Comparative lexicology and the typology of event descriptions: A programmatic study

Volker Gast, Ekkehard König, Claire Moyse-Faurie

▶ **To cite this version:**

Volker Gast, Ekkehard König, Claire Moyse-Faurie. Comparative lexicology and the typology of event descriptions: A programmatic study. Meaning and Grammar of Nouns and Verbs, 1, Düsseldorf university press, pp.145-183, 2014, Studies in Language and Cognition. halshs-01477353

HAL Id: halshs-01477353
https://shs.hal.science/halshs-01477353

Submitted on 2 Mar 2017

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Comparative lexicology and the typology of event descriptions: A programmatic study[1]

Volker Gast, Ekkehard König, Claire Moyse-Faurie

1 Introduction

It is a well-known fact that the vocabularies of individual languages are structured very differently. Even if it is always possible to translate a certain utterance from one language into another, it is rarely, if ever, possible to say that all or even some lexemes making up an utterance in one language correspond perfectly and completely to the lexemes rendering that utterance in another. In most cases the content cut out from the amorphous mass of notions and ideas by one lexeme A may be similar to the content identified by some translational counterpart in another, but there is hardly ever complete identity and what we find is partial overlap at best. The consequence of this basic observation for structuralists was that semantic analysis in one language amounts to describing the structural relations between the lexemes of a language in terms of oppositions (antonymy, complementarity, converseness, etc.), super- and subordination, meronymy, etc. (cf. Lyons 1972, Cruse 1986, Löbner 2002, etc.), and that comparative semantics or comparative lexicology was the comparison between these networks of structural relations.

More recent theorizing about semantics, especially the ideas associated with the theory of Generative Grammar or with the basic assumptions of Cognitive Linguistics, is less agnostic about the semantic or propositional substance underlying the vocabularies of individual languages and has led to a wide variety of comparative studies in semantics or lexicology,[2] and even to attempts at formulating lexical typologies. These studies agree with the structuralist view that each language carves up conceptual space in a different manner, but – in clear analogy to morpho-syntactic typology – the cuts are assumed not to be completely random and not to differ without limits. What we find, then, are two extreme views and

[1] In the publications of Sebastian Loebner, to whom we dedicate this article on the occasion of his 65th birthday, comparative studies on lexicology and meaning have played an important role (see for instance Löbner 2002: 153ff.).

[2] Cf. the special issue of *Linguistics*, 50.3, 2012, edited by M. Koptjevskaya-Tamm and M. Vanhove for a recent survey, especially the introduction (Koptjevskaya-Tamm 2012).

several shades of grey in between. On the one extreme, there is the view that there are innate lexical concepts and constraints arising from the structure of the mind or the world. The other extreme is the view that languages differ arbitrarily in their semantic organization of conceptual domains. The middle ground is held by positions which accord some role to biases in perception and cognition as well as to communicative constraints and cultural practices, still underlining the importance and necessity of arbitrary linguistic conventions (cf. Narasinhan et.al. 2012).

A closer look at the lexical typologies currently available reveals the difficulties and limits of such cross-linguistic lexical studies. They are typically based on ontological domains easily identifiable across languages (e.g. body parts, colors, temperatures, possession, kinship terminology, motion, perception, eating, placing and displacing, etc.), on comparatively small samples of languages, or on both. There is a bias towards nominal or adjectival denotations, a bias which can also be observed in fieldwork on lesser described languages (cf. Evans 2011a on the neglect of verbs in elicitation, as well as some reasons for it). Moreover, the typological distinctions are not really analogous to those developed for morpho-syntactic properties. In most cases gradual rather than clear-cut distinctions are found between comparable lexical subsystems of different languages, and only in rare cases do we find implicational generalizations or connections between different variant properties.

There are (at least) two ways of making generalizations in lexical typology. On the one hand, different ways of carving up a specific semantic space (perception, possession, temperatures, body parts, etc.) may be compared in terms of their encoding by different lexical items. One of the best-known and most frequently cited examples is the typology for verbs of motion developed by Talmy (1985, 2000). According to this analysis six semantic components can be distinguished in the meaning of verbs of motion: the FACT OF MOTION, the FIGURE, the GROUND, the PATH (directionality), the CAUSE and the MANNER OF MOVEMENT, and languages may differ in the number of components they encode in the verb and outside of the verb. Talmy distinguished two main types of languages, viz. (i) satellite-framed languages, which encode the FACT OF MOTION together with the MANNER OF MOVEMENT in their verbs, signaling the PATH outside of the verb, best exemplified by Germanic languages like German (*fahren* ‘move with the help of a vehicle’, *gehen* ‘moving on foot’, etc.); and (ii) ‘verb-framed languages’ lexicalizing the FACT OF MOTION together with the PATH in the verb. Romance languages, as well as East Asian ones like Japanese and Korean, exemplify this second type.

Verbs like *aller, venir, entrer, sortir, monter, descendre,* etc. in French only provide information on the PATH without saying anything about the MANNER.

Subsequent work (e.g. by Dan Slobin and others) has shown that there are hardly any pure types and that we might want to distinguish at least a third type which has verbs of both kinds. More specifically, Slobin (2004) added a group of 'equipollently framed languages', where both PATH and MANNER have equal status in their formal encoding. Alternatively we could regard Talmy's types as extreme points on a scale. English, which was first seen as a pure satellite-framed language, has in fact verbs of both types (*roll, walk, run, jump,* etc. vs. *go, come, climb, enter,* etc.). And even German, a representative of the satellite-framing type par excellence, has at least one verb – *kommen* 'come' – which is completely neutral with regard to MANNER.

A second way of doing lexical typology is to focus on those semantic contrasts which are associated with specific formal properties (derivational or grammatical processes) in one type of language but have no counterparts in others. This type of typological investigation focuses on varying degrees of differentiation. For example, Romance languages, and partly also English, differ from Germanic languages in lacking certain types of separable and non-separable prefixes that are used to express general properties of activities and their associated PATIENTS, such as the distinction between affected vs. effected objects and other differentiations of the result of an event. In Plank (1984) various contrasts between German and English are mentioned which provide examples of this type: *ein Bild malen* 'to paint a picture' vs. *eine Wand an/be-malen* 'to paint a wall' (cf. also König & Gast 2012: Ch. 14 for more examples of contrasts in lexical differentiations). A clear example of such a contrast between French and German is the following: *siffler la Marseillaise* could be translated into German as *die Marseillaise pfeifen*, i.e. 'to produce the relevant tune with your lips' or as *die Marseillaise auspfeifen*, i.e. 'whistle in protest at the playing of the Marseillaise'. The distinction exemplified by these two examples is a very general one, opposing Germanic languages to Romance ones and, interestingly enough, we may find parallels between Germanic languages and Oceanic languages as far as the use of lexical prefixes is concerned (cf. Ozanne-Rivierre & Rivierre 2004).

In this contribution we propose a framework for the cross-linguistic comparison of verbal meanings (event descriptions) and their lexicalization patterns which is more of the second

type distinguished above, insofar as it focuses on differences in the degrees of semantic differentiations made in specific domains of meaning. The central questions to be addressed are the following: What aspects or components of verbal meanings are typically lexicalized across languages? What differentiations are found, and what types of generalizations we can make? The study is programmatic insofar as it points out possible avenues for future typological research, rather than presenting well-founded cross-linguistic generalizations. We start with some theoretical background assumptions that are needed for a lexical typology of verb meanings (Section 2). In Sections 3 and 4, we present some case studies, i.e., comparisons of verbal inventories for the domains of eating and drinking (Section 3), and for verbs of physical impact (Section 4), i.e., verbs of killing, beating and cutting. Section 5 contains some thoughts on possible explanations for the patterns and limits of variation that we can observe. Section 6 contains a summary and the conclusions.

2 Some theoretical background assumptions

2.1 On (Neo-)Davidsonian event semantics

In keeping with basic assumptions of Davidsonian event semantics, we regard events as entities with the same ontological status as objects. Like objects, events can thus be predicated over, i.e., they can have properties. Just as we can say ‘This object is an apple’, we can say ‘This event is a birthday party’. And just as noun phrases have a ‘referential argument’, in terms of Löbner (2002), so do verbs. The referential argument of the noun phrase *the president of France* is (currently) a person called François Hollande. This person, who can be represented by a variable *x*, is both the argument of the (nominal) predicate *president of France* – even though this property is presuppositional rather than assertive – and the referent of the noun phrase *the president of France*. It is important to note that nominal denotations (properties of nouns, intensions) and reference (a function of noun phrases, extensions) need to be kept apart. For example, we could also use the noun phrase *the fellow with the glasses* to refer to François Hollande. In this case, the nominal denotation would be different while the referent would be the same. In terms of Frege (1892), we can use different ‘modes of presentation’ (*Arten des Gegebenseins*) to refer to any given individual.

The assumptions about nouns and noun phrases and their two-fold (predicational and referential) function sketched above can also be made about verbal denotations (cf. Löbner 2002: Sect. 6.3.2). We can even find a parallel to the opposition between denotation and

reference by assuming that lexical items *denote* classes of events or event types, while finite verbs *refer* to (more or less specific) events (cf. Klein 1994 on the role of finiteness as introducing a 'Topic Time', thus anchoring an utterance in time). The verb *collapse* in (1), for instance, at the same time introduces an event – its referent – and attributes a property to that referent, namely that of being a collapsing event. This event can be expressed with a nominalization. The sentence in (1) could therefore roughly be paraphrased as (2).

(1) The Tacoma Narrows Bridge collapsed in 1940.
(2) The collapse of the Tacoma Narrows Bridge took place in 1940.

Events, thus, can have properties, just like objects or persons. We can distinguish two major types of properties of events. The first type of property could be called 'essential' or perhaps 'intrinsic'. It makes an event what it is. The intrinsic property of the event described in (1) is that of being a 'collapse'. We could refer to that event without attributing any (intrinsic) property to it. The pronoun *something* can be used to existentially quantify over objects as well as events. A sentence such as (3) is therefore possible, even though it is obviously quite uninformative:

(3) In 1940, something happened.

Having introduced an event as a 'discourse referent' (in the sense of Karttunen 1976) in (3), we can now attribute properties to it. This is explicitly done in (the somewhat technical sentence) (4):

(4) [And what happened in 1940?]
The event that I was referring to is the collapse of the Tacoma Narrows Bridge.

The property of being a collapse – more specifically, the collapse of the Tacoma Narrows Bridge – is the essential or intrinsic property of the event described in (1). Given the highly abstract and "fleeting" (Evans 2011b: 512) nature of events, they are hardly conceivable without such a property. We will call the intrinsic property of an event – the property which singles out the event in question from the amorphous mass of happenings in the world – the 'primary event predicate'.

In addition to the (primary) property of being an event of collapsing, the event described in (1) is attributed an extrinsic property as well, namely that of having taken place in 1940. This property is extrinsic insofar as does not make the event described what it is, and the same event may have taken place at a different time. Another type of extrinsic property of events is, obviously, the place at which it took place. While the Tacoma Narrows Bridge could only collapse at the place where it was built (in Washington), other event types are more 'mobile'. For example, the explosion described in (5) could have happened anywhere and the locative specification is quite informative here:

(5) The car bomb exploded on 6th Street.

As is common practice in Davidsonian (as well as Neo-Davidsonian) event semantics, we will represent the referential arguments of verbal predicates – the events – with a variable *e*. The primary event predicate of an event is simply represented as a predicate which is said to be true of the relevant event. Let us consider a simple example:

(6) It is raining now.

The sentence meaning of (6) can be regarded as a conjunction of the primary event predicate 'be a raining event' and the extrinsic property 'taking place right now', both of which are attributed to some event *e*. This can be represented as shown in (7). The primary event predicate is represented as RAIN, taking the (existentially bound) variable *e* as its argument, and the extrinsic property of 'taking place right now' is represented as a relationship of inclusion between the time of the event (t_e) and the moment of speaking (t_0).

(7) $\exists e\ [\text{RAIN}(e) \wedge t_e \supset t_0]$
'There is an event *e* such that *e* is a raining event (RAIN(e)) and the temporal extension of *e* fully includes the moment of utterance ($t_e \supset t_0$).'

Finally, there are also extrinsic properties which specify the primary event predicate further. For example, the adverb *steadily* in (8) expresses a manner specification. Like temporal and

locative specifications, such adverbials can also be regarded as predicates taking the relevant variable as an argument, and (8) can, in a simplified form, be represented as shown in (9).

(8) It is raining steadily.

(9) $\exists e\ [\text{RAIN}(e) \wedge \text{STEADY}(e) \wedge t_e \supset t_0]$

Obviously, the predicate STEADY – roughly, indicating 'temporal stability' of an event – interacts closely with the main predicate, i.e. 'rain'. Such interactions between the various components of meaning in an event description are a central part of our framework for cross-linguistic lexical comparison.

The raining example illustrates the meaning of a sentence on the basis of an a-valent verb, i.e. a verb which does not take any nominal arguments or participants. This is different in the case of (1) and (5) above. In a Neo-Davidsonian framework (cf. Parsons 1990), participants are represented as entities that stand in a thematic relation to the event argument *e*. For example, in (1) there is one argument/participant, i.e., the Tacoma Narrows Bridge. This bridge can be regarded as a PATIENT of the event in question (note that participant roles will be printed in small caps in the following, indicating that they are used as technical vocabulary, rather than natural language items). The sentence can thus be represented as shown in (10).

(10) $\exists e\ [\text{COLLAPSE}(e) \wedge \text{PATIENT}(\text{TNB},e) \wedge t_e \subset t_{1940}]$

'There is an event *e* such that *e* is a collapsing event, the Tacoma Narrows Bridge (TNB) is he PATIENT of *e*, and the temporal extension of *e* is fully included in the year 1940.'

It is difficult to tell whether participants – in particular, internal arguments – are intrinsic or extrinsic properties of events. We will regard them as extrinsic.

According to the Neo-Davidsonian framework of sentence semantics sketched above (at least) four major aspects of event descriptions can thus be distinguished, all of which are represented as predicates of the event variable *e*:

- the primary event predicate (e.g. RAIN(*e*))

- participant roles (e.g. PATIENT(*x*,*e*))
- temporal and locative specifications (e.g. $t_e \subset t_{1940}$)
- MANNER specifications (e.g. STEADY(*e*))

These four aspects of sentence meaning will provide the cornerstones of our typology. In addition, we will consider some more fine-grained distinctions relating to matters of *aktionsart* or actionality. In particular, event descriptions often make differentiations according to the RESULT of the event in question. In most cases, the lexical specifications relating to the RESULT of an event concern properties of the THEME or PATIENT (more generally speaking, of the UNDERGOER of an event; cf. Van Valin & LaPolla 1997). Consider the example in (11):

(11) The thief was shot dead.

(11) says that there was a shooting event which resulted in the thief's death. This can be represented as in (12):

(12) $\exists e[\text{SHOOT}(e) \wedge \text{PATIENT}(T,e) \wedge t_e < t_0 \wedge \forall t[\, t > t_e \rightarrow \text{DEAD}(T) \text{ AT } t]]$
'… for any point in time after t_e, the thief was dead.'

As pointed out above, the different types of information about a given event interact in various ways. The MANNER in which a given event takes place obviously has a strong impact on the event description itself. For instance, modifying the verb *collapse* in (1) with either *quickly* or *slowly* would specify the event in question with respect to its internal structure. Similarly, the types of participants involved may have considerable influence on the type of event described. For example, it makes a difference whether a bridge collapses or a house. Even more 'peripheral' participants like INSTRUMENTS interact closely with the primary event predicate. Killing someone with a rope is quite different from killing that person with a gun. By contrast, the TIME and PLACE at which an event takes place normally have a rather minor impact on the event itself. As we will show, the type of interaction between extrinsic properties of event descriptions and the primary event predicate depends on the domain of

meaning under comparison, and determining such domain-specific interactions is one central concern of this study.

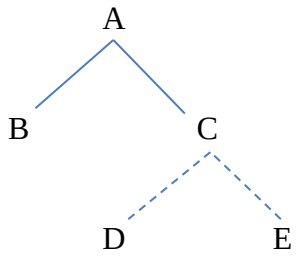
2.2 Parameters of a lexical typology of verbal meanings

If we abstract from specific notional domains and their encoding in lexical subsystems, generalizations of a higher order can be made. The major generalizations made in Evans (2011b), for example, are formulated not so much in terms of lexical subsystems but in terms of four general properties of nominal denotations or event descriptions: We find differences in the GRANULARITY of lexical distinctions, in the BOUNDARIES between lexical categories, in the GROUPING and the DISSECTION of semantic components. The first two parameters concern meronymical relations while grouping and dissection refer to levels of generalization and the expression of sub-aspects of a given (internally complex) denotation. We will therefore consider granularity and boundaries on the one hand, and grouping and dissection on the other, in one section each.

2.2.1 Granularity and the setting of boundaries

The parameter of 'granularity' concerns the degree of 'ramification' in a meronymical tree. With respect to the literal or concrete meaning of the word *tree*, we can for instance notice that English makes a distinction between *branch* and *twig*, which is not made in other languages (e.g. Georgian, which only has *t'ot'i* for both 'branch, twig'). This situation can be represented as shown in (13). The nodes 'D' and 'E' correspond to terms found in one language but not in another.

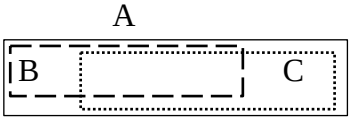
(13)



The second major aspect distinguished by Evans (2011b) in the organization of meronymical systems concerns the location of boundaries between sub-components of an object. Evans (2011b: 512) points out that "the Savosavo 'leg' category begins at the hip joint (and

encompasses the foot), whereas Tidore *yohu* – roughly, 'leg' – cuts off three-quarters of the way up to the thigh". Different ways of partitioning an object or event A into sub-components B and C are shown in (14).

(14)



A common problem for learners of European languages can be illustrated with the different ways of partitioning a time span. European languages differ considerably in the boundaries that they draw between the parts of the day (cf. Coseriu 1981). This problem has practical implications because the time of the day is commonly referred to in greetings. Italian *buona sera* could thus be rendered in German as either *guten Tag* ('good day'), which covers the time from noon to the early afternoon in Germany, or else *guten Abend*, which is used in Germany from around 6pm onwards. Such different partitionings lead to serious translation problems, and it is sometimes impossible to determine the exact translational equivalent of an expression. For example, a translator translating a novel would have to (roughly) know the time at which *buona sera* is uttered in order to translate it into German.

In the domain of events, such problems in the organization of meronymical systems concern complex events, i.e. events which consist of several sub-events of different types. We will illustrate this with two examples from sports. There is a discipline called 'triple jump' in English or, alternatively, 'hop, step and jump'. In German this discipline is called *Dreisprung*, in French *triple saut*. In this particular case we find special lexemes in English for a complex event (*hop, step, jump*), which is expressed by a single lexeme in German or French (*Sprung, saut*), and which can be decomposed into three sub-events, as is indicated by the numeral in German and French, in English expressed by different lexemes. Of course, the three sub-events can be decomposed further into three stages, i.e., (i) moving off the ground, (ii) going through the air and (iii) landing. It is in this final stage that the three sub-events differ: *Hopping* means that one starts from and lands on the same foot (cf. OED, s.v. *hop*: 'to spring or leap on one foot'). *Stepping*, by contrast, means that one lands with the other foot and *jumping* means that one lands with both feet, the rest being identical in all three cases.

The relationship of meronymy holding between (the event of) 'triple jump' and the sub-events 'hop', 'step' and 'jump' is illustrated in (15).

(15) E hop — step — jump

G springen — springen — springen

F/G *Dreisprung/triple saut*

In the case of hop-step-jump, one language (English) makes distinctions between types of sub-events which are not made in other languages (French, German). In German, all sub-events are lexicalized as *springen*, and the entire event is conceptualized as 'springen-springen-springen', i.e., *Dreisprung*. A slightly different situation is found in another sports discipline, i.e. weightlifting. There is a technique which is called *clean and jerk* in English. 'Cleaning' is the process of lifting the bar over one's shoulders, 'jerking' the process of lifting it overhead. In German, the differentiation is not commonly made, and the entire process is normally subsumed under one term, i.e., *stoßen* (though in technical vocabulary a distinction is also made between *umsetzen* and *ausstoßen*). This situation is described in (16).

(16) E clean — jerk

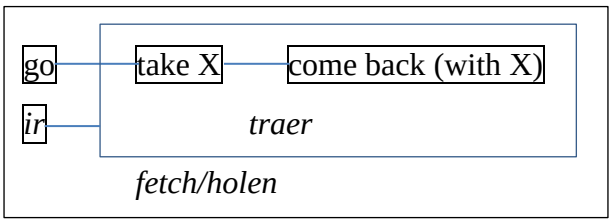
G *stoßen*

Unlike in the case of the triple jump, there are no (common) terms for the component events of the clean-and-jerk process in German. While a triple jump implies three instances of (the general German verb) *springen*, the clean-and-jerk process does not imply two instances of *stoßen*.

We can thus have event predicates for sub-events in one language which are missing in another, or at least not commonly used. Similarly, we may have predicates in one language which 'bundle' several sub-events and which are not found in another language. Evans (2011b) mentions the example of the (semantically complex) predicate 'gather (wood)', which is expressed as 'go hit get X come put' in the Papuan language Kalam. In such cases, a complex event is made up of sequential sub-events. Similar, though less fine-grained distinctions can be observed in European languages. English and German have verbs for the sequence 'go – take X – come back (with X)', i.e., *fetch* and *holen*, respectively. Spanish only has a verb for 'take X – come (with X)', i.e., *traer* ('bring'; cf. also Engl. *go get*). Accordingly,

fetch the book can only be rendered as *ve a traer el libro* ‘go to bring the book’ in Spanish. These different ways of ‘bundling’ sub-events can be represented as shown in (17).

(17)



Note that further distinctions can be made within bundling verbs of the type of *fetch*. In French, as in English, only one verb is necessary for the entire sequence ‘go – take X – come back (with X)’, but a distinction has to be made depending on whether it is a thing or a person which is brought: Fr. *rapporter* (e.g. *tu rapporteras le journal* ‘you will go and fetch the newspaper’) vs. *ramener* (*tu ramèneras Pierre* ‘you will go and fetch Peter’). German *holen* can be used for both things and persons, but there is a specialized verb for persons as well, i.e. *abholen* (‘call/come for sb.’).

2.2.2 Grouping and dissecting

So far, we have been concerned with different organizations of meronymical systems, i.e. with part-whole relations. Cross-linguistic differences can, of course, also be observed in the level of generality at which a given category is located (‘grouping’, in terms of Evans 2011b). In the domain of concrete objects, taxonomies play a very important role. Lower-level categories can be characterized or defined as conjunctions of the (next) higher-level category (*genus proximum*) and additional properties distinguishing the lower-level categories from each other. The same method can be used for event descriptions. In this case it is the extrinsic properties that can be used to differentiate some hyponymic event description further (the *differentia specifica*). For example, the predicate terms *eat* and *drink* differ with respect to the MANNER of consumption and the types of objects that are consumed (food vs. liquid). There is thus a superordinate predicate – say, *ingest* – and two more specific types of predicates, *eat* and *drink*.

As an example of ‘grouping’ in the domain of body-parts, Evans (2011b) considers terms for ‘finger’ and ‘toe’. English does not have a cover term for these body parts. Other languages, by contrast, do not distinguish lexically between them. For instance, Serbo-Croatian uses the

same term for fingers and toes (*prst*), as does Spanish (*dedo*). While being located at different parts of the body as far as meronymical organization is concerned, these languages 'group' them together because of their similarities with respect to their position, form, function, etc.

An analogous example from the domain of event descriptions can be given by considering verbs of washing. Washing can be regarded as comprising two basic phases, i.e., applying some kind of cleaning agent (in different ways) and then removing it. In the case of body care, we could use the verb *soap* for the first phase and *rinse* for the second. The verb *rinse* could also be used for the second phase of doing one's laundry. In German, by contrast, different verbs would have to be used. The process of getting the soap off one's body is lexicalized as (*Seife*) *abspülen*, while the process of removing the detergent from laundry is (*Wäsche*) *spülen*. Obviously, the two processes of washing soap off the body and from the laundry are quite different, but English (as well as Spanish) considers them similar enough to be encoded by the same lexical item. French makes a slight difference, and uses the plain verb *rincer* for laundry and the reflexive or middle form *se rincer* for body care.

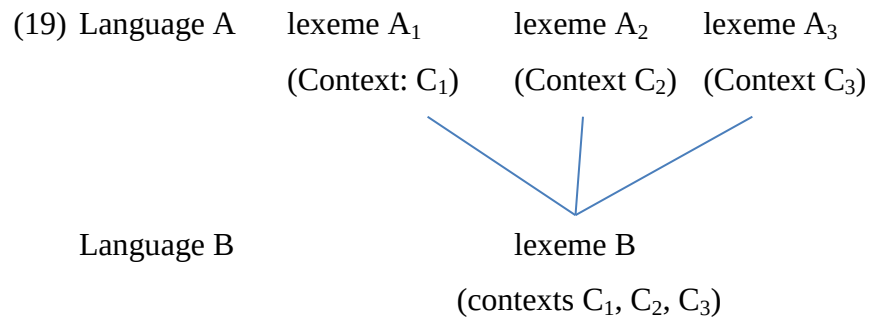
Evans' parameter of 'dissection', finally, concerns the ways in which "complex phenomena are decomposed into parts" (Evans 2011b: 514). Specific domains of meaning are inherently multi-dimensional. Evans (2011b) mentions the example of motion verbs, referring to Talmy's (1985, 2000) classical typology, which was already mentioned in Section 1. Unlike the parameter of 'granularity', which concerns the availability of verbs for specific types of sub-events, 'dissection' refers to the ways in which several properties of the same event are distributed over elements of the sentence. An event of 'enter(ing) (the house) walking' or, alternatively 'go(ing) into (the house)', attributes two properties to the event in question, that of being a walking event and that of being directed into the house. In such cases it is hard to tell which of the event predications is primary. A motion event without a MANNER of motion is probably more easily conceivable than a motion event without a direction, so the latter property might be more essential than the former. The event structure of an event of 'walking in' can accordingly be represented as shown in (18), and languages differ in the ways in which they distribute the two predications WALK(e) and DIRECTED.INTO(e,house) over the sentence.

(18) John walked into the house

$\exists e[\text{WALK}(e) \wedge \text{DIRECTED.INTO}(e,\text{house}) \wedge \text{Theme}(\text{hohn},e) \wedge t_e < t_0]$

The type of cross-linguistic variation discussed in this section may lead to a one-to-many relation between lexical items of one language as opposed to those of another. This situation can be represented schematically as shown in (19).

(19)



2.3 Towards a typology of verb meanings

As has been shown, varying degrees of differentiation may primarily result from two sources, those having to do with different degrees of specificity or generality, and those resulting from different degrees of granularity expressible by a (mostly sequential) arrangement of sub-events. The former type of variation is normally associated with differences in the extrinsic properties of events. The latter type of differentiation could be taken further notionally without necessarily corresponding to different lexemes in a language. This is then no longer of interest to linguists.

In our comparison, we will mainly be concerned with cross-linguistic variation that concerns the levels of generality at which event descriptions are lexicalized, i.e., grouping and dissection. The most important parameters of variation therefore concern the extrinsic properties of events mentioned above, i.e., MANNER predications, the participants involved, and the TIME and PLACE at which an event takes place. As has been pointed out, differences between extrinsic properties often imply differences between intrinsic properties. Such interactions between the components of event descriptions are a central aspect of our typology.

What is of interest to us is not only additional observations about differentiations in the verbal vocabulary of different languages. It is also our goal to systematize the conditions for such differentiations. We will address questions like the following: In what ways is the type of

differentiation observable in cross-linguistic comparisons related to the meaning of a verb? Which differentiations go together with which types of meanings? How can such observations be used to set up a typology of lexical differentiation, and what types of generalizations can be made?

It is our goal to go beyond a list of interesting data illustrating extensive lexical differentiation and to raise explanatory questions of a more general kind. In discussing our cases we will look for pervasive, more general factors determining differentiations as opposed to very specific ones, as well as at possible connections between the basic meaning of a verb and the semantic components that determine the differentiations. These connections are assumed to differ from one domain of meaning to the next, and it is our goal to formulate hypotheses about the patterns of lexicalization found in specific domains of meaning. To illustrate this with an example, we will inquire why it is that the counterparts of the English verb *eat*, if there is differentiation, mostly depend on the substance eaten (cf. Section 3), whereas differentiations found for the verb *kill* or the notion of killing seem to depend more on the INSTRUMENT or MANNER used in the action (cf. Section 4.1).

As far as the empirical basis of our study is concerned, we have partly selected domains known to manifest differential degrees of generality at least in two languages on the basis of previous work. As far as languages are concerned, we have primarily selected our native tongues as well as languages one of us has studied in detail. The starting point is invariably provided by observations on clear distinctions in the lexical organization of certain conceptual domains. Attempts to find the counterpart of certain verbs like *eat*, *cut*, *kill*, *beat*, for instance, reveal that some languages have a wide variety of possible translations depending on event parameters (like properties of AGENTS and/or PATIENTS) which play no role in English and these languages may even lack a general term such as we find in English.

In our investigation of the role of contextual conditions for lexical differentiations we will start from the argument frames associated with certain verbs in order to see what kinds of differentiation is conceivable and actually found in the languages under comparison. The verbs and semantic domains to be discussed below represent partly well-known cases of and partly new observations on remarkable lexical differentiations found across languages. We will discuss the following notions and verb meanings: *eat* and *drink* (Section 3), verbs of killing and exerting physical force killing (e.g. *kill, hit/beat, cut*, cf. Section 4). The depth and

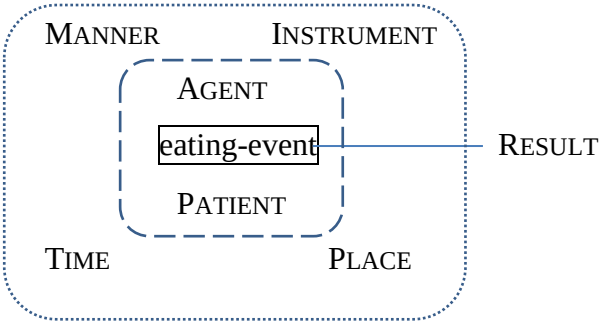
breadth of these discussions will not always be the same. In some cases we have data from a variety of languages manifesting high degrees of lexical differentiations, in others our observations are more of a contrastive kind, being based on two or several European languages.

3 Verbs of eating and drinking

3.1 The basic parameters of variation

Let us take as a first example the English verbs *eat* and *drink*, since it has been pointed out that these verbs and their counterparts in other languages manifest remarkable properties and do not behave like ordinary transitive verbs (cf. Naess 2011). A schematic representation of the frame associated with these verbs will roughly take the form of (20).

(20)



Languages may differ in their lexical entries for the concept ‘take in food and liquids’ in the selectional constraints imposed by their core arguments (AGENT, PATIENT) as well as adjuncts and their semantic counterparts ‘circumstantial relations’ (MANNER, TIME, PLACE, INSTRUMENT), which may also be components of verbs of eating and drinking. Moreover, the RESULT of an eating or drinking event may be encoded lexically.

It turns out that all of the arguments and circumstantial relations shown in (20) may be lexicalized in verbs of eating and drinking in specific languages and that languages may differ with respect to these lexical components. A first type of variation concerns selectional restrictions on the AGENT and the PATIENT. For the AGENT, some languages have different verbs for humans and animals. German is of this type, as it distinguishes between *essen* (human) and *fressen* (animals) for eating, and between *trinken* (humans) and *saufen* (animals) for drinking. English does not make any such distinction and uses *eat* and *drink* for animals

alike. In an extended sense, Germ. *fressen* and *saufen* can also be used with human subjects if the MANNER of food consumption (quantity, noise produced, etc.) is more like that associated with animals (*Karl frisst wie ein Schwein* 'Karl eats like a pig').

Much more variation can be found when we consider selectional restrictions on the PATIENT. Note first that the basic verbs of English – *eat* and *drink* – already exhibit selectional restrictions insofar as they can only be used with (more or less solid) food and liquids, respectively. Some languages (e.g. Kalam, Walpiri) have only one verb for both activities (cf. Wierzbicka 2009, Naess 2011: 415), roughly corresponding to the English expression 'take in/consume food/liquid'. Such verbs can also be found in European languages in more formal or specialized, e.g. medical, registers (cf. Fr. *ingurgiter*, Germ. *etwas zu sich nehmen*). In East Uvean, there is a honorific term (when one speaks to/of the king) for both types of activity, i.e. *taumafa*, but there are two different terms in the ordinary language (*inu* 'drink' and *kai* 'eat').

While the difference between eating and drinking can be regarded alternatively as concerning the MANNER of consumption or the substance of the PATIENT, some languages differentiate more clearly according to the substance of what is consumed and, accordingly, group soups with beverages rather than meals. This is what we find in Japanese (cf. Table 1).[3]

taberu/tabemasu	nomu, nomimasu, nomimono
solid food	liquid food (including soup)

Table 1: Verbs of eating and drinking in Japanese

In many languages differentiation of verbs according to the substance of what is consumed is taken much further, and there are even languages that have no 'generic' eating verb of the type commonly found in European languages. Navajo has different verb stems for eating hard, compact things, leafy things, meat, marrow and mushy things, among others (cf. Rice 2009). A particularly rich inventory of lexical differentiations depending on the type of food taken in is found in East Futunan (cf. Moyse-Faurie 1993). Some examples of highly specific verb meanings are given in (21). A remarkable phenomenon in this language is also the

[3] If liquid food or medication is given to babies or elderly people one can also use *boire* 'drink' in French (*boire le médicament à la cuillère*). In Turkish, the same verb (*içmek*) can be used for drinking and smoking (*bir sigara içmek* 'to smoke a cigarette').

differentiations drawn between eating certain food alone or in combination with other dishes, as in (21)b. We will return to such differentiations in Section 3.2, where some particularly interesting differentiations found in Melanesian and Polynesian languages are discussed.

(21) East Futunan
a. *fono'i* ‘to practice cannibalism’
b. *kina* ‘eat two things together (starchy food and side dishes)’
c. *kītaki* ‘eat starchy food or ripe bananas with coco’
d. *'ota* ‘eat raw things, Tahitian salad’
e. *otai* ‘eat certain fruit (grated guava mixed with grated coconut)’
f. *mafana* ‘drink the juice of the dish *su* before eating it’

So far we have focused on the core participants (AGENT and PATIENT) for the description of cross-linguistic differentiation of lexical inventories. Let us now turn to the other parameters of variation.

The MANNER of eating is clearly expressed in verbs like *wolf down*, *devour*, *slurp* in English and *chipoter*, *picorer*, *dévorer*, *engloutir* in French or *schlingen*, *herunterwürgen* in German. More often than not these expressions seem to be based on MANNERS of eating observable in the behavior of animals. As mentioned above, in German the verbs used with animal subjects may also be used with human subjects to describe immoderate eating and drinking.

INSTRUMENTS are rare lexical components of verbs of eating. Examples that come to mind are *auslöffeln* ‘face the music’, *aufgabeln* ‘pick/dig up’ in German, verbs that are primarily used in metaphorical extensions.

The TIME of eating is expressed in such lexemes as *déjeuner*, *goûter*, *dîner*, *souper* in French as *zaftrakat’*, *obedat’*, *uzhinat’*, etc. in Russian and *dine* and *sup* in English or their complex counterparts *have breakfast*, *dinner*, *tea*, *supper*. The PLACE of eating is rarely expressed, except for cases like *piqueniquer* ‘eating outside’ in French.

Some languages make lexical differentiations concerning the RESULT of eating, i.e. the effect either on the PATIENT (Germ. *aufessen* 'eat up', *austrinken* 'drink up') or the AGENT (*sich vollessen*, *sich sattessen* 'eat one's fill', *sich überessen* 'overeat').[4]

Having pointed out some general parameters in the lexicalization patterns of eating verbs, we will now turn to a group of languages that exhibits particularly rich inventories of verbs of eating, i.e. selected Melanesian and Polynesian languages.

3.2 More fine-grained distinctions in Melanesian and Polynesian languages

Some of the parameters discussed in the preceding section can be illustrated with examples from East Futunan (cf. Moyse-Faurie 1993). In this language a generic verb (*kai*) corresponding to *eat* is available and is used both transitively and intransitively. This verb, which is mainly used to describe remarkable manners or habits of eating, can be combined with objects denoting various types of food (e.g. *kai samukō* 'eat only fish and meat/proteins'), but it is just as often used with modifiers indicating manners, quantities and results of eating. Consider the following examples:

(22) a. *kai fakavale* 'to overeat'
b. *kaikoko* 'eat all kinds of things'
c. *kai mākona* 'eat one's fill'
d. *kai okooko* 'eat moderately'
e. *kai tauvalo* 'eat constantly good things'
f. *kai vasuvasu* 'eat in accordance with what is customary'

[4] Cf. Putnam & Gast (2012) for a semantic analysis of 'excess predicates' like *overeat*.

There is no complete complementarity between the generic verb *kai* and the specialized verbs listed in (21) above. We find *kai* with one or two objects referring to food and there are also cases of specialized verbs referring to the MANNER of eating, e.g. those in the following examples:

(23) a. *ma'ama'aga* ‘eat excessively’
b. *pakalamu* ‘chew well; eat noisily (of people)’

If we broaden out our perspective from the case of East Futunan to Melanesian languages of New Caledonia and Polynesian languages in general, we get a more or less uniform general picture, in spite of some differences between New Caledonian Mainland languages (several specific terms), the languages of the Loyalty islands (general eating term versus meat/fish distinction) and Polynesian languages (raw versus cooked, only one sort of food or different sorts). Before looking at the more fine-grained and, from the perspective of European languages, remarkable examples, let us briefly consider the higher-level eating terms that are available. As pointed out in Section 3.1, East Uvean has a (honorific) verb which is used for both eating and drinking (*taumafa*). A more or less general term for ‘eat’ (*kai*), which is used both intransitively (‘have a meal’) and transitively, is found in East Uvean and Tongan, in addition to East Futunan. On the Loyalty Islands there are terms used intransitively and for eating starch food, fruits, vegetables (but not for meat): *kaka*/*kakan* in Nengone, and *xen* in Drehu. The New Caledonian Mainland languages have a term for ‘eat’ which is used intransitively and for most fruits and salad (but not for bread, coconut, banana or meat), i.e. Xârâcùù *da* and Ajië *ara*.

We can use examples from East Uvean to illustrate some eating verbs relating to the MANNER of food consumption. There is a verb for ‘stuffing oneself’, i.e. *fa'apuku*/*ha'apuku*. If food is swallowed without chewing (ripe bananas), or if an eater has no teeth, *momi* is used. Noisy eating habits, compared to those of animals, are implied by the verb *pakalamu*. Finally, there is a verb for enjoying food, i.e. *'unani*.

More specialized verbs of eating are typically differentiated into those requiring starch food (yam, taro, sweet potatoe, rice, banana, manioc, bread) and those requiring meat, fish or related types of food (e.g. animal products). The first class is found in the New Caledonian Mainland languages Xârâcùù (*kê*) and Ajië (*kâi*). All New Caledonian languages have verbs

that are used with meat, fish, coconut (perhaps as a metaphorical extension of flesh), as well as egg and milk products (Nengone *ia/ian*, Drehu *öni*, Xârâcùù *xwè*, Ajië *oi*). New Caledonian and Polynesian languages have verbs of eating that are restricted to the consumption of sugarcane, orange and all other fruits that are sucked (Xârâcùù *xwii*, Ajië *wa*, East Uvean/East Futunan/Tuvaluan *gau*). Polynesian languages have verbs for raw food (fish, meat, shells), i.e. *'ota* (East Futunan, East Uvean) and *ota* (Tuvaluan), deriving from PPn **'ota*.

While such degrees of specificity are surprising from the perspective of European languages, it is probably even more uncommon to find specific verbs which relate not to the type of food, but to the number of types of food consumed. In Polynesian languages there are verbs that are used when only one thing is eaten, i.e., either starch food or bread without any meat or fish, or vice versa. These verbs are also used for leftovers (non-protein food): *hamu*/*hamuko* (East Uvean), (*kai*) *samukō* (East Futunan), and *samusamu* (Tuvaluan), all deriving from PPn **hamu*.

Finally, there are also verbs of eating that are used when both starch food and fish or meat is consumed. Xârâgurè *haakéi*/*xaakéi* means (roughly) ‘eat as accompaniment to protein food’, and the meanings ‘food eaten with another food as relish’ or ‘meat or fish provided to eat with vegetable food, relish’ are expressed by the verbs *kīnaki* (Māori), *kīkī* (East Uvean), *kiki* (Tuvaluan), and (*kai*)*kina* (East Uvean, West Uvean), all deriving from PPn **kina*. Even more specifically, the verb *kītaki* (East Futunan, East Uvean) denotes an event of eating both starch food and coconut flesh or ripe bananas.

Obviously, food can also be combined with beverages, and given the highly specific verb meanings mentioned above it is perhaps not surprising to see that there are also verbs for food-beverage combinations. The East Uvean verb *omaki* (< PPn **omaki*) and the Tuvaluan verb *peke* mean ‘dunk food into water before eating it’. East Uvean *fono* (< PPn **fono*) is used when food is eaten with kava.

We will conclude this overview of the rich inventories of verbs of eating found in Melanesian and Polynesian languages with examples of verbs that do not denote eating actions, but the desire to eat specific things, i.e. terms meaning ‘feel like eating specific kinds of food’. East Futunan *gā* and Haméa *treu* mean ‘crave for proteins (i.e. fish or meat)’, and East Uvean as well as Tongan *'umisi* (< Proto-Fijian **kusima*) means ‘crave for fish/seafood’.

3.3 Towards cross-linguistic generalizations

Obviously, it is very difficult to make generalizations in lexical typology in general, and even more so in the (highly) abstract domain of verbal meanings. We will propose hierarchies which rank (extrinsic) properties of event descriptions in terms of the (hypothesized) likelihood that these properties will be lexicalized in specific verbs. The hierarchies will rank pairs of parameters that make similar contributions to the predication in question. Before formulating such hierarchies, we will consider the various parameters individually, however.

In the languages that we have looked at, the most important extrinsic property that is lexicalized in eating verbs seems to be the type of food or beverage consumed (the PATIENT). In Europe (as well as probably in most other parts of the world), there are consistent differentiations between eating and drinking, and languages that do not make a distinction here at all seem to be rare. As the Melanesian and Polynesian languages discussed in Section 3.2 have shown, there are hardly any limits on the level of specificity found in differentiations according to the type of food consumed.

The AGENT has been found to be relevant in German. We have not investigated whether there are distinctions according to age, but it seems likely to us that cross-linguistic studies will reveal that at least some languages use specific eating verbs for children. Still, distinctions according to properties of the AGENT are clearly less prominent than distinctions according to properties of the PATIENT, in terms of both the number of languages which make such distinctions, and the number of distinctions made in the languages that do (basically, human vs. non-human).

A property of eating verbs that has been found to be relatively prominent concerns the MANNER of consumption. Note that this parameter is obviously not totally independent of the type of food consumed or selectional restrictions on the AGENT. It makes a difference who eats what. In many cases it is probably difficult to tell apart whether it is primarily the MANNER of eating or the type of food that is lexicalized in a given case. Soups are liquid but they are ‘eaten’ in English, perhaps because they are consumed with a spoon and with specific portion sizes. As was pointed out in Section 3.1, Japanese treats soups in the same way as beverages and thus seems to distinguish more clearly on the basis of substance rather than the

MANNER of eating (cf. also Fr. *manger la soupe* vs. *boire le potage/bouillon*). The INSTRUMENT of eating, by contrast, seems to be less commonly encoded, and we have noticed that the relevant verbs are often interpreted metaphorically in German. Lexical distinctions have also been found with respect to the RESULT of eating or drinking events (e.g. *overeat*).

Verbs of eating which lexicalize the TIME of eating are widespread in Europe, perhaps because different types of meals are consumed at specific times of the day (cf. Section 5 on explanations). A verb like Germ. *frühstücken* 'have breakfast' is thus quite informative, as it conveys information not only about the TIME of eating but also about the food that is typically consumed. The PLACE of eating, by contrast, is hardly ever lexicalized, and given that there is not much variation possible it is not surprising to find that this parameter is of minor importance in the present context.

On the basis of the considerations made above, we propose the following hierarchies of properties associated with eating and drinking events:

(24) a. PATIENT > AGENT
b. MANNER > INSTRUMENT
c. TIME > PLACE

The hierarchies in (24) are intended as hypotheses about the tendencies for specific properties of events to be lexicalized in the world's languages. Obviously, such hierarchies can only be probabilistic, as they are certainly, at least partially, culture-specific, and they are not intended to represent implicational relations, but rather tendencies. Those properties located to the left are more likely to be lexicalized in verbs of eating or drinking than those on the right.

4 Verbs of physical impact

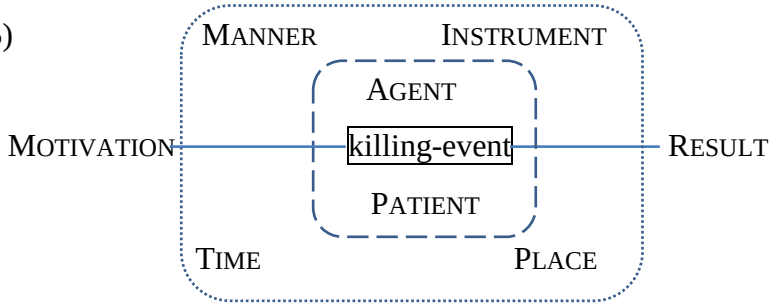
We will now turn to an entirely different group of verbs, which are associated with different frames and call for different generalizations and explanations, i.e. verbs of physical impact. We have chosen the three groups 'verbs of killing', 'verbs of beating' and 'verbs of cutting' because the relevant verbs seemed to exhibit interesting differentiations in the languages

investigated by us. Needless to say, there are certainly many more interesting verbs belonging to this group, and the discussion in this section is far from exhaustive.

4.1 Verbs of killing

The concept of 'killing' is expressed by prototypical transitive verbs like Engl. *kill*, Germ. *töten*, Fr. *tuer*, etc. We can use a valency frame similar to the one used for verbs of eating. However, an additional aspect of meaning is relevant to the group of verbs under discussion in this section. While we do not expect to find any noticeable differences with respect to the MOTIVATIONS of an eating or drinking event – people mostly eat in order to appease their hunger, though they may also just *gourmandize* – this is an important aspect in any action of killing. We will see that the MOTIVATION of a killing event is in fact often encoded in verbs of killing. The MOTIVATION can be regarded as preceding an action, as opposed to the RESULT, which follows the acion. The complete valency frame to be considered in this section can thus be represented as is shown in (25).

(25)



The TIME and PLACE of a killing event are hardly, if ever, encoded lexically in verbs. We will therefore disregard these parameters in the following discussion.

Taking again the selection of AGENTS as a point of departure, we can see that in many European languages there is a neutral verb, such as the three verbs mentioned above, that can be used irrespective of the exact nature of the AGENT, i.e., for human and non-human AGENTS alike. In more specialized registers, however, terms may be available for specific animals as far as subjects are concerned, e.g. German *reißen* (of lions, tigers, wolfs, etc.) and *schlagen* (of predator birds). Moreover, certain verbs like *shoot* require a human AGENT for non-linguistic reasons, as shooting implies an intentional AGENT with certain fine motor skills (and it is questionable if we would use the verb *erschießen* if an animal – say, a cat –

accidentally shot a person by playing with a gun). Disregarding such more or less specific distinctions, the AGENT of killing does not seem to be a prominent factor in the lexicalization patterns of verbs of killing in European languages.

If we consider the selectional restrictions concerning the PATIENT, we find, again, some interesting cases of differentiation, like Engl. *slaughter* or Germ. *schlachten*, Fr. *abattre*, etc., which are used for killing animals (for food production), and this seems to be the only restriction found in that domain, unsurprisingly so, since only animals and human beings can be killed.[5] An interesting and subtle difference in the lexical inventories of English and German, however, is described by Plank (1984). There are as many as five possible translations for the English verb *shoot* in German, depending on the PATIENT and on the RESULT of the activity. Consider the examples in (26):

(26) a. *schießen*
Karl hat in der letzten Jagdsaison 10 Wildscheine geschossen.
'Charles shot 5 wild boars during the last hunting season.'

b. *abschießen*
Jäger sollen noch mehr Wild abschießen.
'Hunters are urged to shoot more game.'

c. *erschießen*
Die Terroristen haben vier Zivilisten erschossen.
'The terrorists shot 4 ordinary civilians.'

d. *totschießen*
Wir mussten den entlaufenen Löwen totschießen.
'We had to shoot the escaped lion.'

e. *niederschießen*
Der Polizist wurde auf offener Straße niedergeschossen.
'The police man was shot in the street.'

To mention only the most important of the relevant restrictions, *schießen* and *abschießen* are only used with game animals, the main difference between these two verbs consisting in the MOTIVATIONS of killing (cf. below). *Erschießen* and *niederschießen* are only used with

[5] Of course there are metaphorical extensions, such as *to kill time*, Fr. *tuer le temps*, Germ. *die Zeit totschlagen*.

human objects and perhaps higher animals. Finally, the difference between *erschießen* and *totschießen*, on the one hand, and *niederschießen*, on the other, is the RESULT, the death of the victim being implied only in the former two cases (i.e., *niederschießen* is not a verb of killing; the survival of the object would even be assumed by implicature). The English verb *shoot* is completely neutral with regard to all these selectional restrictions and resultative implications.

While exhibiting differences with respect to properties of the PATIENT – human vs. non-human as well as further distinctions in the class of non-human referents – the verbs in (26) can also be used to illustrate a second important parameter of variation, i.e. the MOTIVATION of killing. When animals are killed, there are two major MOTIVATIONS, i.e. food production and elimination for other reasons. When game is shot for food production, the verb *schießen* is normally used; when it is shot to reduce the population, the term *abschießen* is more common. *Totschießen* as in (26)d. could be used if danger is to be avoided, or if an animal is killed *ad hoc*, i.e. if the killing event is not motivated by any specific or systematic reason.

For the killing of persons, three major MOTIVATIONS can be distinguished: persons may be killed for criminal reasons (e.g. *murder*), for political or ideological reasons (e.g. *assassinate*), and they may be killed 'legally' (e.g. *execute*). Note that the two cognate verbs *assassiner* in French and *assassinate* in English have different implications with respect to both the PATIENT and the MOTIVATION of a killing event. While the former permits any kind of human object, the latter is restricted to public figures, roughly expressing 'to kill for ideological reasons'.

Given that killing is an ethically highly sensitive action, it is not surprising to find that languages indicate *why* someone is killed. As pointed out above, this distinguishes verbs of killing from verbs of eating. As we will see below, the MOTIVATION is also rarely encoded in verbs of beating or cutting (cf. also Section 5 on explanations).

The examples in (26) above also illustrate a further parameter of variation, i.e. the INSTRUMENT of killing. The English verb *shoot* and the stem appearing in all its German counterparts, viz. *schießen*, denote actions in which a rifle, gun or pistol is used. Consider now the following additional examples from German and French, where some other INSTRUMENT is employed:

(27) a. *erstechen* ‘stab’ (‘killing with a knife’, Fr. *poignarder*)
b. *erwürgen* ‘strangle‘ (‘killing with the hands’, Fr. *étrangler*)
c. *erschlagen* ‘’ (‘kill with a club/blunt object’, Fr. *assommer*)
d. *erschießen* ‘shoot dead’ (‘kill with a gun’, Fr. *fusiller*)

Sometimes, the notion of ‘INSTRUMENT’ is to be conceived more broadly and implies a specific ‘method’ of killing, as in the following German examples:

(28) a. *ertränken* (‘killing by putting someone under water’, Fr. *noyer*)
b. *vergiften* ‘poison’ (‘killing with poison’, Fr. *empoisonner*)
c. *verbrennen* ‘burn’ (killing by fire’, Fr. *brûler, immoler par le feu* [for religious reasons])
d. *köpfen* (‘behead’, Fr. *décapiter*)
e. *erhängen* (‘hang’, Fr. *pendre*)
f. *steinigen* (‘stone to death’, Fr. *lapider*)
g. kreuzigen (‘crucify’, Fr. *crucifier*)

French also has the (rather specific) verb *guillotiner*, which does not have a native counterpart in English or German, even though there are loan words, i.e., Engl. *guillotine* and Germ. *guillotinieren*.

Even richer inventories of verbs of killing providing information about the INSTRUMENT used are found in Melanesian languages of New Caledonia. In Xârâcùù, for example, verbs translating the action ‘to kill’ are compounds which always include the expression of the MANNER or INSTRUMENT involved in the killing (cf. Moyse-Faurie & & Néchérö-Jorédié 1986, Moyse-Faurie 1995). These verbs are thus semantically and morphologically complex, but the first component is often a bound form (with the syllable structure CV-) derived from a verb through a reduction of all but the first syllable (Ozanne-Rivierre & Rivierre 2004). The second, recurrent component *-amè*/*-èmè*/*-ömè* ‘completely, definitive, lethal’ could be identified with the stative verbs *amè* ‘to be paralyzed’, or perhaps *-mè* ‘to be extinguished’. Here are some examples:

(29) a. *boèmè* ‘kill by hitting with a stick’

bo ‘hit with a stick or a bludgeon’

b. *chaamè* ‘kill s.o. with an axe’
   cha ‘cut with an axe or a saber’
c. *chuuamè* ‘kill with a fist’
   chuu ‘hit, pound (with a downward motion, with fist)’
d. *fîèmè* ‘kill with a stick’
   fî- < *fîda* ‘hit with an instrument’
e. *kwiamè* ‘kill with a downward movement’
   kwi- ‘kill with an instrument and a downward movement’
f. *pwââmè* ‘kill, beat unconscious with a stick’
   pwâ- ‘action of throwing a war club’
g. *söamè* (~ *söömè*) ‘kill, beat unconscious with your hand’
   sö- ‘hit, make a circular movement with your hands’
h. *taamè* ‘kill with gun, arrow’
   ta- ‘shoot, throw a long object’
g. *tèèmè* ‘kill with hands, or with a long object’
   tè- ‘action with hands’

The most remarkable fact is perhaps that there is no cover term for all these verbs, i.e. no hyperonym that is unmarked for the MANNER of killing (though a euphemism may be used, i.e. *sa* ‘hit’; see also Section 4.2).

If we compare the specific (related) pairs of parameters that may be encoded lexically, as we did in the discussion of verbs of eating and drinking in Section 3, we can postulate the following hierarchies for verbs of killing:

(30) a. PATIENT > AGENT
   b. INSTRUMENT > MANNER
   c. MOTIVATION > RESULT

Again, the PATIENT is more prominently encoded than the AGENT. However, unlike in the case of eating events, INSTRUMENTS seem to be more prominently lexicalized than MANNERS. Obviously, the INSTRUMENT of a killing action predetermines the MANNER to a considerable extent, e.g. insofar as one cannot shoot a person slowly or excessively. Finally, the

MOTIVATION is more prominent than the RESULT, which is basically the same in all cases (the PATIENT is dead), though specific distinctions can be made with respect to the 'shape' of the dead person or animal (cf. *zerstückeln* 'hack to pieces').

4.2 Verbs of beating

Our next semantic domain and the relevant subsets of basic vocabulary also have to do with more or less unfriendly interactions between man and his fellow human beings or with his environment. The cover term 'verbs of beating' subsumes verbs which denote actions in which force is exerted manually, with fast movements on another object, typically with a body part or blunt INSTRUMENT. It is probably not surprising that the aspects of meaning that we find encoded in the relevant verbs are similar – though not identical – to those that we found in the domain of killing. Again we will use English, German and French as starting points and turn to Oceanic languages for examples of more extensive differentiations. The domain of 'verbs of beating' includes at least the following expressions in English: *hit, beat* as the most general expressions; *crash, smash, trash, smite, slay, knock,* which incorporate an element of great force (an aspect of MANNER) and characterize the RESULT as devastating; *kick* (foot), *punch* (hand), *slap* (hand), *smack* (hand), *cane* (stick), *whip, flog* (whip, rod), *lash, flail,* which incorporate a reference to the INSTRUMENT of the action. The last five of these are de-nominal verbs indicating the INSTRUMENT explicitly and are typically found in contexts of punishing. What we find essentially in these English verbs of exercising physical force is thus differentiation according to the parameters RESULT and INSTRUMENT.

In German we also have de-nominal verbs expressing the INSTRUMENT directly (*prügeln* 'beat with a club',[6] *auspeitschen* 'whip'), but such lexical differentiation as we find is mainly based on formal modifications of the basic general verbs *schlagen* and *hauen* through separable and inseparable prefixes, the most common strategy of lexical differentiation in typical Germanic languages. Many of these formations (*an-schlagen, ab-schlagen, vor-schlagen, auf-schlagen, unter-schlagen, über-schlagen, um-schlagen,* etc.) are nowadays mainly restricted to metaphorical or idiomatic usage. The set of semantic aspects additionally expressed by the other verbs includes only two: the RESULT (*zer-schlagen, er-schlagen, be-schlagen, zusammen-schlagen, ab-schlagen*), and the DIRECTION (*ein-schlagen, aus-schlagen, zu-*

[6] The verb *prügeln,* while being a derivate of the noun *Prügel* historically speaking, is also used generically today, i.e., as a common verb of beating. It implies a high degree of force, however.

schlagen, *an-schlagen*). The two parameters are hard to keep apart, however, as the DIRECTION of a hitting action – for instance, *ein-* 'in(to)', *aus-* 'out' – has primarily implications on the RESULT, e.g. insofar as hitting 'into' a window implies that the window breaks (*ein Fenster einschlagen* 'break a window'), and *einen Zahn ausschlagen* means that a tooth was lost. The originally directional prefixes have thus assumed basically aspectual functions and German verbs of beating thus seem to focus on the RESULT.

In French, *frapper*, *taper*, *battre* are the more general terms, but there are also several specific terms, such as *gifler* 'slap' (with hand, in the face) or *claquer* 'beat lightly (with hand)', *cogner* 'punch', 'bang', 'knock' (hit with fist or instrument in fist), *fouetter* 'whip', *rosser* 'thrash (beat in a violent manner)'.

Turning to Melanesian languages, we find that in Xârâcùù, the relevant subset of the vocabulary manifests a higher degree of differentiation than in the two European languages just discussed. As far as the formal expression is concerned, we find an interesting similarity with processes of derivation in Germanic. The verbs to be discussed are compounds where the first element is a prefix derived from a verb of exercising force by reducing all but the first syllable. In addition to the basic general verb *sa* 'hit, beat', there is a wide variety of verbs exhibiting this basic structure, all expressing variations in the semantic domain of hitting and beating. Interestingly enough, all of these express the semantic dimension INSTRUMENT in addition to the fact of hitting or beating and the RESULT of this activity. The examples in (31) are based on the verb *dù-* 'hit with the fist, punch':

(31) a. *dù-* 'hit with the fist, punch'
b. *dùchëe* 'fail to hit with a punch'
c. *dùkari* 'punch gently'
d. *dùkè* 'box, punch'

In (32), some examples are provided of verbs based on the root *fî-* 'hit with an instrument':

(32) a. *fîda* 'hit with an instrument > *fî-* reduced form in compounds
b. *fîakè* 'hammer in'
c. *fîatapö* 'hitting on s.th. to explode it'
d. *fîburu* 'break s.th. by hitting'

e. *fìèmè* ‘kill by hitting with a stick’
f. *fîwi* ‘hit on s.th. so that it falls’

Finally, a number of verbs can be derived from the roots *sö-* ‘hit with a circular movement of the hand or arm’. There is, thus, a MANNER component encoded in these verbs:

(33) a. *sö-* ‘hit with a circular movement of hand or arm’
b. *söchëe* ‘try to hit with hands’
c. *söchèpwîrî* ‘turn over by hitting’
d. *söchö* ‘bend s. th. by hitting with hand’
e. *sögwéré* ‘throw s.th. on s.o.’
f. *sökai* ‘wipe out with hand (a mosquito)’
g. *söpaari* ‘remove weeds’
h. *söpisii* ‘wipe away’

In addition to the encoding of an INSTRUMENT, RESULT or MANNER of an action, we find occasional restrictions to specific types of PATIENTS. In particular, languages tend to have verbs for beating persons, such as Germ. *verprügeln* and *zusammenschlagen* ‘beat up’. Verbs restricted to specific types of AGENTs seem to be rare, however. Like verbs of killing, those of beating do not seem to lexically encode the TIME or PLACE of an action at all.

A major difference to the verbs of killing seems to be that the MOTIVATIONS for an action of beating do not seem to be encoded in verbs. Specific verbs are typically used for educational measures, e.g. Germ. *einen Klaps geben* ‘smack’, *eine Ohrfeige geben* ‘slap’, but they are also used in other contexts. Some highly specific verbs like *auspeitschen* ‘whip’, which make reference to the INSTRUMENT used, explicitly denote some type of punishment. In comparison to verbs of killing, the MOTIVATION of a beating action is nevertheless probably a minor factor in the semantics of beating verbs.

Using the same pairs of parameters that we compared for verbs of eating and drinking and verbs of killing, we can postulate the following hierarchies:

(34) a. PATIENT > AGENT

b. INSTRUMENT > MANNER

c. RESULT > MOTIVATION

The hierarchies are, obviously, similar to those proposed for verbs of killing, but there is an important difference. Languages seem to put more emphasis on the RESULT than on the MOTIVATION of beating.

4.3 Verbs of cutting

The action of cutting, i.e., of using a of sharp INSTRUMENT to change the physical integrity of an object, is just as dramatic an act of interference into the existence and shape of living organisms or objects as the actions discussed before, but in contrast to the last two domains this action is typically associated with creative activities such as preparing food, constructing, repairing sth., etc. (for a comparative study, cf. the special issue of *Cognitive Linguistics* edited by Majid & Bowerman 2007, in particular Majid et al. 2007).If we look at our three European languages again which provide the starting point for our investigation, we note that there is not much differentiation in the basic vocabulary of English. In addition to the most general and most versatile verb *cut*, and its combinations with particles (*across, off, out, up, through, lenghthwise*) there are verbs like *chop, clip, prune, hew, carve, trim, slit, slice*, nearly all of them incorporating some characterization of the RESULT of the action, as well as a few very specialized 'synonyms' such as *mow* (grass), *amputate* (leg or arm) exhibiting specific collocational distinctions. Examples of more specific verb meanings are provided by the verb *hew*, which typically implies an axe as INSTRUMENT and stone or wood as PATIENTS, and the verb *slice*, which exclusively expresses the RESULT of an action typically corresponding to the use of a knife.

In French the major distinction in the corresponding basic vocabulary are the ones between *couper*, *hacher*, *fendre*, *émonder*, *tailler* and *découper*. The first verb is the most general and versatile one and implies neither the use of specific INSTRUMENTS, nor any specific RESULTS. *Découper*, by contrast, is associated with a specific purpose or goal (i.e., MOTIVATION) and expresses the process of cutting according to a specific plan (*découper l'étoffe, carton*) in order to create something. *Découper un article* means to rearrange the sections of the article, *couper un article* means to cut or drop the article. In the remaining verbs the RESULT is

lexicalized: *fender* ‘separate, create two parts’, *tailler* ‘cut with a specific shape in mind’, *hacher* ‘cut into small pieces’, *émonder* ‘prune a tree’. In German, differentiation between certain subtypes of the general action is again achieved through the use of separable or inseparable prefixes. The resultant distinctions mostly relate to the RESULT of an action (*beschneiden, zerschneiden, abschneiden, anschneiden, aufschneiden, ausschneiden*). The verb most closely corresponding to *découper* in French is *zuschneiden*.

In Oceanic languages we find a wide variety of verbs of cutting whose choice depends primarily on the INSTRUMENT (including body parts) used, on the RESULT and the MANNER of the action, as well as on the PATIENT of the activity. The following list is a first attempt to systematize the relevant factors relevant for the choice of a verb.

(i) Choice depends primarily on the INSTRUMENT

In Xârâcùù (New Caledonia), the first part of the verbal compound indicates the INSTRUMENT or the body part involved in the cutting event. The following expressions are examples of such first parts: *ki-* < *kiri* ‘saw’, *kwi-* ‘cut with a tool in the hand, from top to bottom’, *pwâ-* cut or split with a warclub’, *cha* ‘cut with an axe or a saber held in the fist’. The second part of a compound typically refers to the MANNER or the RESULT of the cutting.

(35) Xârâcùù
cha- ‘cut with an axe or a saber held in the fist’
a. *cha-cöö* ‘cut the bark vertically’ (*cöö* ‘break into fibers’)
b. *cha-chë* ‘miss a cut, cut across’ (*-chë* ‘miss’)
c. *cha-gwéré* ‘succeed in cutting with an axe’ (*-gwéré* ‘succeed’)
d. *cha-körö* ‘cut into pieces’ (*-körö*/*-görö* ‘break into pieces’)
e. *cha-nyûû* ‘pierce’ (*-nyûû* ‘pierce’)
f. *cha-pèrè* ‘cut efficiently’ (*-pèrè*/*-bèrè* ‘efficiently’)
g. *cha-pöru* ‘cut the bark from every part of the stem’ (*pöru*/*-böru* ‘peel’)
h. *cha-puru* ‘cut in two’ (*-puru*/*-buru* ‘cut in two vertically’)

(ii) Choice depends primarily on the PATIENT (material to be cut)

In the following examples from East Futunan the choice of the verb depends primarily on the PATIENT, i.e. on the material to be cut (e.g. hair, grass, wood, etc.), even though the INSTRUMENT may also be implied.

(36) East Futunan

a. *autalu* ‘to cut the weeds with a knife’, ’to weed’

b. *fakainati* ‘to cut meat into portions’(*inati* ‘parts, portions of meat’)

c. *fakasāfuni* ‘cut and adorm the hair of the bride’

d. *kati'i* ‘cut (sugar cane, coconut) with teeth’

e. *koto* ‘cut off leaves (of the taro) from their stem by hand’

f. *lovao* ‘cut plants alongside roads’

g. *moli'i* ‘cut off a small piece of something’

h. *mutusi* **‘**amputate, cut off the tail of a pig’

i. *paki* ‘cut off leaves or bananas’

j. *tā* ‘cut wood for construction’

k. *tā'i* ‘cut off, harvest (bananas’)

(iii) Choice depends primarily on the RESULT or MANNER of cutting

The RESULT of cutting is primarily lexicalized in examples like the following from Xârâcùù (the second component often incorporates an element of MANNER):

(37) Xârâcùù

a. *ërù* ‘cut into small pieces’, *ëësërù* ‘cut into very small pieces’

b. *cha* ‘cutting with the help of a machete, leading to the following results:

(i) *chachëe* ‘cut crosswise’ (*-chëe* ‘miss’)

(ii) *chagwéré* ‘cut successfully with an axe’ (*-gwéré* avec succès)

(iii) *chakörö* ‘cut up into small pieces’ (*-körö/-görö* ‘break/cut up into small pieces’)

(iv) *chapuru* ‘cut in two’ (*-puru/-buru* ‘cut in two vertically’)

(v) *chapwîrî* ‘cut aimlessly’ (*-pwîrî* ‘without a method’)

(vi) *chatia* ‘split, chop’ (*tia/-dia*, ‘split’)

(38) *ji-* ‘shorten, cut to a specific shape’

a. *jikai* ‘cut up’, *jikakai* ‘cut up in pieces’(*-kai* ‘reduce to crumbs’)

b. *jimîîdö* ‘sharpen’ (*mîîdö* ‘pointed’)

c. *jipöru* ‘cut off bark, skin, to peel

d. *jipuru* ‘slice’, ‘cut in two’

e. *jitia* ‘cut lengthwise’

As the examples given above show, languages may vary considerably in the extent to which they lexicalize parameters of variation. The European languages that we have considered have rather poor vocabularies in the domain of cutting verbs and basically distinguish between different RESULTS achieved by a cutting action. Other distinctions, in particular distinctions relating to the nature of the AGENT, the PATIENT or the INSTRUMENT, are rare. The MANNER of cutting is of course closely related to the RESULT, but otherwise not prominently encoded in verbal meanings.

A completely different picture emerges when we look at Oceanic languages. As has been demonstrated with examples from Xârâcùù, these languages make numerous and highly specific distinctions according to the parameters INSTRUMENT, PATIENT and RESULT, and the MANNER of cutting is also often implied. Even though this diversity renders any generalization in the domain of cutting verbs difficult, we will, again, rank the pairs of dimensions that we also used for the other types of verbs.

First, it is obvious that the PATIENT plays a more prominent role than the AGENT. With respect to the relation between INSTRUMENT and MANNER, we can note that there seems to be little difference between the two parameters in the languages investigated by us. European languages care little about either of them, and the Oceanic languages that we have considered make distinctions according to both parameters. In lack of further comparative evidence, we will therefore assume that both parameters are ranked equally. The RESULT, finally, is clearly a very prominent aspect of meaning and is certainly more prominent than the MOTIVATION of an action, since manipulation of and interference with the integrity of an object is usually goal-directed.

The hierarchies characterizing the domain of cutting verbs can thus be represented as follows:

(39) a. PATIENT > AGENT
b. INSTRUMENT ≈ MANNER
c. RESULT > MOTIVATION

As has been mentioned, these hierarchies are basically identical to those characterizing verbs of beating, with the exception that there does not seem to be any noticeable difference between INSTRUMENT and MANNER in the class of cutting verbs.

4.4 Some generalizations

We have been rather cautious in formulating our generalizations and have only opposed pairs of parameters to each other which make a similar contribution to the predication – AGENT vs. PATIENT, INSTRUMENT vs. MANNER, MOTIVATION vs. RESULT. One generalization that emerged from all verb classes – quite unsurprisingly – is that the PATIENT is encoded more prominently than the AGENT. The following hierarchy can thus be assumed to be more or less general (cf. also Kratzer 1996 and many others on the different statuses of AGENTS and PATIENTS in predications):

(40) PATIENT > AGENT

Distinctions according to the PATIENT have been found in all classes of verbs under consideration, and given that the nature of the PATIENT has a considerable impact on the intrinsic properties of an event, this is not surprising. We can make the following generalization:

(41) Generalization I:
Restrictions on, or implications about, the nature of the PATIENT are more commonly lexicalized than restrictions on, or implications about, the AGENT.

If we move on to the more 'peripheral' parameters of variation, we note that INSTRUMENT and MANNER are more prominently encoded than TIME and PLACE. This is, again, unexpected, as the TIME and PLACE at which an event takes place are (genuinely) extrinsic, while the MANNER and INSTRUMENT have a stronger impact on the primary event predicate. It is likely that TIME and PLACE will only be encoded in verbs denoting activities that are habitually carried out by a considerable number of a speech community. Eating is such an activity, and we have pointed out that there are in fact lexical distinctions according to the PLACE and TIME of an eating event in European languages.

Making an internal differentiation between the INSTRUMENT and the MANNER of an event is tricky, as the two aspects of interpretation often overlap – the use of different INSTRUMENTS implies differences in the MANNER in which an action is carried out. The difference is that an INSTRUMENT is a 'genuine' participant of an event, while a MANNER is a property of (some aspect of) the event in question. We consider as INSTRUMENTS only concrete objects, including body parts. The MANNER of an event thus basically subsumes all those extrinsic properties which are not related to the use of a specific INSTRUMENT, e.g. the type of movement made (e.g. straight vs. circular, upward vs. downward, cf. the Xârâcùù examples in (29)), the 'speed' of movement, etc. We have proposed the following hierarchies for the classes of verbs investigated by us:

(42) a. verbs of eating/drinking
MANNER > INSTRUMENT
b. verbs of killing and beating
INSTRUMENT > MANNER
c. verb of cutting
INSTRUMENT ≈ MANNER

While all of the activities have in common that they imply the use of some INSTRUMENT, they differ in their internal event structures. Eating and drinking are complex events, with specific sub-events, e.g. biting, chewing and swallowing in the case of eating. Beating events, by contrast, are basically punctual and 'monolithic', i.e., they do not comprise sub-events but are typically carried out with a single movement (with the arm). Killing events are also basically punctual, or are at least conceived as such – as a matter of fact, intrinsically so, because by their very nature they focus on the endpoint of the action. Cutting events are located in between eating verbs and beating events with respect to the internal complexity of their event structure. For example, cutting often implies repeated movements in opposite directions and can thus also been broken down into sub-events.

The generalization that emerges from the considerations made above is the following:

(43) Generalization II:
The MANNER of an event is lexicalized more commonly in verbs denoting

internally complex events, i.e., events comprising clearly distinguishable sub-events.

Let us now turn to the parameters MOTIVATION and RESULT. These parameters are considered together because they correspond to the initial and the final stage of an event, respectively. We have found the following hierarchies:

(44) a. verbs of eating, beating, cutting
RESULT > MOTIVATION
b. verbs of killing
MOTIVATION > RESULT

As has been mentioned, verbs of killing carry implications about the RESULT, i.e., the PATIENT is dead after the event has taken place. Still, differentiations could be made with respect to the 'physical appearance' of the PATIENT (e.g. *zerstückeln* 'hack to pieces'). The MOTIVATION of a killing event, by contrast, is an important factor. This is different in the other verb classes considered in the present study. Verbs of eating, beating and cutting focus more on the RESULT of the action than on the MOTIVATION, which is hardly encoded at all. The difference seems to be that killing is an action which, by its very nature, can be assumed to carry ethical implications. One cannot kill just like that, and any killing event needs to be motivated in some way. This is obviously different for eating and cutting, though beating, too, may require some ethical justification at times.

5 Towards explanations

We have discussed some dimensions of variation along which specific verb classes differ, and we have made some generalizations on the basis of examples from a rather selective sample of languages. We will now consider possible explanations for the patterns and limits of variation that can be observed in the domain of event descriptions under discussion. The generalizations made so far lend themselves to three types of explanations, two of them 'system-internal' and one 'system-external'. First, we can assume that there is a general tendency for verbs to encode 'more intrinsic' properties to a greater extent than 'more

extrinsic' ones. In other words, the stronger the impact of a parameter on the internal make-up of a given event, the more likely the relevant parameter will be encoded lexically. This principle accounts for the fact that PATIENTS are more prone to be encoded lexically than AGENTS, and that INSTRUMENTS and MANNER specifications are more likely to be encoded than TIME and PLACE. The explanatory principle of this tendency is perhaps one of 'encoding economy': Intrinsic properties of events lead to more homogeneous ('natural') classes of events, and homogeneous or natural classes of events will occur more often in conversation than highly specific ones. The degree of homogeneity of an event description can thus be assumed to be reflected in lexicalization patterns, and we propose the following explanation:

(45) Explanation I:
The more closely a parameter of event description interacts with the intrinsic properties of the event in question, the more likely it will be encoded lexically, because lexical items tend to correspond to natural classes recurring in natural discourse, and events form natural classes on the basis of intrinsic, rather than extrinsic, properties.

The second principle concerns the compatibility of events or event descriptions with specific types of modification. MANNER predicates specify the internal organization of a given event. In order to be susceptible to such modification, there must be a certain 'leeway' for ways in which an event can take place. For example, a punctual event like an explosion does not lend itself to 'internal' modification; only the 'force' of the explosion provides some room for variability. An eating event, by contrast, implies a specific way of putting food into one's mouth, with or without biting, a specific type of chewing as well as relations between such sub-events (e.g. simultaneity vs. sequentiality). This type of 'internal complexity' leaves room for modification; one can eat noisily or quietly (in the chewing phase), one can chew with an open or closed mouth, one can eat fast or slowly (predicated of the chewing sub-events and the succession of swallowing sub-events), etc. This observation provides the basis of the explanation in (46):

(46) Explanation II:
Descriptions of complex events, i.e., descriptions of events comprising several (more or less clearly distinguishable) sub-events, lend themselves more to MANNER modification because a higher number of sub-events (and relations between sub-

events) implies a higher number of aspects of an event description to which MANNER predicates can apply.

Finally, we have seen that there is at least one explanatory factor that is 'system-external', in the sense that it does not concern the relationship between form and meaning, but the relation between the speech community and the linguistic system. As has been pointed out, languages tend to encode the MOTIVATION of a killing event to a greater extent than they encode the MOTIVATION of any other event type that we have considered. This is intuitively plausible, as the MOTIVATION of a killing event is an important piece of information, certainly much more important than the MOTIVATION for cutting an onion or a piece of meat. More generally speaking, we can explain this tendency by assuming that languages tend to lexicalize those aspects of event descriptions that 'matter most' to a given speech community. This is perhaps a trivial finding; at the same time, however, it leads over to matters of linguistic relativity, a highly controversial and certainly non-trivial topic. The following formulation is an attempt to find a balance between a more or less trivial observation and a strong – linguistically relative – claim. It makes reference to Grice's (1975) Cooperative Principle:

(47) Explanation III:
Languages tend to lexicalize those aspects of event descriptions which affect the social life of the relevant speech communities, because important information is frequently provided, satisfying the Cooperative Principle, and thus tends to be conventionalized and lexicalized to a greater extent than unimportant information.

While the three explanations given above emerged more or less directly from the generalizations made in Section 4.4, we would finally like to discuss an additional factor which has not been mentioned so far. It seems to us that the amount of information conveyed by a given parameter plays an important role in the probability of that parameter being lexicalized in a given language. A parameter can be assumed to be informative to the extent that it allows the hearer to make inferences about other parameters. Languages can be expected to lexicalize those parameters that allow speakers to make as many inferences as possible.

Let us illustrate this point with eating verbs. Given that eating is a rather heterogeneous

activity, the (more) intrinsic properties of eating events are, to a considerable extent, a function of the (more) extrinsic properties. The type of food consumed (the PATIENT) is the most informative parameter, because it conveys information about the MANNER of eating and the AGENT as well, e.g. insofar as meat is consumed in a different way than soup, and insofar as humans tend to eat different things than animals (e.g. schnitzel with salad vs. raw meat). Depending on cultural differences, we can also expect specific types of food to be consumed at specific times of the day. It is thus not surprising to find that there is such enormous variation in the domain of eating verbs depending on the properties of the PATIENT.

While the fact that PATIENTS are encoded prominently in eating events is not specific to that class of verbs, we have noticed that eating verbs, unlike all of the other classes considered in this study, sometimes also encode the TIME of eating. This observation might be related to the fact that the TIME of eating is also a relatively good predictor of other parameters, at least in European speech communities. Depending on the country or region, one can more or less safely predict what is eaten (the PATIENT) at specific times of the day. Note that the relevant verbs are also restricted to human AGENTs. The amount of information contained in a sentence like *Bill is having breakfast* is thus considerable – it tells us that Bill is a man (rather than a dog), that he is probably having coffee or tea with his meal, and – assuming that he lives in France – he is likely to have baked goods – baguette or croissants – on his plate.

6 Summary and Conclusion

Building on earlier contrastive and cross-linguistic work (e.g. Leisi 1971, Plank 1984), we hope to have made some new observations on differences in the lexical inventories of different languages for identical or at least similar notional domains, i.e., descriptions of events of eating and drinking, and of physical impact (killing, beating, cutting). What are the general conclusions we can draw from the preceding comparative observations?

The first, somewhat trivial, conclusion is that the semantic parameters differentiating between similar lexical items and similar lexical inventories differ in many more and much more subtle ways than we find in comparing grammatical items. It is for this reason that lexical typology is so much more difficult than morpho-syntactic morphology. Still, we have noted that specific dimensions of variation – those relating to restrictions on, or the encoding of,

participant relations, temporal and locative specifications as well as the MANNER and RESULT of an action – allow for certain generalizations. In particular, we have proposed hierarchies ranking pairs of event parameters which make similar contributions to the meaning of a sentence. Thus we found that all types of verbs considered in our study tend to encode the PATIENT to a greater extent than the AGENT, that the lexicalization of the MANNER and INSTRUMENT seems to be more common than that of TIME and PLACE (in the event types investigated by us), and that there are differences, in particular, between the relative rankings of MANNER and INSTRUMENT, depending on the specific verb class investigated.

A second, probably not totally unexpected finding is that languages may differ strikingly in the differentiations they manifest. There are only few verbs of eating and drinking in most European languages, but there seem to be many such verbs in Polynesian languages. A similar contrast is found with respect to verbs of cutting; there are few such verbs in the European languages considered, but a wide variety of them is found in Oceanic languages. We have not discussed any explanations for these differences, and we have refrained from making a point for linguistic relativity in this context. While it is tempting to assume that speech communities with a broader range of dishes will make more relevant distinctions in the verbal lexicon, we are fully aware that such claims are easily falsified, e.g. when speech communities with similar eating and dressing habits differ considerably in their lexical inventories. As has been shown by Plank (1984), English has general terms for putting on or taking off clothes, while German lacks such terms. Does that mean that Germans pay more attention to their clothes than Englishmen do? It certainly doesn't.

Even so, we have proposed one explanation that makes reference to habits of a speech community, i.e., the special status of verbs of killing. Killing is such a fundamental action for any speech community, and it is likely to be evaluated in such different ways depending on the MOTIVATIONS of that action – killing can make one a hero (in war), or it can cost one one's live (in the case of murder) – that we can expect the MOTIVATION of a killing event to figure prominently in descriptions of the relevant actions.

In addition to that 'system-external', perhaps partly relativistic, explanation, we have proposed three 'system-internal' explanations, all of which could be regarded as boiling down to matters of economy in the relationship between form and function. First, we have argued that the degree of 'intrinsicness' of an event parameter correlates positively with the

probability of that property being encoded lexically, as intrinsic aspects of event descriptions can be assumed to lead to natural classes more easily than extrinsic ones (for instance, it is more likely to find a specialized lexical item for 'raining heavily' than for 'raining in Spain'). Second, we have pointed out that the internal organization of an event – its degree of complexity – has implications for the likelihood with which that event will be modified by a MANNER specification. The more 'sub-aspects' there are of a given event, the more MANNER specifications are conceivable. Finally, we have argued that 'informativity' may play a role, and that languages may tend to encode those parameters lexically that allow hearers to make inferences about other parameters.

We are fully aware that the observations and suggestions made in this study are tentative, which is why we have added the hedge 'programmatic' to the title of this contribution. We have proposed a framework allowing for the formulation of generalizations by ranking pairs of event parameters, based on a Neo-Davidsonian event semantics, hoping that this method will prove useful when more data is considered. This is, obviously, our main task for future studies.

References

Coseriu, Eugenio (1981). Falsche und richtige Fragestellungen in der Übersetzungetheorie. In L. Grähs, G. Korlén & B. Malmberg (eds.), *Theory and Practice of Translation*, 17–32. Frankfurt: Lang.

Cruse, Alan (1986). *Lexical Semantics*. Cambridge: Cambridge University Press.

Evans, N. (2011a). Anything can happen. In Thieberger, N. (ed.), *The Oxford Handbook of Linguistic Fieldwork*, 183–208. Oxford: Oxford University Press.

Evans, N. (2011b). Semantic typology. In Song, J.J. (ed.), *The Oxford Handbook of Linguistic Typology*, 504–533. Oxford: Oxford University Press.

Frege, Gottlob (1892). Über Sinn und Bedeutung. *Zeitschrift für Philosophie und philosophische Kritik, NF* 100: 25–50.

Grice, H.P. (1975). Logic and conversation. In Cole, P. and J. Morgan (eds.), *Syntax and Semantics*, Vol. 3, 41–58. New York: Academic Press.

Karttunen, Lauri (1976). Discourse referents. In McCawley, J. (ed.), *Syntax and Semantics: Notes from the Linguistic Underground, Volume 7*, 363–386. New York: Academic Press.

Klein, Wolfgang (1994). *Time in Language*. London: Routledge.

König, E. & V. Gast (2012). *Understanding English-German Contrasts*, 3rd ed. Berlin: Erich Schmidt Verlag.

Koptjevskaja-Tamm, Maria (2012). Introduction: New directions in lexical typology. Introduction to *Special Issue of Linguistics* 50.3: 373–394.

Kratzer, A. (1996). Severing the external argument from the verb. *Phrase Structure and the Lexicon*. J. Rooryck and L. Zaring. Dordrecht, Kluwer: 109–137.

Leisi, Ernst (1971). *Der Wortinhalt. Seine Struktur im Deutschen und Englischen*. Heidelberg: UTB.

Löbner, Sebastian (2002) *Understanding Semantics*. London: Arnold.

Lyons, John (1972). *Structural Semantics: An Analysis of Part of the Vocabulary of Plato*. London: Basil Blackwell.

Majid, Asifa & Bowerman, Melissa (eds.) (2007). Cutting and breaking events: A Cross-linguistic Perspective. *Cognitive Linguistics* 18.2.

Majid, A., M. Bowerman, M. van Staden & J.S. Boster (2007). The semantic categories of CUTTING and BREAKING events: A crosslinguistic perspective.

Moyse-Faurie, Claire (1993). *Dictionnaire futunien-français*. Langues et cultures du Pacifique 8. Leuven: Peeters-Selaf.

Moyse-Faurie, Claire (1995). *Le xârâcùù, langue de Thio-Canala (Nouvelle-Calédonie). Éléments de syntaxe*. Langues et Cultures du Pacifique 10. Leuven : Peeters-Selaf.

Moyse-Faurie, Claire & Néchérö-Jorédié, Marie-Adèle (1986), (1989 : 2ème éd.). *Dictionnaire xârâcùù-français, (Nouvelle-Calédonie)*. Nouméa : Édipop.

Naess, Åshild (2011). The grammar of eating and drinking verbs. *Language and Linguistics Compass* 5/6: 413–423.

Narasinhan, Bhuvana & Kopecka, Anetta (eds.) (2012). *Events of 'putting' and 'taking': A Cross-Linguistic Perspective.* Amsterdam: Benjamins.

Narasinhan, Bhuvana, Anetta Kopecka, Melissa F. Bowerman, Marianne Gullberg and Asifa Majid (2012). Putting and taking events: A cross-linguistic perspective. In Narasinhan, Bhuvana & Kopecka, Anetta (eds.) (2012), 1–18.

Newman, John (ed.) (2009). *The Linguistics of Eating and Drinking.* Amsterdam: Benjamins.

Ozanne-Rivierre, Françoise and Jean-Claude Rivierre, 2004. Verbal compounds and lexical prefixes in the languages of New Caledonia. In I. Bril et F. Ozanne-Rivierre (eds), *Complex predicates in Oceanic languages: Studies in the dynamics of binding and boundedness*, 347–371. Berlin: de Gruyter Mouton.

Parsons, Terence (1990): *Events in the Semantics of English. A Study in Subatomic Semantics.* Cambridge/Mass.: MIT Press.

Plank, Frans (1984). Verbs and objects in semantic agreement: Minor differences between English and German that might suggest a major one. *Journal of Semantics* 3: 305–360.

Putnam, M. & V. Gast (2012). The syntax and semantics of excess: OVER-predicates in Germanic. In J. Choi, E.A. Hogue, J. Punske, D. Tat, J. Schertz, and A. Trueman (eds.), *Proceedings of WCCFL 29*, 223–231. Somerville, MA: Cascadilla Press.

Rice, Sally (2009). Athabascan eating and drinking verbs and constructions. The linguistics of eating and drinking. In: John Newman (ed.), *The Linguistics of Eating and Drinking*, 109–52. Amsterdam: Benjamins.

Slobin, Dan I. (2004). The many ways to search for a frog. Linguistic typology and the expression of motion events. In: Strömquist, Sven & Verhoeven, Ludo (eds.), *Relating Events in Narrativity. Typological and Contextual Perspectives*, 219–257. Mahwah, NJ: Lawrence Erlbaum Associates.

Talmy, Leonard (1985). Lexicalization patterns: Semantic structure in lexical forms. In: Shopen, Timothy (ed.), *Language Typology and Description vol. 3: Categorization and the Lexicon*, 57–149. Cambridge: Cambridge University Press.

Talmy, Leonard (2000). *Toward a Cognitive Semantics*. Cambridge, MA: MIT Press.

Van Valin, R. and R. LaPolla (1997). *Syntax: Structure, Meaning and Function*. Cambridge: Cambridge University Press.

Wierzbicka, Anna (2009). All people eat and drink. Does this mean that ‘eating’ and ‘drinking’ are universal human concepts? In John Newman (ed.), *The linguistics of eating and drinking*, 65–89. Amsterdam: Benjamins.