

**THE SEMANTIC CATEGORIZATION OF EVENTS OF PLACEMENT AND REMOVAL:  
A CROSS-LINGUISTIC PERSPECTIVE**

Proposal for a theme session, ICCL 2009

Cognitive scientists have often assumed that semantic categories of everyday events are more or less universal, shaped by both human perceptual and conceptual biases and correlations among features of events in the real world. But this view has been challenged by recent cross-linguistic research, which shows that there are striking differences in how languages semantically classify events. To date, universality and variation in semantic event categorization have been systematically investigated in only a handful of conceptual domains, including spatial frames of reference (Levinson 2003; Pederson et al. 1995), topological relations (Bowerman & Choi 2001; Bowerman & Pederson 1992; Levinson & Meira 2003), and events of material destruction (Majid et al. 2007 and in press). This research suggests that universality may lie not in the categories themselves, but in more abstract dimensions that structure and constrain the conceptual domain to be partitioned (e.g., Levinson & Meira 2003; Majid et al., 2007 and in press).

Extending this comparative research initiative to a new domain, the proposed theme session presents a large-scale cross-linguistic project focused on the encoding of events of PLACEMENT AND REMOVAL (“Putting and taking”, or the “PUT Project”, for short). This project was designed at the Max Planck Institute for Psycholinguistics, Nijmegen (MPI), and has been carried out by MPI researchers and their colleagues at field sites around the world.

The domain of “putting and taking” was chosen in part because it has often been the subject of universalist claims. For example, Goldberg (1995) suggested that “causing something to move to a location” is among a set of event types that are basic to human experience, and that in English *put* is the verb that best represents this meaning and is therefore learned early by children. Similarly, Pinker (1989) proposed that learners of English acquire the meaning of *put* simply by mapping it directly to a universal nonlinguistic event concept of “putting”. Other studies, however, have pointed to semantic variation in the domain of placement and removal – for example, in the topological distinctions drawn by verbs for joining and separating objects (Choi & Bowerman 1991), in the categories picked out by verbs of putting on clothing in different languages (Schaefer 1995), and in the characteristic way languages “package” information about motion events, including placement and removal (cf. Talmy 1985, 1991, 2000 and Slobin 2004 on the typological distinction between “verb-framed languages” and “satellite-framed” languages). In the absence of systematic study across a broad range of languages, the extent and nature of such variation has been unclear.

To determine what types of distinctions languages are sensitive to in the domain of “putting and taking”, members of the MPI PUT project designed a standardized set of 63 videoclips for eliciting event descriptions from speakers of different languages (Bowerman, Gullberg, Majid, & Narasimhan 2004) (the PUT task). In these clips the nature of the Figure (entity placed) was systematically varied (e.g. bounded object, multiple objects, granular substance, liquid), as was the geometry of the Ground object (e.g. surface, container, liquid), the degree of control the agent exercises over the Figure’s movement (e.g. ‘putting’ vs. ‘dropping’ vs. ‘dumping’), the initial or final orientation and “disposition” of the Figure (e.g. horizontal, vertical, stuck, hanging), the use of the hand as an instrument vs. various other instruments and so on.

The clips were shown one at a time to speakers of 29 genetically, areally, and typologically diverse languages (see Table 1); this is a convenience sample representing 15 major families and some isolates and unclassified languages. Speakers were simply asked to describe what happened in each clip (e.g., “A woman put a cup on the table”, “A guy dropped an apple into a bag”, “A man took off his coat”, “Someone poured water out of a can”). The elicitation sessions were conducted in the language under study, not a contact language, and responses were transcribed and analyzed by the researchers who collected them, who were closely familiar with the language. In addition to language-by-language analyses carried out by the researcher responsible for each language, comparisons have been conducted across all the languages of the sample, using multivariate statistical techniques useful for revealing covert structure in large data sets. (See Majid et al., 2007 and in press, on the use of these techniques in a different semantic domain – the encoding of events of material destruction).

Additional work within the PUT Project has focused on children’s acquisition of the semantics of placement verbs, comparing both their speech and co-speech gestures with those of adults. These data were collected with a set of videoclips that were similar to those described above, but using an interactional set-up that is more conducive to gesturing. An important question was whether the kinds of semantic distinctions speakers of different ages draw in speech are reflected in their gestures.

The proposed theme session is a coordinated presentation of the MPI PUT Project as whole, as well as of several subprojects devoted to the encoding of placement and removal events in specific languages. The first presentation introduces the theme session as a whole and sketches major analyses and findings from the cross-linguistic elicitation study. This is followed by five presentations reporting on the encoding of “putting and taking” events in several languages of the project’s sample, in bilingual speakers, and in gesture as well as speech in adults and first language learners of different ages.

### ***1. Encoding events of placement and removal: A cross-linguistic overview***

This talk kicks off the theme session by introducing the Max Planck’s cross-linguistic project on the encoding of placement and removal (the PUT project). It reviews why this domain was chosen for study, explains the PUT elicitation task and the language sample (see above and Table 1 for more details), and outlines major analyses and their results.

A central project focus was on *event categorization*: do languages converge on same categories of placement and removal events, or do they categorize such actions in myriad different ways? To explore this question the distribution of verbs across the clips was compared across languages. The verbs used in speakers’ event descriptions define groups of events that are treated as being “of the same kind” for purposes of language (e.g., an event of “PUTTING something somewhere” vs. “DROPPING something somewhere” vs. “TAKING something from somewhere”). Of course, elements other than verbs also contribute to the overall categorization of an event – e.g., events described as *put IN* differ systematically from ones described as *put ON* –, but verbs provide a first-pass indication of what kind of an event is at issue (both “putting in” and “putting on” are events of “putting” something somewhere). To analyze verb distribution across languages, a similarity matrix was first constructed for every speaker. This is a square matrix which indicates, for all clips taken pairwise, whether or not the speaker used the same verb to describe the two events. All the speaker matrices for each language were summed to create a single matrix for that language, and these summed matrices were analyzed with a variety of multivariate tools to uncover their structure.

A first analysis addressed the extent of cross-linguistic variation. Although languages by no means categorize identically, agreement is still very high: the overall amount of agreement with respect to which clips were “of the same kind” or “of different kinds” was far greater than the disagreement. A further analysis examined what contributed to this agreement. The most important source of agreement was that clips depicting putting an object in a place were overwhelmingly distinguished (i.e., described with different verbs than) clips depicting removals from a place. This is not a priori obvious: there were exceptions, especially for the donning and doffing of clothing (e.g., both encoded with *ta* ‘take’ in Swedish), and note that in principle a language could use the same verbs for both placement and removal (e.g., “lay [set, stand] it on the table” and “lay [set, stand] it off the table” for Figures that either end up or start out in the relevant orientation – Talmy 1985). An important source of differences across languages was in the generality of verbs for placement and removal. Some languages, e.g., English, Mandarin Chinese, and Jahai, have a very general placement verb (*put* in English), while others, including Swedish, Dutch, and Tzeltal Maya, break down placement and removal events more finely, e.g., according to the shape and orientation of the Figure or the geometry of the Ground. Use of multivariate techniques in cross-linguistic comparisons facilitates the construction of Semantic Maps (cf. Croft 2003) that can capture and display both similarities and differences across languages within a common semantic space.

## **2. Putting and taking events in Mandarin Chinese**

Placement events – e.g., putting a book into a bag and taking it out, putting clothing on the body and taking it off – are common in every culture, but languages vary in the lexico-grammatical devices they use to express such events. For instance they differ in how the information about putting/taking is typically distributed across utterance constituents (e.g., how and where information about semantic components like Figure, Ground, Motion, Manner, and Path is encoded) and in the semantic distinctions drawn by their placement verbs. This study investigates the organization of semantic components in the encoding of placement events in Mandarin Chinese, and explores the semantic extensions of the major placement predicates. The data come from elicited descriptions of 63 videoclips of placement events (the “PUT task”, designed at the Max Planck Institute for Psycholinguistics), which involve a variety of objects and different manners of placement. Ten adult native speakers of Mandarin Chinese were interviewed.

The analysis shows that that Figure and Ground (Source/Goal) are encoded as arguments or adjunct coverb phrases and that Path and Motion are frequently encoded with directional verb compounds, as in *fang4-xia4-lai2* ‘put-descend-come’ (put down). A directional verb compound is composed of two or three free verbs in the form of V1V2 or V1V2V3. As a whole, the compound conveys the core event of the (re)location of the Figure, with each of the component verbs encoding only one semantic aspect of the event. The first verb can be either a generic placement verb (*fang4*, ‘put’ and *na2* ‘take’) or a specific verb encoding manipulation in a certain manner (e.g., *sai1* ‘stuff’, *reng1* ‘throw’). The second and third verbs (V2 and V3) encode the Path of the transfer, with trajectory in V2 (e.g., *jin4* ‘enter’, *chu1* ‘exit’) and, optionally, deixis (*lai2* ‘come’ or *qu4* ‘go’) in V3.

The two generic placement verbs – *fang4* ‘put’ and *na2* ‘take’ – are associated with large extensional event categories, but many events that are typically described with *put* or *take* in English require a more specific manipulation verb in Mandarin. The choice of verb is based on a number of semantic features, including properties of the Figure (e.g., soft, fluffy object vs. longish, rigid object) and of the Ground

(e.g., placement on head or on trunk of the body), the instrument involved (e.g., placement by hand vs. by pliers), the relationship between the Figure and Ground (e.g., fitting tightly vs. loosely), and the Manner of the manipulation (e.g., placement with vs. without force/intention).

This study contributes to the study of the typology of motion event encoding by supporting the refined typology of motion events proposed by Slobin (2004). In Talmy's (1991, 2000) earlier typology, Mandarin fell together with English and German as a "satellite-framed" language (Talmy interpreted the V1 of a directional verb compound as the main verb, expressing Manner/Cause, and the V2 as a Path satellite). But this study shows that Mandarin patterns with Slobin's "equipollently-framed languages", which express Path and Manner/Cause with equivalent grammatical forms (i.e., two or three free verbs in the compound).

### 3. "Put" and "take" verbs in Tzeltal (Mayan)

This talk examines the expression of "putting" and "taking" events in Tzeltal. Based on 12 consultants' descriptions of the videoclips in the PUT task (an elicitation tool developed at the Max Planck Institute for Psycholinguistics depicting events of placement and removal), the paper examines the semantics of verbs and other relevant spatial vocabulary, the constructions employed, and the extensional patterns of verbs used in "put" (Goal-oriented) vs. "take" (Source-oriented) descriptions.

Tzeltal has a number of relatively general placement verbs, including *ak'* 'put/give' (applicable regardless of the animacy of the Goal), *otzes* 'insert', and *tzak* 'take/grasp in hand'. However, responses to this elicitation task showed a relatively limited role for semantically general verbs. Rather, Tzeltal is a "multiverb language" which provides many different verbs to describe events of "putting" and "taking", with verb choice largely determined by the shape, orientation, and resulting disposition of the Figure and Ground objects. This is illustrated in (1) and (2):\*

(1) (put cup on table)

*la s-pajchan-0 ta ba mexa*  
CMP 3E-set.down.bowlshaped-3A PREP top table  
'S/he set down [a bowl-shaped object] on the table top.'

(2) (take beans from flat surface)

*la s-jop-0 bel ta s-k'ab*  
CMP 3E-gather.in.hand-3A DIRgoing PREP 3E-hand  
'He gathered (them) awaywards with his hand.' [pile of beans]

A second point of interest is the use of the reciprocal to express unidirectional “give” events, as in (3):

(3) (take coke can from someone)

*la y-ak'-be-0 s-ba*

CMP 3E-give/put-DIT-3A 3E-RECIP

‘They gave it each other [one gave, one received].’

The talk considers the consistency of verb usage across speakers in descriptions of “putting” vs. “taking”, the frequency of verb usage and the range of events individual verbs can encompass, and differences in the linguistic treatment of “putting” vs. “taking” events. The asymmetry that has been observed in other languages, with Goal-oriented “put” verbs much more finely distinguished lexically than Source-oriented “take” verbs, is also apparent in Tzeltal.

\* CMP=completeive; 1/2/3E (A) =1st/2nd/3rd ergative (absolute); DIR=directional; DIT=ditransitive; PREP=generic preposition (there is only one); RECIP=recipient.

#### **4. Placement and removal events in Basque and Spanish**

This talk examines how placement and removal events are lexicalized and conceptualized in Basque and Peninsular Spanish. The first part briefly describes the main linguistic tools employed by the two languages, and the second part discusses how speakers choose to talk about these events – e.g., which verbs and constructions are most common, which placement and removal scenes are more prototypical, and what kind of distinctions are drawn among these scenes. Data come from six Basque and ten Peninsular Spanish adult native speakers, who described short videoclips (the PUT task, MPI for Psycholinguistics; see Bowerman et al. 2004).

Both languages are verb-framed (Talmy 2000), and offer equivalent tools for describing placement events: the main verb lexicalizes information about the placement/removal action, while cases/spatial nouns or prepositions/adverbs convey more detailed topological information. Placement verbs are more numerous and diverse than removal verbs in both languages, and Basque has a special set of verbs for clothing, *jantzi* ‘put on clothes’ and *erantzi* ‘take off clothes’. Verbs (e.g. *ipini*, *poner* ‘put’) and cases/prepositions (e.g. *-n*, *en* ‘location’) both have rather general semantics in these languages, so information about the spatial topological relationship between Figure and Ground is recruited not only from the semantics of these elements but also from their canonical configurations in constructions. In other words, spatial information is distributed throughout the clause, and also comes from world knowledge.

Finally, it is argued that notions such as intentionality, agentivity and force dynamics are crucial in the conceptualization of placement events in both Spanish and Basque, and in the ultimate choice of constructions. What is more, these elements seem to interact and give rise to a continuum of constructions, in which, as one moves along the continuum, the Agent’s involvement in the event and exertion of force increase, the Figure’s resistance decreases, and distinction between the Agent and the Figure becomes more clear-cut.

## **5. Putting up with German PUT verbs: Variation and convergence in Romansh-German bilinguals**

In this talk, the multilingual systems of bilingual speakers of Sursilvan Romansh and German are analyzed, based on data collected using the Max Planck Institute's series of videoclips representing events of "putting" and "taking" (Bowerman et al., 2004). The main focus of the paper is on the lexical semantics of verbs referring to "putting" events. Due to the precarious status of Sursilvan Romansh, speakers of this language nowadays must have a high proficiency in German, and in the literature they are generally considered as relatively good examples of highly "balanced" bilinguals. The Romansh consultants went through two elicitation sessions (about 6 months apart), the first conducted in Romansch, the second in Swiss German.

First the German and Romansh systems are briefly described. The German and the Romansh monolingual systems show important differences in the way they carve up the semantic space of placement events. For example, Romansh has a fairly general verb, *metter*, which can be used for a great variety of placement events, similar to the English verb *to put*, whereas German, like many other Germanic languages, makes finer-grained distinctions using different verbs (e.g. *setzen* 'set', *legen* 'lay', *stellen* 'stand'). The second and more important part of the talk addresses how the bilingual speakers handle these two very different semantic systems. Given the linguistic differences and the endangered status of the Romansh language, one would expect traces of the German system in the usage of Romansh, as occurs in other areas of the Romansh lexicon and syntax (Weinreich, 1953). But no such traces are found in the domain of "putting". To the contrary, the speakers of Romansh use the German "put" verbs differently from German monolinguals. Phonologically and morphologically, their German verbs are indistinguishable from the corresponding monolingual versions, but they use these verbs across a larger category of events, similar to the large category covered by *metter* in Romansch.

The consultants in the sample choose between two strategies: either they use the German dummy-verb *tun* ('to do') for a large variety of events, or they overgeneralize the verb *legen* ('to lay'). Both strategies can be analyzed as instances of contact-induced convergence, which allows these highly proficient bilingual speakers to map the lexical forms of both languages to a single meaning and thus to a common underlying conceptual category. This paper contributes to the so far under-researched field of the effects of bilingualism on the semantic-conceptual domain (Muysken 2000: 250).

## **6. What gestures reveal about the L1 acquisition of Dutch placement verbs**

This study explores what Dutch children's speech-associated gestures reveal about the development of Dutch placement verb meanings. Previous work has shown that adult Dutch speakers use one of two obligatory placement verbs encoding caused posture: *zetten* 'set/stand' for vertically placed objects and *leggen* 'lay' for horizontally placed objects. Adults' speech-associated gestures typically incorporate objects in hand shapes that are superimposed on the gestural path component, reflecting a double focus on the object and on the caused motion itself (Gullberg, in press). The two placement verbs are also prevalent in input to Dutch children, as shown in a corpus study of Dutch child-directed speech (Narasimhan & Gullberg, under review). Yet, despite the frequency of these verbs in the input, Dutch

children use them in non-adult-like ways in production even as old as age five (Narasimhan & Gullberg, under review). They over-extend *leggen* 'lay' and under-extend *zetten* 'set', picking one default verb to apply to all placement events.

The present study probes the nature of children's difficulties in more detail by examining speech and gestures in combination, comparing Dutch four- (N=9) and five-year-olds (N=6) to adults (N=6). Data come from elicited event descriptions in which participants saw videoclips of placement events, which they then described to an interlocutor who had to select an appropriate picture on the basis of the description. The results show that children who used the placement verbs in non-adult-like ways in speech also gestured in non-adult-like ways. Specifically, children who over-extended *leggen* 'lay' to all placement events only gestured about path, whereas children who distinguished between horizontal and vertical placement in their speech (*leggen* 'lay' vs. *zetten* 'set') also incorporated objects into their gestures, just as adults do. The gesture evidence thus suggests a developmental transition from a system targeting only (caused) movement (away) to an (adult-like) system targeting both the (caused) movement and the presence of a located object. This transition is not necessarily complete by age five. We conclude that gesture analysis provides an additional window on children's verb meanings, allowing us to explore in more detail how children's meanings differ from those of adults.

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**Table 1. The language sample.** Speakers were asked to describe a set of videoclips showing varied events of placement and removal. This shows the languages from which data were collected, along with the names of the researchers.

<i>Language</i>	<i>Affiliation</i>	<i>Researcher</i>
Dutch	Germanic	Bowerman, Majid
English	Germanic	Stivers
German	Germanic	Gullberg
Swiss German	Germanic	Berthele, Derungs
Swedish	Germanic	Burenhult, Gullberg
Polish	Slavic	Kopecka
Romansch	Romance	Berthele
Spanish	Romance	Ibarretxe-Antunano
Hindi	Indo-Iranian	Narasimhan
Kalasha	Indo-Iranian	Peters
Hungarian	Finno-Ugric	Andics
Kilivila	Austronesian	Senft
#Akhoe Hai//om	Khoisan	Rappold
Mandarin Chinese	Sino-Tibetan	Chen
Lao	Tai	Enfield
Kuuk Thaayorre	Pama Nyungan	Gaby
Karii	Mon-Kmer	Enfield
Jahai	Mon-Kmer	Burenhult
Tamil	Dravidian	Narasimhan
Moroccan Arabic	Semitic	Nouaouri
Tzeltal	Mayan	Brown
Basque	Isolate	Ibarretxe-Antunano
Chontol	Isolate	O'Connor
Japanese	Unclear	Ishibashi
Kuot	Papuan	Lindström
Rotokas	Papuan	Robinson
Savosavo	Papuan	Wegener
Touo	Papuan	Dunn
Yélf Dnye	Papuan	Brown, Levinson