRECTION OTHER THAN TOWARD THE SPEAKER»²².

1.4. The main loci of path encoding

Talmy's typology of motion events, as well as its subsequent revisions, are mainly verb-based. Indeed, this lexical category can actually be considered as a favored locus for path encoding, either in the form of a verb root or of a verb satellite. As argued by Croft and his colleagues²³, this is due to the fact that verb is an essential element of a sentence and the most likely to be contained within a clause encoding motion. Besides,

it is prototypically used to encode information on processes and events, thus representing the most suitable slot for path expression.

However, the verb is not the sole linguistic element which can carry or either govern a related element dedicated to path expression. In some languages, for example, path can be encoded within a noun or other, sometimes unexpected, grammatical items, as in the case of Tagalog, which expresses path through verb diathesis, or as in the languages (mostly from central Australia or Amazonia) which encode translational motion grammatically, by way of affixes or other grammaticalized elements, a phenomenon labeled associated motion²⁴. Thus, only a complete investigation of all the lexical and morphosyntactic means available to languages allows to identify the distribution of the semantic components of motion and particularly of path.

In this respect, there have been a number of attempts²⁵ to demonstrate that, in order to sketch a representative cross-linguistic typology of motion events encoding, it is essential to investigate a «series of MOTION-INDEPENDENT properties [...] which govern the morphological, lexical, and syntactic resources that are in principle available to encode motion»²⁶, thus extending the study of motion encoding to a wider variety of linguistic elements distributed in the sentence expressing motion.

Among the data analysis models proposed as alternatives to Talmy's typology²⁷, Bernard Wälchli's research²⁸ plays a most relevant role. In his work, he analyses 350 motion events, taken from an extremely widespread text (*Gospel of Mark*, New Testament), in a sample of 40 languages²⁹. The events analyzed here are of *basic intransitive motion*, that is to say, they concern «humans (not animals or objects) moving without special haste and without vehicles»³⁰. Also in Wälchli's approach, path is considered as the basic component of motion events. His main innovation consists in having moved on from the verb-centric perspective of motion event studies. As a matter of fact, not only does the analysis focus on path lexicalization between verb and verb-dependent items, but it also takes into account other lexical loci within the sentence. According to Wälchli³¹, there are three main loci for path encoding: i) the *verbal locus*, consisting in the verb stem, either absolute or combined with other roots as in those languages allowing serial verb constructions; ii) the *adnominal locus*, consisting in the adpositions (i.e. prepositions and postpositions and case marking); iii) the *adverbal locus*, consisting in adverbs, particles or verbal affixes, that is, all the sentence items that, on the one hand, do not present the formal and functional traits of the verb and, on the other, do not stand in a fixed position with respect to a noun but rather to a verb.

The idea of shifting the focus from the verb to all the different sentence slots available for path encoding is at the root of the work carried out by the *Trajectoire*³² research group. Some of the main guidelines set out by the *Trajectoire* research group which have been received and further re-elaborated in this study involve: (i) a fine-grained conceptualization of the notion of path as well as of its sub-components; (ii) the elaboration of a grid for the description and the analysis of motion events allowing cross-linguistic data comparability; (iii) focus on intra- and cross-linguistic variation from both a synchronic and diachronic point of view.

In a work carried out within the *Trajectoire* project³³, Jean-Michel Fortis and Alice Vittrant put forward a grid – applicable to a wide language sample – based on the re-elaboration of Talmy’s theory as well as of its revision. Still maintaining path as the core schema of motion events, Fortis and Vittrant distinguish four main loci for path encoding: the *head* of the sentence (H); the *satellite* of a head (S); the *adnominal* slot (A); the *noun* (N). Depending on the slot(s) involved in path lexicalization, motion events can thus undergo *head-framed* encoding, *satellite-framed* encoding, *adnominal-framed* encoding, and *nominal-framed* encoding.

Notably, Fortis and Vittrant replace the label of *verb-framed* encoding (VF) with the notion of *head-framed* encoding (à cadrage tête), however keeping unaltered the notion of *satellite-framed* encoding (SF), à cadrage satellitaire, since «la présence, parfois massive, de satellites au sens restreint est en effet une donnée typologique que notre classification doit refléter»³⁴. The choice to accept and further develop the notion of satellite is widely discussed in § 2.1.1 The category of *adnominal-framed* encoding (à cadrage adnominal) encompasses cases and adpositions lexicalizing path, thus keeping the adnominal loci separate from those defined as satellites (cf. § 2.1.2). Fortis and Vittrant also introduce the notion of *multiply-framed* encoding (à cadrage multiple), regarded as a natural condition of languages. In accordance with the assumptions of previous constructional studies, Fortis and Vittrant claim that languages have several resources available for path encoding which they can use simultaneously to lexicalize the same event. For example, whereas the English sentence *She left the hotel* represents a case of head-framed encoding (path in head, i.e. the verb *left*) and the sentence *She run to the hotel* undergoes adnominal encoding (path in the adnominal locus, i.e. the prepositional phrase *to the hotel*), the sentence *She came to the hotel* is a clear instance of multiply-framed encoding (path in both head, i.e. the verb *came*, and adnominal, i.e. the prepositional phrase *to the hotel*).

The possibility to lexicalize path simultaneously into four different syntactic slots determines the 15 constructional types listed in TAB. 1.

The choice to establish aprioristic categories made by Fortis and Vittrant, accepted in the present study, is in line with Corbett’s canonical approach to typological description of morphosyntactic phenomena, according to which

we take definitions to their logical end point and build theoretical spaces of possibilities. Only then do we ask how this space is populated. However, they fix a point from which occurring phenomena can be calibrated, and it is then significant and interesting to investigate frequency distributions³⁶.

Such an approach seems to be particularly suitable for corpus based cross-linguistic comparison, as well as for the study of data derived from large multilingual samples, as it allows to avoid the dangers deriving from inconsistencies in linguistic terminology due to which it becomes impossible to «see that phenomena labeled identically are in fact distinct (conversely we miss identities because of different traditions of labeling)»³⁷.

TABLE I
Possible types of multiply-framed constructions³⁵

1 locus	2 loci	3 loci	4 loci
H-framed	HA-framed	HSA-framed	HSNA-framed
S-framed	HS-framed	HSN-framed	
N-framed	HN-framed	HNA-framed	
A-framed	SA-framed	NSA-framed	
	NS-framed		
	NA-framed		

2

Our proposal

In this section, we present our proposal of annotation grid. Our work attempts to organically re-elaborate and integrate two major reference frameworks for the analysis of motion events encoding. More specifically, our approach combines the loci identified by Wälchli³⁸ with the *construction typology* (*typologie des constructions*) postulated by Fortis and Vittrant³⁹. Our methodology of analysis intertwines two different levels. The first level concerns the morphosyntactic analysis of the lexical loci encoding path, and is aimed at evaluating how many and what kind of constructions languages show. The second level is that of semantic analysis and is aimed at providing an inventory of the conceptual components of motion at a cross-linguistic level. The elaboration of an annotation grid suitable for combining these two levels moves from the need emerged in a number of recent and ongoing works⁴⁰ to have a handy annotation tool available which would allow for replicable and comparable results. The main purpose of such a theoretical combination is that of drawing up a classification of the linguistic constructions available to and across languages for motion event expression. We identify four main loci for path encoding, corresponding to two functional categories (*satellite* and *adnominal*) and two lexical categories (*verb* and *noun*). Our annotation grid also allows to specify the expression of manner outside the main verb and the linguistic encoding of three conceptual components of motion: *boundary-crossing*, *spatial orientation* and *deictic anchoring*.

2.1. Functional categories

As already mentioned, the categories identified in our annotation grid do not share an equivalent morphosyntactic status. More specifically, besides the lexical categories verb and noun, we have identified two functional categories – *satellite* and *adnominal* –

which gather linguistic elements belonging to different parts of speech, and are respectively characterized by verbs and nouns. Each functional category is outlined on the basis of the semantic function performed by the linguistic elements attributable to the category, i.e. the function of satellites is that of providing path information, whereas the function of adnominals is that of introducing the ground elements with reference to which path is delineated.

2.1.1. *Satellite*

The notion of satellite was introduced in the linguistic analysis of motion events by Talmy⁴¹. In his 1972 work, he defines satellites as forms «closer to the V[erb] than prepositions» which generally express path⁴². In subsequent studies, Talmy further develops the notion of satellite, using it as a label under which he encompasses «any constituent other than a nominal complement that is in a sister relation to the verb root»⁴³. As also suggested by Fortis and Fagard⁴⁴, despite never being overtly quoted by Talmy, the term satellite may have been borrowed from a study conducted by Pittman on nuclear structures in linguistics, where we read:

To certain constituents he [i.e. a linguist] is likely to assign a principal or “central” status; these he may label roots, stems, bases, themes, heads, nouns, verbs, main clauses, etc. To other constituents he is likely to assign a subordinate or “lateral” status; these he may call affixes, enclitics, formatives, attributes, modifiers, subordinate clauses, etc. It would be possible to term the central constituents “nuclei” and the lateral ones “satellites”⁴⁵.

Starting from Talmy’s systematization of motion events, the notion of satellite has been ceaselessly discussed and redefined. In this study, we adopt the multidimensional definition provided by Imbert and colleagues⁴⁶. Such a definition is based on three main criteria. The syntactic criterion states that a satellite syntactically depends on a predicative head. The predicative head on which it depends is generally represented by a verb. Thus, differently from adpositions, a satellite cannot introduce syntactic arguments and cannot be the head of a phrase. The semantic criterion states that a satellite contributes to the encoding of path in the expression of a motion event. It can encode a whole path or part of it, that is, a precise point of the space-time line (source, median or goal), or the deictic point of view from which path is conceptualized, or boundary-crossing. The lexical criterion states that a satellite is an element of lexical origin «qui a été graduellement grammaticalisé puis satellisé dans la sphère verbale»⁴⁷.

Consequently, within the category of satellite we include preverbs, verb particles and adverbs, and we exclude adpositions. The values for the satellite category distinguished in Modég include S₁ affixes (e.g., German deictic preverbs *hin*-“towards there” and *her*-“towards here”, Latin preverbs exemplified below); S₂ verb particles (cf. English post-verbal particles *away*, *back*, *down*); S₃ adverbs showing greater syntactic autonomy and a lesser degree of grammaticalization as compared to S₂ (cf.

English *therefrom*, *therein*, *thereto* or Italian *laggiù* “over there”, *quassù* “up here”). As satellites can encode path information concerning the type of ground towards which path is oriented, we further specify this category with *s* to indicate source-oriented satellites (cf. Latin prefixes *ab-* “from”, *de-* “down from”, *ex-* “out of”); *m* to indicate median-oriented satellites (cf. the Latin prefix *trans-* “across”); and *g* to indicate goal-oriented satellites (cf. Latin prefixes *ad-* “to”, *in-* “into”).

Differently from our approach, not all theoretical models agree on classifying satellites and adpositions into two distinct categories. Talmy⁴⁸ was the first to express the need to keep satellites separate from adpositions. He offers two arguments in favor of the distinction between the two categories. The first argument refers to distinguishing «positional and grammatical characteristics»⁴⁹. For instance, in Latin, Ancient Greek and Russian, satellites are morphologically bound to the verb as prefixes, whereas prepositions accompany the noun and govern the case. Even when a satellite and a preposition with the same phonetic form occur together in a sentence to express path, the two occurrences are, according to Talmy, formally well distinct. The second argument refers to differences in the syntactic behavior between satellites and adpositions. Firstly, only adpositions «will disappear when the ground nominal is omitted»; satellites, on the other hand, will remain as an integral part of the verb phrase. Secondly, the two classes only partially match in a language. For instance, in English some items will work only as satellites (such as *apart*, *forth*), whereas some others (such as *from*, *toward*) will only function as prepositions. Thirdly, even forms belonging to both functional categories often show different meanings according to their usage in either function. As examples, Talmy mentions *to* – behaving both as a goal-oriented directional preposition in the sentence *I went to the store* and as a verb satellite in the expression *I came to* – and *over* – used either in particle-verb constructions as a satellite conveying rotation around a horizontal axis, as in *It fell/ toppled/ turned/ flipped over*, or as a preposition encoding “above” or “covering” as in *over the wall*. Finally, Talmy compares the sentences *I saw him on the corner*, *but I just drove past* and *I drove past him*, noticing that there are English forms, like *past*, which can act both as satellites and prepositions. In such cases, however, a distinction can be made based on their stress patterns: satellite forms will receive heavy stress, whereas prepositions will receive secondary stress. Due to their unusual behavior, forms like *past* can be considered as «a coalesced version of satellite plus a preposition – a satellite-preposition or SatPrep»⁵⁰.

In his 2000 work, Talmy offers a less strict classification of satellites compared to the ones proposed in his previous works. Despite keeping them separate from adpositions, he points out that

There is some indeterminacy as to exactly which kinds of constituents found in construction with a verb root merit satellite designation. [...] It is further not clear whether this indeterminacy is due to the present theory’s early stage of development or to a clinelike character for the satellite category⁵¹.

The idea of placing clear-cut boundaries between the categories of satellite and adposition has been variously criticized and a number of counterexamples have been provided. Among the others, Filipović suggests to include adpositions within the inventory of satellites⁵². More radically, Beavers, Levin and Tham⁵³ propose that the category of satellite should be abandoned in the study of motion events encoding constructions. On the other hand, Croft⁵⁴ considers as satellite «anything that is not a verb root but encodes an event component». These approaches prefer not to make any distinction between the category of satellite and that of adposition due to both theoretical observations – i.e. they opt for the creation of a functional class based on semantic criteria and able to include different formal elements – and sample analysis of satellites and adpositional phrases in a greater number of languages than in Talmy’s research.

In our opinion, the essay by Imbert and colleagues⁵⁵ represents the most structured attempt to shed light on the concept of satellite and on the category labeled by such a term. Here, it is convincingly pointed out that the ambiguity of this notion stems from the confusion between functional-typological and logical-grammatical categories. According to the authors, confusion and disputes concerning the notion of satellite stem from “un double emploi du terme”. Indeed, starting from Talmy the word satellite has been used to designate both the functional category of verb-related elements expressing path and the constructions of motion event typical of SF languages (where, however, prepositions and cases are widely attested). Moreover, it is our opinion that the confusion between satellites and adpositions is not only terminological, but also notional. As a matter of fact, satellites and adpositions belong to two different domains of description of linguistic phenomena. On the one hand, adpositions have their own grammatical status and represent a widely recognized word class that in our schema is included in the hypernymic functional macro-class of adnominal. On the other, satellites represent a typological and functional macro-class, used mainly in the analysis of motion events encoding. Thus, within the debate on the notion of satellite, the question that many scholars pose – wondering for what reason a functional macro-class created purposely to encompass path encoding items should not include both satellites and adpositions – seems to be legitimate. In this respect, our assumption is that satellites and adpositions, besides showing different non-overlapping syntactic behavior, perform associable, though not identical, functions. On the one hand, satellites encode one or many path component(s); on the other, adpositions – as well as all adnominal items, which comprise adpositions in our theoretical approach – are used to introduce grounds within the motion event. Therefore, we believe it is appropriate to keep a distinction between the two functional categories of satellite and adnominal.

2.1.2. *Adnominal*

For the functional category of adnominal, we adopt the definition given by Papahagi⁵⁶, that is, a category comprising «tous les éléments qui introduisent le nom d’une entité pour en faire un Fond pour la trajectoire»⁵⁷. The main function of adnominals is

therefore to introduce into the event the nouns related to the grounds with reference to which the figure moves and orients itself. This function is performed mainly by nouns introduced or modified by adpositions and/or case markers with spatial value, and other more or less grammaticalized elements, among which the so-called internal localization nouns play an important role⁸.

Papahagi also offers a survey of the main adnominal inventory systems shown by the languages studied within the *Trajectoire* project and classifies them according to their degree of complexity and semantic granularity. Such systems are placed on a complexity continuum and divided into three main groups: *minimal*, *medium* and *maximal* systems. *Minimal systems* include a limited number of adnominal items (one or two) whose unique role is to point out the ground-encoding function of noun. Such systems are characterized by low path granularity, with adnominal mainly expressing neuter ground or either source. Languages like Jakalteco and Tagalog are mentioned as examples of minimal systems. *Medium systems*, instead, include three to five adnominal items – either simple or complex – followed by localization nouns. Such systems are characterized by a certain degree of path granularity distinguishing between source and goal, with adnominal sometimes encoding path subcomponents. Languages like Burmese and Japanese are mentioned as examples of medium systems. Finally, *maximal systems* include a consistent number of simple adnominal forms encoding both path and ground, sometimes co-occurring with complex adnominals and localization nouns. Such systems are characterized by a high degree of path granularity, constantly distinguishing between source, goal, and sometimes also median. Path subcomponents like spatial orientation or boundary-crossing are expressed as well. Such an inventory can be found in Hungarian, Polish, German and Romance Languages, whose prepositions, however, do not allow to distinguish between goal and location.

In order to distinguish the elements that can be employed to encode ground, Mo-deg identifies four subcategories: A1, bare cases or nouns without case inflection (cf. English *leave the room*; or Latin *venio Rom-am* [ACC.] “I come to Rome”); A2, case + prepositional phrase (cf. Latin *fuga ab urb-e* [ABL.] “fleeing from the city” directional meaning, *in urbe natus est* [ABL.] “he was born in the city” stative meaning, *in templum iniit* [ACC.] “he entered the temple” directional meaning); A3, simple and complex prepositional phrase (cf. Italian *oltre la siepe* “across the hedge”); A4, localization nouns (cf. French à la *tête de ses troupes* “at the head of his troops”). Similarly to satellites, adnominal items need to be indexed according to the type of ground expressed (again, we distinguish between source, median and goal).

2.2. Lexical categories

Our grid identifies two lexical categories for the expression of path: *verb* and *noun*. Verb is the lexical category prototypically expected to encode processes or events. Noun is the lexical category which identifies nouns, nominal forms of verbs or other

autonomous lexical elements different from verbs, expressing a null or very low referentiality coefficient and used with a predicative value for path or, more generally, for motion encoding.

2.2.1. *Verb*

As far as the verb is concerned, in this study we adopt the criteria identified by Talmy⁵⁹, who points out a number of factors that allow to classify a constituent as a main verb root of a clause expressing a motion event. These criteria are suitable for the identification of the main verbal constituent in case of coverb and converb co-occurrence. From a morphological point of view, a word is to be considered a verb if it can take inflections or clitics to express «tense, aspect, mood, evidentiality, negation, causation, voice, transitivity, or the person, number, and gender of the subject (and object)»⁶⁰, thus presenting a great number of morpheme members, sometimes even being open-class. From a syntactic point of view, a word is to be considered a verb if it can function as head of constructions where it directly or hierarchically governs «adverbs; particles for place, time, aspect, quantity [...], negation, etc.; or a subject or object nominal»⁶¹. Besides, verbs can be identified on the basis of co-occurrence patterns, so that a lexical item is to be considered a verb «if its presence is required across a range of construction types, while the other constituent type need not or cannot be present in some of those construction types»⁶².

The list of possible values of the verb category that we distinguish is the following: Vg (generic and atelic motion verb: only motion conflated within the verb root, e.g., Latin *eo* “go”, Italian *procedere* “go forward”, English *move*); Vm (manner verb: motion+manner conflated within the verb root, e.g., Latin *vagor*, *volo*, Italian *vagare*, *volare*, English *roam*, *fly*, respectively translating *vagor/vagare* and *volo/volare*); Vc (caused-motion verb: transitive motion conflated within the verb root, e.g., Latin *duco*, Italian *condurre*, English *lead*, translating *duco* and *condurre*); Vn (non-motion verb: no motion meaning encoded within the verb slot, e.g., English *to be after someone*); Vp (path verb: motion+path conflated within the verb root and sub-indexed with *s* for source-oriented, e.g., Latin *linquo*, Italian *abbandonare*, English *leave*, translating *linquo* and *abbandonare*, *m* for median-oriented, e.g. Italian *passare* “pass by”, English *transit*, and *g* for goal-oriented – Latin *venio*, Italian *arrivare*, English *arrive*, translating *venio* and *arrivare*); Vd (deictic verb, sub-indexed with *a* for andative motion, e.g., Italian *andare* and its English translation *go*, and *v* for venitive motion, Italian *venire* and its English translation *come*).

It is not always easy to identify the most salient semantic components expressed by the verb root, see for example the English verb *hop*, which in a specific context of use, conflates the motor-pattern of jumping and upward/forward movement. It is therefore possible for a single verb to express more than a single semantic value, and, vice versa, it may be impossible for co-occurring verbs to distinguish the semantic contribution of each of them with respect to the constructional meaning.

2.2.2. *Noun*

From a semantic point of view, nouns are prototypically used to refer to discrete entities. For this reason, in motion events encoding this category is mainly devoted to the expression of figures and grounds. Nevertheless, as pointed out by Raffaele Simone⁶³, nouns characterized by high predicative force are likely to acquire verbal coefficients (tense, argument structure, diathesis and aspect). In particular, nouns denoting processes (especially deverbal nominalizations and nominal infinitives) can receive verbal coefficients conferring argument and/or event value. This explains the use of nominal constructions for motion encoding and the subsequent need to encompass the category of noun in our annotation scheme.

We distinguish three possible cases of nominal encoding of motion: idiomatic expressions (e.g., Latin *iter carpio* “set forth” lit. “take a way”, Italian *alzare i tacchi* “leave” lit. “raise one’s heels”, English *hit the road*; N₁ in our coding system), light verb constructions (e.g., Latin *excursionem facio* “make a journey”, English *get a ride*; N₂ in our coding system), and verbal and deverbal nouns derived from motion verbs (e.g., Latin *peregrinatio* “the action of travelling abroad or away from home”, Italian *fuga* “fleeing”, English *movement*; N₃ in our coding system).

2.3. Other relevant parameters of motion event analysis

Besides the above described categories, our proposal also takes into account two other relevant parameters: manner expression outside the verb root and path sub-components distributed within the motion-encoding construction.

2.3.1. *Manner*

Although the vast majority of the studies concerning manner has been carried out within the field of motion events analysis, the relevance of this semantic component also affects many other conceptual domains. For this reason, some scholars have considered manner⁶⁴ as an ontological category, similar to a small set of very basic categories such as HUMAN, THING, PLACE, ACTION, QUANTITY, REASON. However, more recent studies and ongoing research⁶⁵ tend to consider manner as «a complex semantic value, [...] processed by various lexical, syntactic, morphological, grammatical and prosodic means and strategies»⁶⁶.

Generally, manner is addressed as a relevant, though not further specified, feature for verb classification⁶⁷. As for motion events encoding, we have already pointed out that Slobin devotes particular attention to the conceptual domain of manner. Besides providing major classifications and sub-categorizations of the manner verbs inventories shown by languages, he identifies⁶⁸ a number of semantic sub-components of manner of motion – namely, motor pattern, force dynamics, rate, vehicle – also emphasizing the importance of investigating manner descrip-

tions outside the main verb of the clause⁶⁹, a phenomenon occurring not only among SF languages but fairly frequent also in VF languages. In such cases, manner is generally encoded in adjuncts ascribable to two main classes: non-finite verbal adjuncts (converbs, mainly) and non-verbal adjuncts (adverbs, nominal adjuncts, ideophones). For this reason, our grid distinguishes between: M1: non-finite verbal adjuncts, such as Latin *magna volumina labens, templa parentis init* “gliding his voluminous body, he entered his father’s temple”, Italian *gli andò incontro correndo* “he ran towards him running”, English *she came up, springing out of his carriage*; and M2: non-verbal adjuncts such as Latin *passuque incedit inerti* “(he) came forward with a sluggish step”, Italian *vi si diresse frettolosamente* “he hastily headed there”, English *she came in slowly*.

2.3.2. Path sub-components

In § 1.3, we have shown how the encoding of path is not a semantically fixed procedure, since it may involve the specification of one or more sub-components for a single motion event. In order to account for this sub-articulation, we propose to keep track of three path-encoding parameters: *boundary-crossing*, *spatial orientation*, and *deictic anchoring*.

The distributional patterns that characterize the encoding of path sub-components in different linguistic elements within the same construction may give rise to complex annotations and elaborate labels. For the sake of simplicity, the Modeg coding grid only allows to keep track of the three aforementioned parameters based on a distinction between yes/no values. However, a more sophisticated annotation system might also allow to specify the matchings in the use of specific linguistic items to encode path sub-components, or either to distinguish, for each parameter, a list of sub-values which might allow, for example, to keep track of proximal (i.e. near the speaker), medial (i.e. near the addressee) and distal (i.e. far from both) spatial deixis, as well to investigate the preference for a relative, absolute or intrinsic reference frame in the shaping of spatial orientation.

Despite Modeg’s simplification, the mere annotation of whether boundary-crossing, spatial orientation, and deictic anchoring are expressed or not within a clause allows all the same to point out major phenomena related to motion-encoding pattern. One of these, for example, is the important, and yet so far neglected, distinction between the types of the so-called path elaboration⁷⁰.

We propose to distinguish between two different notions – generally confused in previous studies on motion events – by which an articulated path can be considered as either *complex* or (*strongly/weakly*) *conceptualized*, depending on whether grounds or path subcomponents are involved in the event⁷¹.

We define *complex path* as a vector oriented with reference to more than just a single ground (e.g., source, median, goal) and encoded within the same clause. Such a definition corresponds to Slobin’s notion of *plus-ground verbs*, that is, verbs

accompanied by «one or more prepositional encoding source and/or goal» and opposed to *minus-ground verbs* «bare verbs or verbs with satellites indicating direction or movement»⁷². Examples of complex paths are shown in (1) and (2).

- (1) English⁷³
[to] *run out of the house, across the field, into the forest* [source + median + goal]
- (2) Polish⁷⁴
Chłopiec wy-biegł z morza na plażę
boy.NOM out-ran from sea.GEN to beach.ACC
“The boy ran out from the sea to the beach” [source + goal]

On the other hand, we define a strongly conceptualized path as a trajectory whose different subcomponents (spatial orientation, deictic anchoring, boundary-crossing) are overtly specified, see examples (3) and (4).

- (3) Jacaltec⁷⁵
sirnih-ay-toy sb'a naj sat pahaw b'et wichen
A3.E3.threw-DIR.down-DIR.away E3.REFL NCL/he E3.in.front cliff into gully
“He threw himself away over the cliff into the gully” [spatial orientation + deictic anchoring + boundary-crossing]
- (4) Japanese⁷⁶
onnanohito-ga dookutu-no naka-kara de-te iki-masi-ta
woman-NOM cave-GEN inside-ABL exit-CVB go-POLI-PST
“The woman who exited from the inside of the cave went away from me” [boundary-crossing + deictic anchoring]

FIG. 2 gives an iconic representation of such distinctions, with examples from the English language.

Assuming that path complexity and path conceptualization represent two separate notions, the former appears to be strictly connected to the linguistic expression of the motion event as it occurs in space, whereas the latter seems more linked to the cognitive representation of path. Indeed, rather than on the linguistic tendency to incorporate path subcomponents into satellites or prepositional phrases linked to a main verb, path conceptualization clearly correlates with the treatment of cognitively salient information, which is restricted by the grammatical features shown by languages and which determine a series of obligatory constructional options, independently from the motion encoding type to which languages are ascribed. For this reason, if on the one hand there is an evident correlation between complexity and SF-encoding type, on the other conceptualization apparently does not pertain to this latter encoding strategy, as this can also be found in VF languages like Korean⁷⁷ or Basque⁷⁸. Thus, it would be extremely interesting to investigate to which degree path conceptualization can be

FIGURE 2
Graphic representation of the difference between path complexity and path conceptualization

Path type	Path complexity		Example
Single path			Brian run out from the school [G1].
			Brian cross the street [G2].
			Brian goes home [G3].
Complex path			He ran out of the house, across the field, into the forest.
			He ran out of the house into the forest.
			He ran across the field into the forest.
Path conceptualization			
Boundary crossing ; Spatial orientation ; Deictic anchoring .			
Weakly conceptualized path			She climbs up the three.
			Come here!
			She enters the room.
Strongly conceptualized path	+		She comes into this room. [boundary crossing + deixis]
	+ +		She comes up out of a hatch. [deixis + boundary crossing + spatial orientation]

related to a specific prevalent encoding type and to specific linguistic elements used for path encoding.

With respect to path elaboration, Modeg allows to evaluate the degree of complexity and conceptualization shown by the languages analyzed, while also permitting to correlate these two notions by simultaneously noting both the grounds expressed and the semantic sub-components encoded. This makes it possible to place motion events encoding in a variational space which is not made up of only two definite and generic points (the VF and SF macro-classes) but of a set of possible constructions, varying according to the different type of paths expressed.

FIGURE 3
 Modég's interface and usage example

3 From the concept of grid to Modég

The grid of analysis so far described has been repeatedly tested for the annotation of motion events occurrences carried out in our research⁷⁹ by employing a simple application software called Modég (acronym for MOtion DEcoding Grid)⁸⁰, this acronym later came to designate the whole annotation frame proposed in this work. The software was conceived as a prototype providing a schematic organization of the relevant concepts and categories. In particular, our intent was to assist the annotation process in the data input phase by providing the annotator with a set of predefined categories and values to be selected from a dropdown list. Modég's aim is basically that of testing the degree of applicability of the linguistic parameters and comparative concepts pointed out so far. The use of such an annotation system could ensure comparability and cumulability of corpus-based descriptions of motion events in different languages. FIG. 3 portrays Modég's user friendly interface and also provides an example of how to use it to annotate a motion event in English.

The result of the annotation process is reported in a string of characters placed at the bottom left of the screen under the heading *Construction*. The construction specifies all the loci involved in the encoding of the motion event, the semantic components expressed, the potential expression of manner in an extra-verbal element, and, finally, all path sub-components separated by a semicolon. The construction allows to express synthetically the categories and values involved in the encoding of motion as well as to immediately identify what is being expressed by which slot, thus boosting the processes of data elaboration and comparison.

In the following paragraph, we show the applicability of Modég's annotation system to language analysis and comparison with particular regard to parallel corpora studies.

3.1. Some illustrative applications of Modeg

Motion occurrences belonging to Classical Latin texts (Ovid’s *Metamorphoses* and Caesar’s *De bello gallico*) and their Italian translations are analyzed and compared in Corona’s PhD dissertation⁸¹. The two examples reported in (5) are taken from Ovid’s text and its translations by Arrigo Simintendi da Prato (first half of the 14th century).

(5) a. Latin

Crura loquentis terra supervenit [Ov.I.37]

“the earth came upon the legs of who was speaking”

b. Old Italian

a terra venne sopra le gambe di colei che parlava

“the earth came upon the legs of the lady who was speaking”

The annotation process of the sentence in (5a) is shown in FIG. 4.

The Modeg construction corresponding to the example (5a) is S1g A1g Vpg; SO, that is, the occurrence annotated features a goal-oriented satellite (the preverb *super-* “upon”), a goal encoded adnominally through the ablative case marker (*crura loquentis* “to the legs of who was speaking”), a goal-oriented generic motion verb (*venit*), and spatial orientation (*super-*).

The results of the annotation process of the sentence in (5b) are shown in FIG. 5.

The construction of the example in (5b) corresponds to A3s Vdv; SO as it features a preposition encoding spatial orientation (*sopra* “upon”), a telic deictic verb with venitive value (*venne* “came”), and a prepositional phrase (*sopra le gambe* “upon the legs”) interpretable as goal-oriented thanks to meaning compositionality. The comparison of the two constructions of the examples in (5a, b) allows to immediately identify the

FIGURE 4
Annotation of the example in (5a)

FIGURE 5
Annotation of the example in (5b)

differences in the strategies employed to encode the event in the two sentences. These mainly consist in the presence of a satellite in Latin (absent in Old Italian) and in the divergent ways in which the two languages exploit the adnominal locus and the type of formal items used to express spatial orientation.

The three sentences in (6) correspond to a motion event narrated by Ovid (6a) with its translations in Simintendi's text (6b) and in contemporary Italian (6c).

(6) a. Latin

Huc ex-i [Ov.III.45a]

“come here”, lit. “(you) exit hither”

S1s S3g Vb; BC, DA: source-oriented preverb (*ex-*), goal-oriented adverb (*huc*), generic motion verb (*i > eo*), boundary-crossing (*ex-*), deictic anchoring (*huc*).

b. Old Italian

Esci fuor qua

“come here”, lit. “(you) exit out here”

S2g S3g Vps; BC, DA = goal-oriented postverbal particle (*fuor*), goal-oriented adverb (*qua*), source-oriented directional verb (*esci*), boundary-crossing (*esci*), deictic anchoring (*qua*).

c. Contemporary Italian

Vieni fuori

“come here”, lit. “(you) come out”

S2g Vdv; BC, DA = goal-oriented postverbal particle (*fuori*), venitive deictic verb (*viene*), boundary-crossing (*fuori*), deictic anchoring (*viene*).

Modeg annotation makes it easy to compare the semantic components, the loci in which these are expressed as well as the different linguistic elements used in the three texts. The Latin sentence in (6a) displays two satellites, i.e. the prefix *ex-* “out of” (expressing the exit

from a bounded space) and the deictic adverb *huc* “hither” (expressing speaker-oriented movement). The Old Italian translation shows a similar construction where the adverb *fuor* “out of” is used as a post-verbal particle of the verb *uscire* “to exit” (encoding both boundary-crossing and source-oriented motion) along with the deictic adverb *qua* “here” (expressing speaker oriented motion). In the Contemporary Italian translation (6c) the adverb *fuori* “out of” (encoding boundary crossing) is used as a post-verbal particle of the verb *venire* “come” (expressing venitive deixis) with no further adverbial specification, thus showing a simpler construction in the expression of path conceptualization.

The degree of path complexity and path conceptualization is investigated by Iacobini and colleagues in a study on source and goal asymmetry in Ancient Greek and Latin⁸². Here, the use of Modeg’s indexation has allowed the easy identification of both path types. More specifically, in order to retrieve all motion events showing complex paths, the Modeg-annotated data were filtered according to the combined or reduplicated presence of the source and goal values within the satellite and/or the adnominal category. As for path conceptualization, the co-presence in the same string of more than one path sub-component (spatial orientation, deictic anchoring, boundary-crossing) was taken as a criterion for its identification. What emerged from the Modeg-based analysis was that Ancient Greek (7) tends to express complex paths, using prefixes to encode source and adnominal constructions to encode goal. On the other hand, Latin tends to encode single paths, showing semantic congruence between satellite (i.e. prefix) and adnominal (8).

(7) Ancient Greek

Ap-élthe es tàs Sárdis [Hdt.I.22.2]

“(He) returned to Sardis”

S1s A2g Vg: source-oriented preverb (*ap-*), goal-oriented prepositional phrase governing the accusative case (*es tàs Sárdis*), generic motion verb (*élthe*)

(8) Latin

De finibus suis [...] ex-irent [Caes.Gal.I.2.1]

“They go forth from their territories”

S1s A2s Vg; BC, SO: source-oriented preverb (*ex-*), source-oriented prepositional phrase governing the ablative case (*de finibus suis*), generic motion verb (*irent*), boundary-crossing (*ex-*), spatial orientation (*de*)

Clearly, the annotation strings obtained using Modeg are more and more useful as the number of sentences to be compared grows, especially when the units of comparison belong to different languages and span over different time stages. An instance of the application of Modeg to this type of data analysis is provided in a study by Iacobini and Buoniconto⁸³, where the two authors compare Modeg’s construction strings of translations, belonging to two different time stages (15th-16th centuries and 19th-20th centuries), in five Romance languages of Latin motion events extracted from Livy’s *Ab Urbe Condita*.

The sentence reported in (9) shows a typical Latin satellite-framed construction featuring a manner verb (*curro* “run”), a source-oriented directional prefix (*de-* “down from”) which also specifies spatial orientation (downwards movement), a prepositional phrase (*ab arce* “from the citadel”) expressing the same portion of path (i.e. source) encoded by the preverb by means of the combination of a preposition plus the ablative case. The Modeg-string reported in (9) synthetically formalizes such information.

(9) Latin

Metius Curtius [...] *ab arce de-cucurrerat* [Liv.XII.8]

“Metius Curtius [...] had run down from the citadel”

S_{1S} A_{2S} V_m; SO = source-oriented preverb (*de-*), source-oriented prepositional phrase governing the ablative case (*ab arce*), manner verb (*cucurrerat*), spatial orientation (*de*).

Sentences from (10) to (14) represent the translations of (9) in French, Spanish, Portuguese, Italian and Romanian. For each language, the translations are reported in chronologically increasing order with letter (a) and (f) identifying respectively the most distant and the closest time-stage to the contemporary period. The strings obtained through the annotation according to the Modeg schema and used to synthetically identify the syntactic constructions involved in the translation of the event encoded in (8) are reported in TAB. 2⁸⁴.

The most recurrent construction in the French examples is the one featuring a directional verb. However, examples (10b) and (10e) show that French, in different diachronic stages, admits the encoding of manner within the verb root. Manner is expressed outside the main verb in (10c) and (10d), and omitted in (10a) and (10f).

(10) French

a. *Metius Curtius* [...] *descendu de la forteresse* [...]

“Metius Curtius [...] had descended from the fortress”

A_{3S} V_{ps}; SO = prepositional phrase (source), path verb (goal; spatial orientation)

b. *Metius Curtius* [...] *estoit couru du haut de la forteresse en bas*

“Metius Curtius [...] had run down from up the fortress”

A_{3S} A₄ A₄ V_m; SO = prepositional phrase (source), two internal localization nouns (source plus spatial orientation, goal plus spatial orientation), manner verb

c. *Metius Curtius* [...] *estant sorty à toute bride de la forteresse*

“Metius Curtius [...] had exited the fortress at full speed”

A_{3S} V_{ps} M₂; BC = prepositional phrase (source), path verb (source; boundary-crossing), non-verbal manner adjunct

d. *Metius Curtius* [...] *était le premier descendu en courant de la citadelle*

“Metius Curtius [...] had first descended from the citadel at a run”

A_{3S} V_{ps} M₁; SO = prepositional phrase (source), path verb (goal; spatial orientation), manner adjunct (non-finite verb)

e. *Metius Curtius* [...] *s'élançant du haut de la citadelle*

“Metius Curtius [...] had cast himself from up the citadel”

TABLE 2

Latin and Romance constructions according to the Modeg annotation schema of examples from (9) to (14)

	French	Spanish	Portuguese	Italian	Romanian
Time	A3s Vpg; SO	A3s Vpg; SO	*	A3s Vpg; SO	*
stage 1	A3s A4 A4 Vm; SO	Not translated	*	S2g A3s Vm; SO	*
15 th -16 th	A3s Vps M2; BC SO	Not translated	*	S2g A3s Vdv; SO	*
cc.					
Time	A3s Vpg M1; SO	A3s Vpg; SO	A3s Vpg; SO	A3s Vm	A2sVm; SO
stage 2	A3s A4 Vm; SO	Vpg M1; SO	A3s Vpg; SO	S2g A3s Vpg; SO	A2sVm; SO
19 th -20 th	A3s Vpg; SO	A3s Vpg; SO	A3s Vpg; SO	S2g A3s Vm; SO	A2sVm; SO
cc.					
Latin			S1 A2s Vm; SO		

A3s Vm A4; SO = prepositional phrase (source), manner verb, internal localization noun (spatial orientation)

f. *Mettius Curtius, descendu de la citadelle*

“Metius Curtius [...] had descended from the citadel”

A3s Vps; SO = prepositional phrase (source), path verb (goal; spatial orientation).

Spanish translators, on the other hand, use almost exclusively constructions with path verbs followed by prepositional phrases expressing the ground, leaving manner unexpressed or – as in example (11e) – lexicalized in a non-finite verb form (*corriendo* “running”). This is perfectly in line with the classification of Spanish as a verb-framed language, showing a very low degree of manner salience and seldom encoding complex paths (in this respect, note that, in two of the six translations reported, the Latin motion event is not even translated).

(11) Spanish

a. *Mecius Curtius [...] era descendido de la torre*

“Metius Curtius [...] had descended from the tower”

A3s Vps; SO = prepositional phrase (source), path verb (goal; spatial orientation).

b. *Mecio Curcio [...] que había seguido [...]*

“Metius Curtius [...] who had kept on”

Non-translated motion event

c. *Mecio Curcio [...] que había seguido [...]*

“Metius Curtius [...] who had kept on”

Non-translated motion event

d. *Mecio Curcio [...] había bajado de la fortaleza*

“Metius Curtius [...] had descended from the fortress”

A3s Vps; SO = prepositional phrase (source), path verb (goal; spatial orientation)

- e. *Metio Curtio* [...] había bajado corriendo
 “Metius Curtius [...] had descended at a run”
 Vps M1; SO = path verb (goal; spatial orientation), manner adjunct (non-finite verb)
- f. *Mecio Curtio* había bajado de la ciudadela
 “Metius Curtius [...] had descended from the citadel”
 A3s Vps; SO = prepositional phrase (source), path verb (goal; spatial orientation).

Similarly, the translational equivalents reported in (12) from Portuguese texts (all belonging to time stage 2) feature constructions with directional verbs and a prepositional phrase specifying source, with manner never expressed.

- (12) Portuguese:
- d. *Metto Curtio, primeiro centurião dos Sabinos*, descera do castello
 “Metius Curtius, the first centurion of the Sabins, descended from castle”
 A3s Vps; SO = prepositional phrase (source), path verb (goal; spatial orientation)
- e. *O centurião dos sabinos, Metto Curtio*, tinha descido da fortaleza
 “The Sabin centurion, Metius Curtius, had descended from the fortress”
 A3s Vps; SO = prepositional phrase (source), path verb (goal; spatial orientation)
- f. *Metto Curtio chefe dos Sabinos* tinha descido da cidadella
 “Metius Curtius, the chief of the Sabins, had descended from the citadel”
 A3s Vps; SO = prepositional phrase (source), path verb (goal; spatial orientation).

In addition to the constructions of the type shown in the Spanish and Portuguese translations, the encoding strategies employed in the Italian examples also exhibit manner verbs followed by a path adverb or (post-)verbal particles associated with a prepositional phrase expressing the ground. The translations in (13b) and (13c) are clear instances of how the use of post-verbal particles encoding spatial orientation is already shown in texts belonging to 15th and 16th centuries⁸⁵. It is worth noting that post-verbal particles co-occur with verb roots expressing manner in (13b) and (13f), and expressing deixis in (13c).

- (13) Italian
- a. *Metio Curtio* [...] era sceso dela forteza
 “Metius Curtius [...] had descended from the fortress”
 A3s Vps; SO = prepositional phrase (source), path verb (source; spatial orientation)
- b. *Metio Curtio* [...] era corso giù dal poggio della Rocca
 “Metius Curtius [...] had run down from up the hill of the stronghold”
 S2g A3s Vm; SO = post-verbal particle (goal; spatial orientation), prepositional phrase (source), manner verb
- c. *Metio Curtio* [...] venendo giù dalla Rocca
 “Metius Curtius [...] while coming down from the stronghold”
 S2g A3s Vdv; SO = postverbal particle (goal; spatial orientation), prepositional phrase (source), venitive deictic verb
- d. *Mezio Curzio* [...] s’era slanciato dalla rocca
 “Metius Curtius [...] had cast himself from up the stronghold”

- A3s Vm = prepositional phrase (source), manner verb
 e. *Mettio Curzio era sceso giù [...] dalla rocca*
 “Metius Curtius [...] had descended down from the stronghold”
 S2g A3s Vps; SO = postverbal particle (goal; spatial orientation), prepositional phrase (source), path verb (source; spatial orientation)
 f. *Mezzio Curzio s’era lanciato giù dalla rocca*
 “Metius Curtius [...] had had cast himself down from up the stronghold”
 S2g A3s Vm; SO = postverbal particle (goal; spatial orientation), prepositional phrase (source), manner verb.

The three Romanian translations exemplified in (14) also seem to deviate from the verb-framed encoding type with constructions exhibiting manner verbs followed by a prepositional phrase. Spatial orientation and source are expressed by the combination of prepositional phrase plus case marker (*din vârful / înălțimea cetățuii* “from the upper part of the citadel”); manner verbs (a *repezi*, a *năpusti* “to rush, dash, hurl”) show a certain disposition toward a goal-oriented reading.

(14) Romanian

- d. *Mettius Curtius se repezise din vârful cetățuii*
 “Metius Curtius [...] dashed from the upper part of the citadel”
 A2s Vm; SO = prepositional phrase plus case (source), manner verb (spatial orientation)
 e. *Mettius Curtius se repezise din vârful cetățuii*
 “Metius Curtius [...] dashed from the upper part of the citadel”
 A2s Vm; SO = prepositional phrase plus case (source), manner verb (spatial orientation)
 f. *Mettius Curtius se năpustec din înălțimea cetățuii*
 “Metius Curtius [...] hurled from up the citade”
 A2s Vm; SO = prepositional phrase plus case (source), goal-oriented manner verb (spatial orientation)

The comparison of the constructions obtained by using Modég’s annotation system allows to easily illustrate that the satellite-framed construction which characterizes the Latin sentence (i.e. manner verb and prefix expressing source and spatial orientation) is not retained in the Romance languages, while also showing which characteristics are more or less common among the languages investigated. In particular, what emerges is that Romance languages resort to path verbs in 13 out of the 22 examples reported. Although to a minor extent, manner verbs are also used (in 8 cases), with no occurrences in Spanish and Portuguese; only in Romanian these represent the majority of the verbs. Italian seems to be the only language to use satellites for motion event encoding. However, examples of this are attested only in 2 cases. The labels obtained using Modég also show that the encoding of manner outside the verb, although typologically expected in the Romance languages, is not very common, as it occurs only in 2 French instances. Finally, the quick comparison of the Modég strings also brings to light that some pieces of the information encoded by the original Latin text are lost in almost all the translations. Such a result is in

line with the expectations, since, as discussed in § 1.2, languages employing prevalently VF strategies tend to encode less path and manner information as compared to prevalently SF ones.

Conclusions

Ever since the pioneering investigations carried out in the 1970s, the study of motion event encoding has grown richer and richer over the decades, and has now attained a solid theoretical refinement, as well as a significant quantity of valuable descriptive analyses. For this reason, it is now necessary to focus on the necessity to provide cumulated, replicable, and comparable data. The research presented in this paper has outlined an analysis grid designed precisely for this purpose.

The theoretical considerations set forth in sections 1 and 2 allowed us to identify a number of research criteria and analysis values which are at the very heart of our analysis grid and which have led to the implementation of a prototype analysis scheme which we have tested on a trial software tool. This prototype (called *Modég*) consists of a set of predefined values assigned on a semantic and lexical base to four categories (satellite, adnominal, verb, noun). Such values correspond to information concerning grounds (source, median, goal) and path sub-components (boundary-crossing, spatial orientation, deictic anchoring), as well as the verbal and extra-verbal encoding of manner.

It is worth stressing that our proposal, despite having among its results *Modég*'s application to a sketchy software, is motivated by a methodological – rather than a technological – endeavor, since the basic scheme structure can be also applied to different and more refined annotation programs (such as ANALEC, ELAN, GATE).

The theoretical notions on which *Modég* is based are cross-linguistically applicable, also allowing its scheme to be further specified according to the descriptive needs of the languages investigated, without altering the basic structure described here. The examples discussed in section 3 have shown the applicability of the categories and values identified to intra- and cross-linguistic motion events analysis, as well as providing a detailed instantiation of the results obtainable through *Modég*-based event annotation. The analysis methodology on which *Modég* is based has also allowed to bring to light a fundamental, yet so far neglected, distinction between the notions of path complexity and path conceptualization.

In conclusion, although this contribution is not to be intended as a further refinement to the theory of motion encoding, we have tried to provide a definition of those that we claim to be the most relevant comparative concepts in such a study field, also trying to highlight the importance of their interaction and reciprocal delimitation. The main purpose of our work was that of meeting the need for a common analysis framework and annotation scheme based on clear, defined and shared reference points that could be universally applied to language description. To that end, we have tried to

identify the typological semantic and lexico-syntactic pillars of motion event encoding, on the basis of which we developed a set of interlinguistically valid criteria and values, with the final goal of obtaining comparable data.

Notes

* This paper is the result of a long period of research carried out by the authors, which has involved their close and constant collaboration. The final paper is actually the result of a collective work. Nevertheless, for academic purposes only, we have kept track of the authors' contribution to the structuring of the single sections over time. Therefore, we attribute to Claudio Iacobini the introductory and conclusive sections, as well as §§ 1, 2; to Luisa Corona §§ 1.3, 1.4, 2.1 (2.1.1, 2.1.2), 2.3 (2.3.1, 2.3.2); to Alfonsina Buoniconto §§ 1.1, 1.2, 2.2 (2.2.1, 2.2.2), 3 (3.1).

1. D. Slobin, *Relating Narrative Events in Translation*, in D. Ravid, H. B.-Z. Shyldkrot (eds.), *Perspectives on Language and Language Development: Essays in Honor of Ruth A. Berman*, Kluwer, Dordrecht 2005, pp. 115-29.

2. On the distinction between comparative concepts and descriptive categories, cf. M. Haspelmath, *Comparative Concepts and Descriptive Categories in Crosslinguistic Studies*, in "Language", 86, 2010, pp. 663-87.

3. F. Landragin, T. Poibeau, B. Victorri, *ANALEC: a New Tool for the Dynamic Annotation of Textual Data*, in N. Calzolari, K. Choukri, T. Declerck, M. Doğan, B. Uğur, Maegaard, J. Mariani, A. Moreno, J. Odiijk, S. Piperidis (eds.), *Proceedings of the International Conference on Language Resources and Evaluation (LREC 2012)*, European Language Resources Association, Istanbul 2012, pp. 357-62; *ELAN (Version 5.2)* [Computer software], Max Planck Institute for Psycholinguistics, Nijmegen 2018, Retrieved from <https://tla.mpi.nl/tools/tla-tools/elan/>; K. Bontcheva, H. Cunningham, I. Roberts, A. Roberts, V. Tablan, N. Aswani, G. Gorrell, *GATE Teamware: A Web-Based, Collaborative Text Annotation Framework*, in "Language Resources and Evaluation", 47, 4, 2013, pp. 1007-29.

4. L. Talmy, *Toward a Cognitive Semantics*, MIT Press, Cambridge (MA) 2000.

5. The typology and the study methodology proposed in Talmy, *Toward a Cognitive Semantics*, cit. cannot be regarded as a monolithic system. As a matter of fact, this systematization is preceded and followed by a number of works which represent the consequential steps of a progressively refined typological research. Among the most influential, see L. Talmy, *Semantic Structures in English and Atsugewi*, Unpublished PhD Thesis, University of California, Berkeley 1972; L. Talmy, *Lexicalization Patterns: Semantic Structure in Lexical Forms*, in T. Shopen (ed.), *Language Typology and Syntactic Description*, vol. 3, *Grammatical Categories and the Lexicon*, 1st Edition, Cambridge University Press, Cambridge 1985, pp. 57-149; L. Talmy, *Path to Realization: A Typology of Event Conflation*, in L. A. Sutton, C. Johnson, R. Shields (eds.), *Proceedings of the Seventeenth Annual Meeting of the Berkeley Linguistics Society*, Berkeley Linguistics Society, Berkeley (CA) 1991, pp. 480-520; L. Talmy, *Lexical typologies*, in T. Shopen (ed.), *Language Typology and Syntactic Description*, vol. 3, *Grammatical Categories and the Lexicon*, 2nd Edition, Cambridge University Press, Cambridge 2007, pp. 66-168.

6. Cf. I. Ibarretxe-Antuñano, *Leonard Talmy. A Windowing to Conceptual Structure and Language. Part 1: Lexicalisation and Typology*, in "Annual Review of Cognitive Linguistics", 3, 2005, pp. 325-47.

7. D. I. Slobin, *The Many Ways to Search for a Frog: Linguistic Typology and the Expression of Motion Events*, in S. Strömquist, L. Verhoeven (eds.), *Relating Events in Narrative: Typological and Contextual Perspectives*, Lawrence Erlbaum, Mahwah (NJ) 2004, pp. 219-57.

8. D. I. Slobin, *From S-language and V-language to PIN and PIV*, paper presented at the Workshop *Human Locomotion across Languages*, Max Planck Institute for Psycholinguistics, Nijmegen, June 6, 2008.

9. Slobin, *The Many Ways*, cit.

10. J. Beavers, B. Levin, S. W. Tham, *The Typology of Motion Expression Revisited*, in "Journal of Linguistics", 46, 3, 2010, pp. 331-77.

11. A. Papafragou, C. Massey, L. Gleitman, *When English proposes what Greek presupposes: The cross-linguistic encoding of motion events*, in "Cognition", 98, 2006, pp. 75-87.

12. W. Croft, J. Barðdal, W. B. Hollmann, V. Sotirova, C. Taoka, *Revising Talmy's typological classification of complex event constructions*, in H. C. Boas (ed.), *Contrastive Studies in Construction Grammar*, John Benjamins, Amsterdam-Philadelphia 2010, pp. 201-35.
13. Ivi, p. 202.
14. Talmy, *Path to Realization*, cit., p. 483.
15. Among the others, see Talmy, *Toward a Cognitive Semantics*, cit.; C. Grinevald, *On Constructing a Working Typology of the Expression of Path*, in "Faits de Langues. Les Cahiers", 3, 2011, pp. 43-70; Slobin, *Relating Narrative Events in Translation*, cit.
16. Grinevald, *On Constructing a Working Typology of the Expression of Path*, cit.
17. Ivi, p. 56.
18. Ivi, p. 55.
19. The term *boundary-crossing*, first introduced by D. I. Slobin, *Two Ways to Travel: Verbs of Motion in English and Spanish*, in M. Shibatani, S. A. Thompson, *Grammatical Constructions. Their Form and Meaning*, Clarendon Press, Oxford 1996, pp. 195-219, is usually used to refer to a path characterized by the presence of a boundary to be crossed by the moving figure. In his subsequent studies, Slobin has also shown how boundary-crossing is linguistically salient and how it may determine significant typological differences across languages in the encoding of motion events. Indeed, when there is no need to encode boundary-crossing, both SF and VF speakers can use manner verbs to express the event. On the other hand, if boundary-crossing needs to be encoded, VF speakers can only have recourse to path verbs to express it, leaving manner to adjuncts. Conversely, speakers of SF languages, can still use manner verbs in the presence of boundary-crossing, since such languages show directional satellites for boundary-crossing expression (see also J. Aske, *Path Predicates in English and Spanish: A Closer Look*, in "Proceedings of the Fifteenth Annual Meeting of the Berkeley Linguistics Society", 15, 1989, pp. 1-14; L. Filipović, *Talking about Motion. A Cross-linguistic Investigation of Lexicalization Patterns*, John Benjamins, Amsterdam-Philadelphia 2007).
20. For a typology of reference frames in the linguistic expression of spatial relations, see S. C. Levinson, *Space in Language and Cognition*, Cambridge University Press, Cambridge 2003.
21. Talmy, *Toward a Cognitive Semantics*, cit.
22. Ivi, p. 56, small caps in the original.
23. Croft, Barðdal, Hollmann, Sotirova, Taoka, *Revising Talmy*, cit.
24. A. Guillaume, *Associated Motion in South America: Typological and Areal Perspectives*, in "Linguistic Typology", 20, 1, 2016, pp. 81-177; P. Koch, *Lexical Typology from a Cognitive and Linguistic Point of View*, in M. Haspelmath, E. König, W. Oesterreicher, W. Raible (eds.), *Language Typology and Language Universals / Sprachtypologie und sprachliche Universalien / La typologie des langues et les universaux linguistiques; An International Handbook / Ein internationales Handbuch / Manuel international*, 11, Walter de Gruyter, Berlin-New York 2001, pp. 1142-78; F. Rose, *Associated Motion in Mojeño Trinitario: Some Typological Considerations*, in "Folia Linguistica", 49, 1, 2015, pp. 117-58; D. Wilkins, *The Semantic, Pragmatics, and Diachronic Development of "Associated Motion" in Mparntwe Arrernte*, in "Buffalo Papers in Linguistics", Department of Linguistics, State University of New York at Buffalo (NY), pp. 207-57.
25. See, among the others, C. Sinha, T. Kuteva, *Distributed Spatial Semantics*, in "Nordic Journal of Linguistics", 18, 1995, pp. 167-99; Croft et al., *Revising Talmy*, cit.
26. Beavers, Levin, Tham, *The Typology*, cit., p. 332.
27. Talmy, *Toward a Cognitive Semantics*, cit.
28. B. Wälchli, *A Typology of Displacement (with Special Reference to Latvian)*, in "Sprachtypologie und Universalienforschung", 54, 3, 2001, pp. 298-323.
29. As the author admits, the language sample is both genetically and areally biased. In fact, among the languages studied, 16 are Indo-European, 8 are Finno-Ugric, and 22 are spoken in Europe.
30. Ivi, p. 300.
31. *Ibid.*
32. We refer to a group of researchers coming from different countries who, between 2008 and 2011, worked on a project called *Typologie de la Trajectoire – Complexité et Changements des Systèmes Typologiques* (cf. <http://www.ddl.ish-lyon.cnrs.fr/trajectoire/>). The main results of this project are reported in a special issue of the journal "Faits de Langues: Les Cahiers", 3, 2011.
33. J. M. Fortis, A. Vittrant, *L'organisation syntaxique de l'expression de la trajectoire: vers une typologie des constructions*, in "Faits de Langues: Les Cahiers", 3, 2011, pp. 71-98. See also the updated model set forth in J.

- M. Fortis, A. Vittrant, *On the Morpho-Syntax of Path-Expressing Constructions: Toward a Typology*, in “STUF”, 69, 3, 2016, pp. 341-74.
34. Fortis, Vittrant, *L'organisation syntaxique*, cit., p. 78.
35. Adapted from Fortis, Vittrant, *L'organisation syntaxique*, cit., p. 84.
36. G. Corbett, *The Canonical Approach in Typology*, in Z. Frajzyngier, D. Rood, A. Hodges (eds.), *Linguistic Diversity and Language Theories*, John Benjamins, Amsterdam-Philadelphia 2005, pp. 25-50.
37. Ivi, p. 25.
38. Wälchli, *A Typology of Displacement*, cit.
39. Fortis, Vittrant, *L'organisation syntaxique*, cit.; Fortis, Vittrant, *On the Morpho-Syntax*, cit.
40. L. Corona, *Gli eventi di moto in diacronia. Variazione e continuità dal latino all'italiano*, PhD dissertation, Università degli Studi di Salerno, Fisciano 2015; C. Iacobini, L. Corona, *L'espressione della direzione del moto dal latino classico all'italiano antico*, in É. Buchi, J.-P. Chauveau, J. M. Pierrel (éds.), *Actes du XXVII^e Congrès international de linguistique et de philologie romanes (Nancy, 15-20 juillet 2013)*, Société de linguistique romane/ÉLiPhi, Strasbourg 2016; C. Iacobini, L. Corona, “*Romanes eunt domus*”: *Where You Can Go with Latin Morphology. Variation in Motion Expression between System and Usage*, in J. Audring, F. Masini, W. Sandler (eds.), *Quo Vadis Morphology? On-line Proceedings of the Tenth Mediterranean Morphology Meeting (MMM10)*, Haifa, Israel, 7-10 September 2015, University of Leiden | University of Bologna | University of Haifa 2016b, pp. 73-87, http://www.lilec.it/mmm/wp/wp-content/uploads/2016/07/MMM10_proceedings_BOOK.pdf; C. Iacobini, L. Corona, N. De Pasquale, A. Buoniconto, *How Should a “Classical” Satellite-Framed Language Behave? Path Encoding Asymmetries in Ancient Greek and Latin*, in S. Luraghi, T. Nikitina, C. Zanchi, *Space in Diachrony*, John Benjamins, Amsterdam-Philadelphia 2017, pp. 95-118; N. De Pasquale, *Motion Event Encoding in Ancient Greek. A Typological Corpus-Based Study of Path and Manner Expression*, PhD dissertation, Università degli Studi di Salerno, Fisciano 2017; A. Buoniconto, “*Going through the Motions*”: *Motion Events Encoding and Analysis Parameters: A Test Study on the Romance family*, PhD dissertation, Università degli Studi di Salerno, Fisciano 2019.
41. Talmy, *Semantic Structures*, cit.
42. Actually, the terminology used by Talmy in his 1972 work is quite different from the current terminology related to motion events encoding: the semantic component of path is referred to as *directional*.
43. Talmy, *Toward a Cognitive Semantics*, cit., pp. 102-3.
44. J.-M. Fortis, B. Fagard, *The Typology of Motion Events*, presented at *Space in Language – Leipzig Summer School*, Leipzig 2010, https://www.eva.mpg.de/lingua/conference/2010_summerschool/pdf/course_materials/Fortis_3.MOTION%20EVENTS.pdf.
45. R. Pittman, *Nuclear Structures in Linguistics*, in “Language”, 24, 1948, p. 288.
46. C. Imbert, C. Grinevald, A. Sörös, *Pour une catégorie de “satellite” de Trajectoire dans une approche fonctionnelle-typologique*, in “Faits de Langues. Les Cahiers”, 3, 2011, pp. 99-171.
47. As specified Ivi, p. 104, it is not always easy to apply this last criterion to all the members of the category. Indeed, satellites can be linguistic elements which have more or less definitively undergone a passage from the lexical to the grammatical sphere.
48. Talmy, *Lexicalization Patterns*, cit., pp. 105-6.
49. *Ibid.*
50. Talmy, *Toward a Cognitive Semantics*, cit., p. 108.
51. Ivi, p. 102.
52. Filipović, *Talking about Motion*, cit., pp. 35-7.
53. Beavers, Levin, Tham, *The Typology*, cit.
54. Croft, Barðdal, Hollmann, Sotirova, Taoka, *Revising Talmy*, cit.
55. Imbert, Grinevald, Sörös, *Pour une catégorie de “satellite”*, cit.
56. C. Papahagi, *Pour une typologie des systèmes d'adnominaux de la trajectoire*, in “Faits de Langues. Les Cahiers”, 3, 2011, pp. 117-30.
57. Ivi, p. 119.
58. Cf. M. Aurnague, *Les noms de localisation interne: tentative de caractérisation sémantique à partir de données du basque et du français*, in “Cahiers de Lexicologie”, 69, 1996, pp. 159-92; A. Borillo, *Partition et localisation spatiale: les noms de localisation interne*, in “Langages”, 136, 1999, pp. 53-75.

59. L. Talmy, *Main Verb Properties and Equipollent Framing*, in J. Guo, E. Lieven, N. Budwig, S. Ervin-Tripp, K. Nakamura, S. Özçalışkan (eds.), *Crosslinguistic Approaches to the Psychology of Language: Research in the Tradition of Dan Isaac Slobin*, Psychology Press, New York 2009, pp. 389-402.
60. Ivi, p. 391.
61. *Ibid.*
62. *Ibid.*
63. R. Simone, *Coefficienti verbali nei nomi*, in P. M. Bertinetto, V. Bambini, C. Bertoincin, M. Farina (a cura di), *Categorie del verbo. Diacronia, teoria, tipologia. Atti del xxxi Convegno della Società Italiana di Glottologia*, Il Calamo, Roma 2008, pp. 83-113.
64. See R. Jackendoff, *Semantics and Cognition*, MIT Press, Cambridge (MA) 1983; M. Haspelmath, *Indefinite Pronouns*, Oxford University Press, Oxford 1997.
65. See Moline, Stosic, *L'expression de la manière en français*, cit.; Stosic, *Manner as a Cluster Concept*, cit.
66. Stosic, *Manner as a Cluster Concept*, cit., p. 182.
67. See, for example, B. Levin, *Verb Classes Within and Across Languages*, in B. Comrie, A. Malchukov (eds.), *Valency Classes: A Comparative Handbook*, Mouton de Gruyter, Berlin 2015, pp. 1627-70; M. Rappaport Hovav, *Building Scalar Change*, in A. Alexiadou, H. Borer, F. Schäfer (eds.), *The Syntax of Roots and the Roots of Syntax*, Oxford University Press, Oxford 2014, pp. 259-82; B. Levin, M. Rappaport Hovav, *Building Verb Meanings*, in M. Butt, W. Geuder (eds.), *The Projection of Arguments: Lexical and Compositional Factors*, CSLI Publications, Stanford (CA) 1998, pp. 97-134; B. Levin, M. Rappaport Hovav, *Lexicalized Meaning and Manner/Result Complementarity*, in B. Arsenijević, B. Gehrke, R. Marín (eds.), *Subatomic Semantics of Event Predicates*, Springer, Dordrecht 2013, pp. 49-70; J. Beavers, A. Koontz-Garboden, *Manner and Result in the Roots of Verbal Meaning*, in "Linguistic Inquiry", 43, 3, 2012, pp. 331-69.
68. D. I. Slobin, *What Makes Manner of Motion Salient. Explorations in Linguistic Typology, Discourse, and Cognition*, in M. Hickmann, R. Stéphane (eds.), *Space in Languages. Linguistic Systems and Cognitive Categories*, John Benjamins, Amsterdam-Philadelphia 2006, pp. 59-81.
69. Besides Slobin's work, only a few studies have paid attention to the possible identification of a set of manner components expressed in the meaning of verb roots, cf. F. Cardini, *Manner of Motion Saliency: An Inquiry into Italian*, in "Cognitive Linguistics", 19, 4, 2008, pp. 533-69; C. Iacobini, *Manner Verbs as a Cue for Typological Change*, in G. Marotta, A. Lenci, L. Meini, F. Rovai (a cura di), *Space in Language. Proceedings of the Pisa International Conference*, Edizioni ETS, Pisa 2010, pp. 495-514; Buoniconto, "Going through the Motions", cit.; Stosic, *Manner as a Cluster Concept*, cit. See also D. Stosic, M. Aurnague, *DinaVmouv: Description, INventaire, Analyse des Verbes de MOUVement. An Annotated Lexicon of Motion Verbs in French*, 2017 Freely available at: http://redac.univ-tlse2.fr/lexicons/dinaVmouv_fr.html, where a set of parameters which can be considered as being at the origin of the lexical coding of the manner of motion are listed and applied to a corpus of French verbs.
70. On the more or less elaborated and granular way of path expression, cf. D. Stringer, *The Development of PATHS: Spatial Complexity and the Multiple Predicate Strategy*, in S. Unsworth, T. Parodi, A. Sorace, M. Young-Scholten (eds.), *Paths of Development in L1 and L2 Acquisition*, John Benjamins, Amsterdam-Philadelphia 2006, pp. 135-60 and I. Ibarretxe-Antuñano, *Path Salience in Motion Events*, in G. Jiansheng, E. Lieven, N. Budwig, S. Ervin-Tripp, K. Nakamura, S. Özçalışkan (eds.), *Crosslinguistic Approaches to the Psychology of Language: Research in the Tradition of Dan Isaac Slobin*, Psychology Press, New York 2009, pp. 403-14.
71. Cf. Corona, *Gli eventi di moto in diacronia*, cit.
72. Slobin, *Two Ways to Travel*, cit., p. 201.
73. From Slobin, *Relating Narrative Events in Translation*, cit., p. 116.
74. From Fortis, Vittrant, *L'organisation syntaxique*, cit., p. 95 – glosses by the authors.
75. From C. G. Craig, *Jakaltek directionals: their meaning and discourse function*, in "Languages of the World", 7, 2, 1993, pp. 23-36 – glosses by the author.
76. From Fortis, Vittrant, *L'organisation syntaxique*, cit. – glosses by the authors.
77. Cf. S. Choi, M. Bowerman, *Learning to Express Motion Events in English and Korean: The Influence of Language-Specific Lexicalization Patterns*, in "Cognition", 41, 1991, pp. 88-90.
78. Cf. Ibarretxe-Antuñano, *Path Salience*, cit.
79. Cf. Corona, *Gli eventi di moto in diacronia*, cit.; Buoniconto, "Going through the Motions", cit.; Iacobini, Corona, De Pasquale, Buoniconto, *How Should a "Classical" Satellite-Framed Language Behave?*, cit.
80. This application has been created by Aurelio De Rosa and is available at modeg.audero.it.

81. Corona, *Gli eventi di moto in diacronia*, cit.
82. Iacobini, Corona, De Pasquale, Buoniconto, *How Should a “Classical” Satellite-Framed Language Behave?*, cit.
83. C. Iacobini, A. Buoniconto, *Una proposta metodologica per l’annotazione e l’analisi della codifica degli eventi moto in latino e nelle lingue romanze*, manuscript, Università degli Studi di Salerno.
84. Unfortunately, there were no texts available for Portuguese and Romanian at the earliest stage. For this reason, no strings could be reported in TAB. 2 for said languages in the rows of Stage 1 and, as a consequence, examples (12) and (14) are listed starting from letter d) rather than a).
85. Cf. C. Iacobini, F. Masini, *The Emergence of Verb-Particle Constructions in Italian: Locative and Actional Meanings*, in “Morphology”, 16, 2, 2006, pp. 155-88.