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FROM "THOUGHT AND LANGUAGE" TO "THINKING FOR SPEAKING"

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Language is the formative organ of thought...

Thought and language are...one and inseparable from each other.

Wilhelm von Humboldt ([1836] 1988: 54)

[T]he true difference between languages is not in what may or may not be expressed but in what ~~must~~ or must not be conveyed by the speakers

Roman Jakobson (1959: 142)

Early in the last century, Wilhelm von Humboldt provided the *Leitmotif* for the study of linguistic relativity and determinism. The title of his great work on language clearly points to the central theme: *The diversify of human language-structure and its influence on the mental development of mankind* ([1836] 1988).¹ Languages differ from one another; thought and language are inseparable; therefore each speech community embodies a distinct world-view. The two critical terms here are thought and language, with broad-ranging definitions of each. For example, in von Humboldt's terms: "There resides in every language a characteristic world-view. As the individual sound stands between man and the object, so the entire language steps in between him and the nature that operates, both inwardly and outwardly, upon him... Man lives primarily *with* objects, [but]...he actually does so exclusively as language presents them to him" ([1836] 1988: 60).

In this century the argument is most often associated with Benjamin Lee Whorf. For example, in one of his strongest statements, he proposed: "Users of markedly different grammars are pointed by their grammars towards different types of observations and different evaluations of externally similar acts of observation, and hence are not equivalent as observers but must arrive at somewhat different views of the world" ([1940a] 1956:221).

This doctrine of linguistic determinism, along with the facts of linguistic relativity, has clear implications not only for adult mental behavior, but also for the roles of language and thought in human development. It follows from the doctrine that children who learn different languages end up with different conceptual structures, and that these differences have pervasive cognitive effects. As Whorf put it:

"[E]very language is a vast pattern-system, different from others, in which are culturally ordained the forms and categories by which the personality not only communicates, but also analyzes nature, notices or neglects types of relationship and phenomena, channels his reasoning, and builds the house of his consciousness" ([1942] 1956:252)

In this chapter I propose to replace thought and language with a related but rather different pair of terms: thinking and speaking. The consequences of this shift from names of abstract entities to names of activities is to draw attention to the kinds of mental processes that occur during the act of formulating an utterance. Further, I want to focus attention just on those parts of utterances that are required by the grammatical organization of the language. Here I am following a tradition in anthropological linguistics that has taken a less deterministic approach in the face of linguistic diversity, as exemplified by the thinking of Franz Boas, Roman Jakobson, in an article on "Boas' view of grammatical meaning," singles out Boas's observation that the set of obligatory grammatical categories of a language "determines those aspects of each experience that must be expressed" (Boas 1938: 127). Von Humboldt's grand endeavor is thereby pared down to the issues of obligatoriness and expression. Whatever else language may do in human thought and action, it surely directs us to attend – while speaking – to the dimensions of experience that are enshrined in grammatical categories.

Boas, in his 1911 introduction to the *Handbook of American Indian languages*, catalogued a great diversity of obligatory grammatical categories across languages. For example, he discussed the English sentence, *The man is sick*, and noted that in Siouan one would have to indicate, grammatically, whether the man is moving or at rest; in Kwakiutl one would have to indicate whether the man in question is visible or non-visible to the speaker, and near to speaker, hearer, or a third person; whereas in Eskimo one would simply say 'man sick,' with no obligatory indication of definiteness, tense, visibility, or location. To remove Boas's examples from the realm of the exotic, note that in Spanish one has to indicate whether the man is temporarily or chronically sick that in many European languages one cannot indicate definiteness apart from gender; and so on. What Boas made of such diversity, however, is different from the suggestions of von Humboldt and Whorf:

The few examples that I have given here illustrate that many of the categories which we are inclined to consider as essential may be absent in foreign languages, and that other categories may occur as substitutes.

When we consider for a moment what this implies, it will be recognized that in each language only a part of the complete concept that we have in mind is expressed, and that each language has a peculiar tendency to select this or that aspect of the mental image which is conveyed by the expression of the thought.

(Boas [1911] 1966:38-9)

While von Humboldt and Whorf held that concepts have no existence independent of language, Boas suggests that there is a "complete concept," existing in the mind in the form of a "mental image." The obligatory grammatical categories of each language apparently sample from a universal form of mental representation, independent of any particular language. On this view, the task of the child language learner is to determine which "aspects of the mental image" are realized in the form of grammatical marking in the native language. The mental image is given prelinguistically, and language acquisition consists of learning which features to attend to.

Was Boas right? What would a "complete concept" or "mental image" be like? Consider the two pictures presented in figures 3.1 and 3.2. These come from the middle of a picture storybook without words (Mayer 1969). My collaborators and I have given this book to children and adults in a number of languages and the present chapter is based on some of our results. For now, simply look at the two pictures. They present a pair of events that you can understand immediately, probably without talking to yourself at all: something happens to a boy and something happens to a dog; an owl and some bees or wasps are involved; the location is among trees. Consider the events of the second picture. What grammatical categories are implicit? Compare two languages of our crosslinguistic study, English and Spanish. As an English-speaker, it will be evident to you that the activity of the dog is *durative*, or extended in time, in



Fig. 3.1



Fig. 3.2

comparison with the activity of the boy. In narrative mode, you might say: "The boy fell from the tree and the dog *was running* away from the bees." English marks *progressive aspect* on the verb, and it seems that this aspect corresponds to an obvious temporal component of the "complete concept" or "mental image." If you are a Spanish-speaker, you, too, will recognize the durativity of running, because Spanish also has progressive aspect, as well as imperfective aspect. Yet you might also note that the falling of the boy is *punctual* or *completed*, since Spanish makes a contrast between perfective and imperfective aspect. However, what if you speak a language that has no grammatical marking of perfective/imperfective or of progressive, such as German or Hebrew – to pick two more languages from our crosslinguistic study based on these pictures. Boas would presumably have suggested that you are aware of the differences in temporal contour between falling and running, but simply have no need to mark them grammatically in your language.

So far so good – but let us probe the second picture a bit further. Consider the owl as an observer. In an English narrative one might say: "The owl saw that the boy fell"; or: "The owl saw that the dog was running." The distinction between *fell* and *was running*, I have suggested, seems to be clearly "in" the picture. But what about the owl's seeing? Note that, in both cases, in English we say "The owl saw." Yet seeing

must have different temporal contours too. Indeed, in Spanish the seeing is perfective (PFV) in the first instance, imperfective (IPFV) in the second:

- (1) a. *El buho vio que el niño se cayó.*
the owl saw-PFV that the boy fell-PFV
b. *El buho veía que el perro corría.*
the owl saw-IPFV that the dog ran-XPfV

This will be evident to Spanish-speaking readers, as it is to Spanish-speaking preschoolers in our study – in fact, these two sentences come from a story told by a five-year-old. Yet do English-speakers sense that seeing can be perfective or imperfective? Is this part of our Boasian “mental image” or “complete concept”? I rather doubt it.

Let me take you one step further, this time into a less familiar linguistic terrain. Suppose you have seen only the second picture, and have been asked to describe it as a past event. Descriptions in English and Spanish would probably be the same as in the situation in which both pictures are presented. However, this is not the case in Turkish – another language in our sample – because in that language you are obliged to choose between two past-tense inflections, one for witnessed and one for non-witnessed events. If the second picture were to be presented alone, we would witness the dog running, but we could only infer that the boy had fallen at an earlier point in time. As a consequence, different past tenses would appear on the two verbs:

- (2) a. *Köpek kaç-ıyor-du*
dog run-PROG-WITNESSED.PAST
'The dog was running.'
b. *Çocuk düş-müş.*
boy fall-NONWITNESSED.PAST
'The boy (apparently) fell.'

Turkish preschoolers are careful to make such distinctions. In English one could say, of course, something like: “It seems that the boy fell” or “Apparently the boy fell.” We do have available optional lexical means for expressing notions that lie outside of the set of obligatory grammatical distinctions in a language. Nevertheless, I think we would be hard-pressed to claim that everything about this picture that could be grammatically encoded in all of the languages of the world is implicitly present when we look at the picture.

The Turkish evidential inflections also demonstrate that much of grammar does not deal with mental images or perceivable reality at all. Rather, much of grammar marks distinctions that are relevant to discourse. When I speak Turkish, I must qualify my past-tense statements by telling you something about the source of my evidence. Furthermore, when I present a situation to you in any language, I take a grammaticized

paint of view. For example, in English I might say, “The bees are chasing the dog” or “The dog is being chased by the bees.” Neither of these viewpoints – active or passive – is in the percept. Active and passive constructions serve to organize the flow of information in connected discourse. Thus, even within a single language, grammar provides a set of options for schematizing experience for the purposes of verbal expression. Any utterance is multiply determined by what I have seen or experienced, my communicative purpose: in telling you about it, and the distinctions that are embodied in my grammar.²

The world does not present “events” and “situations” to be encoded in language. Rather, experiences are filtered through language into verbalized events. A “verbalized event” is constructed on-line, in the process of speaking. Von Humboldt and Whorf and Boas were right in suggesting that the obligatory grammatical categories of a language play a role in this construction. The purpose of the research presented here is to demonstrate that, by the age of three or four, children acquiring different types of languages are influenced by such categories in verbalizing the events depicted in our storybook.

In making this claim, I wish to present a new version of the von Humboldt-Whorf position on linguistic relativity and determinism. Recall that those theorists were concerned to relate language to world-view or habitual thought. The classic position thus seeks to relate two static entities: language and thought. Language is the totality of structures described by linguists. But what is “thought” or “world-view”? The hypothesis has always run into trouble in attempts to determine the mental structures that underlie perception, reasoning, and habitual behavior – as measured outside of the contexts of verbal behavior. (Chapters in this volume, once again, point to the difficulties involved in trying to systematically formulate and test such proposals.) I have a more cautious, but more manageable formulation – one that seeks to relate two dynamic entities: thinking and speaking. There is a special kind of thinking that is intimately tied to language – namely, the thinking that is carried out, on-line, in the process of speaking.³ I believe that this is the sort of relation that Boas had in mind when he wrote about selecting aspects of mental images that are “conveyed by the expression of the thought.” In a later formulation, he explicitly pointed to the role of communication: “In language, the experience to be communicated is classified from a number of distinct aspects” (1938: 127) [emphasis added]. Whorf, by contrast, clearly intended more. In the passage from 1942 quoted above, he says “not only communicates, but also...”

Boas was probably wrong, though, in supposing that all speakers, within and between languages, have a common “complete concept”; he was right, however, in suggesting that any utterance is a selective

schematization of a concept — a schematization that is, in some way, dependent on the grammaticized meanings of the speaker's particular language, recruited for purposes of verbal expression.

The reader may have noticed that I have not yet mentioned the name Edward Sapir, which usually appears in references to the "Whorf-Sapir hypothesis." Sapir sometimes took the strong view associated with Whorf, but sometimes he suggested the more cautious version that guides my own research. For example, in an early formulation, Sapir, like Boas, pointed to the role of language in the expression of thought: "[The forms of each language] establish a definite relational feeling or attitude towards all possible contents of expression and, through them, towards all possible contents of experience. In so far, of course, as experience is capable of expression in linguistic terms" ([1924] 1958: 152) [emphasis added].

In my own formulation: the expression of experience in linguistic terms constitutes **thinking for speaking** — a special form of thought that is mobilized for communication. Whatever effects grammar may or may not have outside of the act of speaking, the sort of mental activity that goes on while formulating utterances is not trivial or obvious, and deserves our attention. We encounter the contents of the mind in a special way when they are being accessed for use. That is, the activity of thinking takes on a particular quality when it is employed in the activity of speaking. In the evanescent time frame of constructing utterances in discourse one fits one's thoughts into available linguistic frames. "Thinking for speaking" involves picking those characteristics of objects and events that (a) fit some conceptualization of the event, and (b) are readily encodable in the language.⁴ I propose that, in acquiring a native language, the child learns particular ways of thinking for speaking.

How can this proposal be investigated? One way is to compare the ways in which speakers of different languages depict the same events in words. This approach is well known to students of translation, and there is a large and fascinating literature showing that translations of the same text cannot help but add or remove nuances in accord with the characteristics of the given language (e.g. Brislin 1976, Maslov 1985, Nida 1964, Snell-Hornby 1988, Toury 1986). Informally, we have already encountered these issues in considering various descriptions of the two storybook pictures in several languages, and in Boas's American Indian translations of *The man is sick*. However, my major concern is with the possible cognitive effects of linguistic diversity in the course of child language development, where the method of comparative translation cannot be generally applied, because one cannot ask monolingual children to carry out translations of a text. However, we can ask children in different countries to tell stories about the same sequence of

pictures and see if their stories differ consistently, depending on the language that they are speaking. This is the method we have been using in Berkeley, in collaboration with researchers in a number of countries, using the picture storybook, *Frog, where are you?* (Mayer 1969). For the purposes of the present argument, I compare children's descriptions of several scenes in several languages, focusing on expressions of temporal and spatial relations. The languages are English, German, Spanish, and Hebrew, and the ages sampled are preschool (three–five years), school-age (nine years), and adult. Our findings suggest that even preschoolers give evidence of language-specific patterns of thinking for speaking, and that such patterns have implications for the development of rhetorical style in each of the languages.⁵

1 Rhetorical style

When one has read many of these stories in various languages, one begins to get a feeling for typical characteristics of style in each language. This can be made clear even by comparing translations into English. Consider the two pictures that we have already examined, along with the seven following pictures in the storybook: after the boy falls from the tree, he accidentally gets entangled in the antlers of a deer, with the result that the boy and dog fall into some water. The two following segments are representative of five-year-olds' narratives. One is in English, and the other is an English translation of a Spanish story, using the progressive to correspond to the original imperfective, which has no English equivalent, in order to render the version suitable in English:

- (3) a. **First version:** The boy looked in a hole in the tree. An owl came out that threw the boy. And the dog, the wasps were chasing him. The boy hid behind a rock and the owl flew away. A deer that was behind the boy when he climbed... And he slipped on top of the deer, while the deer was running. The dog went first. He threw them down where there was a river. Then he fell.
- b. **Second version:** And the boy looked in the tree. And then the boy fell out, and the owl was flying, and the dog was being chased by the bees. And then the boy got up on some rocks, and the owl flew away. And the boy was calling for his frog on the rocks. And a deer... the boy got caught on the deer's antlers. And then the deer carried him over a cliff and threw him over the cliff into a pond. And the boy and the dog fell, and they splashed in some water.

We can be reasonably sure that the mental images, and understanding of the events, are roughly the same for these two children. Yet, to the practiced eye, it is evident that the first version is Spanish and the second English. What are some of the salient characteristics of these two languages, as reflected in our narratives?"

The two versions are similar in their treatments of movement through time. Both narratives mark some events as being in progress. In the first, compare: *threw* vs. *was running*; in the second, *fell* vs. *was flying*. (Recall that these past progressives in the translated version were really past imperfectives in the Spanish original.) English and Spanish both have aspectual marking of durativity, and five-year-olds note this distinction. As we will see later, this feature is lacking in German and Hebrew narratives.

The two versions differ, however, in their treatment of location and movement through space. In the first version, trajectories are not highly elaborated: *threw the boy, slipped on top of the deer, threw down*. The second version depicts more detailed trajectories: *fell out, carried over a cliff, threw over the cliff into a pond, splashed in some water*. By contrast, the first version has relative clauses that depict static locative configurations, which are lacking in the second: *a deer that was behind the boy, where there was a river*. In terms of syntactic complexity, although the second version has no relative clauses, it has passive constructions, *was being chased, got caught*.

These cues are sufficient to identify the first version as Spanish and the second as English. The linguistic characteristics of these two narrative segments are typical of our preschool narratives in the two languages. In brief, where English allows for elaborated trajectories of motion, Spanish has simple verbs of change of location, supplemented by more elaborated descriptions of static locations of objects. With regard to the syntax of non-canonical clauses, Spanish preschoolers make frequent use of relative clauses, and English-speaking preschoolers make frequent use of passives – but for different purposes, of course. Spanish relative clauses fill in locative and circumstantial detail in cases where English may not have need for such detail, as discussed below with some additional examples. English passives perform the same narrative function as Spanish word-order variation. I have given a left dislocation in the Spanish version: *the dog, the wasps were chasing him*. This was really a standard object-fronting word order in Spanish

- (4) *Le perseguían al perro las avispas.*
CLITIC.PRO chased OBJECT + the dog the wasps

This corresponds in function to the English passive, *the dog was being chased by the bees*. Preschoolers in both languages can manipulate word order to topicalize a patient, although the construction types differ.

I want to argue that these systematic contrasts between Spanish and English reflect different patterns of thinking for speaking – different on-line organization of the flow of information and attention to the particular details that receive linguistic expression. These patterns hold

up in quantitative analysis of our narratives, and show striking contrasts with languages of different types.

2 Temporal description

Consider, again, the scene in which the boy falls from the tree and the bees chase the dog. Here we have two simultaneous events, one PUNCTUAL, COMPLETED, and the other NON-PUNCTUAL, DURATIVE. As we have seen, English allows for an opposition between an aspectually neutral verb form and a progressive, with the neutral form taking on a default punctual value, given the lexical meaning of the verb *fall*. The description in our five-year-old's example is typical:

- (5) The boy fell out... and the dog was being chased by the bees.

Such aspectual contrasts are available at even younger ages. The earliest example in our data for this scene is given by a child of 3;8 (3 years 8 months):

- (6) He's [dog] **running** through there, and he [boy] **fell** off.

In Spanish, the preferred version is to mark the punctuality of falling by use of a perfective verb form, contrasting it either with an imperfective or a gerundive expression, as in the following five-year-old's examples:

- (7) a. Se cayó el niño y le perseguían al perro las avispas.
'The boy **fell-PFV** and the wasps **chased-IPFV** the dog.'
b. Se cayó... y el perro salió corriendo.
'He **fell-PFV**... and the dog **came-out-PFV** running.'

As in English, this aspectual contrast is marked by the youngest children in our sample. Our earliest Spanish example comes from a child of 3;4:

- (8) Se cayó... El perro está corriendo.
'He **fell-PFV**... The dog is **running**.'

Spanish, by providing a perfective, in addition to imperfective and progressive, thus makes it possible to grammatically mark both poles of the durative–nondurative distinction, whereas the English progressive provides explicit marking only of the durative pole.⁷

German and Hebrew lack distinctive marking of either pole of the aspectual contrast. Hebrew has no grammaticized aspect at all. Verbs are simply inflected for past, present, or future tense. German has a simple past and a perfect. Neither language has grammatical marking of either progressive or imperfective. One would assume that German- and Hebrew-speakers must be aware, in some non-linguistic sense, that the temporal contours of the two events differ. In Boas's terms, their mental

images should include such a basic contrast. Yet, the obligatory grammatical categories of German and Hebrew do not require speakers to attend to this contrast. This is evident in the narratives in these two languages: speakers generally do not distinguish the two events grammatically, but rather tend to use the same tense for both verbs. The following examples from five-year-olds are typical:

(9) German:

Der Junge fällt vom Baum runter... und die Bienen gehen hinter dem Hund her.
'The boy falls down from the tree... and the bees go after the dog.'

(10) Hebrew:

Hu nafal ve hakelev barax.
'He fell and the dog ran-away.'

These examples are from five-year-olds, but it is important to note that the language-specific patterns hold across all the ages sampled, from three to nine, and for adults. In German and Hebrew the tendency is to maintain the same tense-aspect form for both clauses, while in Spanish and English the tendency is to differentiate the two. The trend is summarized numerically in table 3.1.

Consider these figures in the light of thinking for speaking. If the figures for Hebrew and German were uniformly 100%, and for English and Spanish 0%, we could only conclude that speakers strictly adhere to the formal contrasts provided by their language, and it would not be possible to separate thinking from speaking. Critical evidence, however, comes from deviations from these extremes, indicating that other options are possible.

Some Hebrew speakers try to contrast the two events by presenting the first in the past tense and the second in the present, thereby recruiting a tense difference to mark the aspectual contrast COMPLETED-ONGOING. For example:

(11) Hebrew (5-year-old):

Hayedel nafal... ve hakelev boreax.
'The boy fell... and the dog runs-away.'

Table 3.1. Percentage of narrators using same tense/aspect form for "fall" and "run" clauses in fig. 3.1

	Preschool (3-5)	School (9)	Adult	OVERALL
Hebrew	71	100	63	78
German	54	80	78	31
English	26	22	33	27
Spanish	23	18	0	21

Note that this option is used about one-third of the time by preschoolers and adults, while school-age children (nine-year-olds) follow the language most tenaciously in not attempting any aspectual distinction. (It is worth noting, in passing, that nine-year-olds' stories, across languages, tend to be the most stereotyped and consistent with native language patterns. This may well be an effect of schooling.)

German presents a similar picture to Hebrew. There are some attempts to mark the verbs differently, especially in preschool narratives. The first event is sometimes put in the perfect, thereby closing it off as a resultant state with regard to the second event in the present tense. For example:

(12) German (5-year-old):

Der ist vom Baum runtergefallen und der Hund läuft schnell weg.
'He has fallen down from the tree and the dog runs away quickly.'

It is interesting that the tendency in German is to mark the first event as completed, rather than to elaborate the second as ongoing. Only two narrators in our total sample of forty-eight made any attempt to mark the second event as protracted in time:

(13) a. German (year-old):

Er rannte schneller und immer schneller.
'We ran faster and ever faster.'

b. German (adult):

Der Hund rennt rennt rennt.
'The dog runs runs runs.'

In fact, throughout the narratives, it is generally the case that when German speakers choose to take an aspectual perspective, they tend to orient to some marking of boundedness. It is intriguing that, in the history of German, there have been various attempts to grammaticize notions of boundedness or terminative aspect. English, by contrast, has gone in a different historical direction among the Germanic languages, grammaticizing the progressive. And we find that our English-speaking narratives tend to mark durativity more than termination in their descriptions. The relations between diachrony and child language would require a separate paper. However, it is worth noting that persistence of a grammaticized notion over time in the history of a language provides another sort of critical evidence that grammatical distinctions may train children to attend to particular "contents of expression," to use Sapir's term. That is to say, speakers - and hence languages - become accustomed to maintaining grammatical marking of particular semantic features, as shown in ample diachronic evidence of renovation of grammatical markers within a given semantic domain.

To return to the fates of the boy and the dog: it is important for my argument that the figures in table 3.1 are not all 100s and 0s. If this were

the case, one could only conclude, with Whorf ([1940b] 1956:213–14), that:

We cut nature up, organize it into concepts, and ascribe significances as we do, largely *because* we are parties to an agreement to organize it in *this* way – an agreement that holds throughout our speech community and is codified in the patterns of our language. The agreement is, of course, an implicit and unstated one. *but its terms are absolutely obligatory* [Whorf's emphasis], we cannot talk at all except by subscribing to the organization and classification of data which the agreement decrees.

The deviations from the overall tendencies of each language type show that the "agreement" is not totally obligatory: it is, indeed, possible to try to mark aspectual notions like TERMINATIVE and DURATIVE if they are not part of the regular system of verb morphology in one's language, as in German and Hebrew. On the other, the occasional lack of aspectual distinctions between the two clauses in Spanish and English shows that one is not compelled to make use of the full array of distinctions available in verbal morphology. However, what is most striking in table 3.1 is the finding that speakers so rarely make use of options that differ from the norm. Overall, Hebrew and German speakers attempt to elaborate aspectual distinctions about one-quarter of the time, while Spanish and English speakers fail to mark aspectual distinctions about one quarter of the time. Such tendencies appear repeatedly, throughout our cross-linguistic study of narrative, clearly pointing to different types of thinking for speaking. Speakers of all ages, across languages, certainly know, in some non-linguistic sense, that the boy's falling is punctual and completed with regard to the simultaneous, ongoing chasing and running of bees and dog. Yet they generally do not seem to be inclined to express any more of this knowledge linguistically than fits the available distinctions in the language. It is striking that children as young as three already show the "selective attention" favored by their particular native language.

In comparing languages in terms of grammatical aspect, as in the examples presented above, we find differences in terms of the number and kinds of distinctions that are marked. The four languages we have considered can be put on a continuum with regard to richness of aspectual inflection:

Grammatical aspect

Hebrew: none.

German: perfect

English: perfect, progressive

Spanish: perfect, progressive, imperfective/perfective

When dealing with a continuum of this sort, we ask whether there is any sort of "compensation" for missing grammatical categories in a language,

or whether they are generally ignored in thinking for speaking. Our data – across a number of story episodes and languages – suggest that categories that are not grammaticized in the native language are generally ignored, whereas those that are grammaticized are all expressed by children as young as three.

3 Spatial description

Languages differ from one another not only in the presence or absence of a grammatical category, but also in the ways in which they allocate grammatical resources to common semantic domains. Again, it will be most useful to begin with a comparison between English and Spanish. These two languages represent opposite poles of a typological distinction with regard to the verbal expression of change of location. That is, they differ critically in lexicalization patterns for verbs of motion. Consider one of the sentences we encountered earlier in an English five-year-old's story:

- (14) And then the deer carried him over a cliff and threw him over the cliff into a pond.

As Leonard Talmy (1985) has shown in detailed analyses of lexicalization patterns, the verb in English encodes some change of location in a particular manner – *throw*, *carry*, *run*, etc. – leaving it to particles and prepositions to encode directionality. English allows for quite elaborated use of such means to specify path with a single verb root. The following sentence sounds quite normal to native speakers:

- (15) The bird flew down from out of the hole in the tree

The verb simply specifies motion in a particular manner, and the associated elements specify the trajectory: *down-from-out-of*.

Spanish verbs of motion encode either directionality – *entrar*, 'enter'; *salir*, 'exit'; *subir*, 'ascend'; *bajar*, 'descend', etc.; or manner – *volar*, 'fly'; *correr*, 'run'. However, one cannot compactly express manner and directionality in compound expressions as in English, because the grammar generally does not allow for the accumulation of path expressions. The closest Spanish approximation to (15) would be something like:

- (16) *El pájaro salió del agujero del árbol volando hacia abajo.*
'The bird exited of the hole of the tree flying towards below.'

Note that Spanish prepositions, by contrast to English, provide minimal locative specification: *de* occurs twice in example (16). In *del agujero*, 'of the hole,' it receives the meaning 'out-of' from the associated verb *salir*, 'exit,' while in *del árbol*, 'of the tree,' it receives the meaning 'in' from

general world knowledge about relations: between holes and trees. When world knowledge is not sufficient, the Spanish-speaker is often required to provide a static "sketch" of the relevant components of the scene, so that the appropriate trajectory can be inferred. This accounts, in part, for the flowering of relative clauses in Spanish. For example, in English one might say:

(17) The boy put the frog down into a jar.

A Spanish-speaker might say:

(18) *El niño metió la rana en el frasco que había abajo.*

'The boy inserted the frog *en* [=in/on] the jar that was below.'

The verb *meter*, 'insert,' implies that the proposition *en* is to be interpreted as 'in'; and the relative clause, *que había abajo*, 'that was below,' implies the directionality of insertion. Thus in Spanish the trajectory 'down-into' must be inferred from a combination of path-verb and a static description of the location of the goal – the jar – while in English the static location of the goal – located in the jar – must be inferred from the path-description, *down into*.

This is a systematic difference between the two languages. English tends to assert trajectories, leaving resultant locative states to be inferred; Spanish tends to assert locations and directions, leaving trajectories to be inferred. This systematic difference has effects on the grammar of discourse. One effect, already mentioned, is the Spanish use of locative relative clauses. Another effect is in the use of Spanish participles, which are frequent at the youngest ages. There are even clauses in which the only lexical verb is a participle. For example, where English-speakers tend to say "The boy climbed the tree," leaving the boy's end-state implicit, Spanish speakers often say the untranslatable *El niño está subido en el árbol* 'the boy is climb-PART in the tree.'

(19) English: assert trajectory, imply end-state.

The boy climbed the tree.

(20) Spanish: assert end-state, imply trajectory.

El niño está subido en el árbol.

'the boy is climb-PART *en* [=in/on] the tree.'

[= the boy is in a state of having climbed the tree]

The languages incline towards different patterns in what is asserted and what is implied. Thus, at many points in our narratives, English-speakers assert actions, implying results, whereas Spanish-speakers assert results, implying actions. These differences come to have an effect on overall rhetorical style. Thus the obligatory grammatical morphemes of a language may do more than simply direct attention-while-speaking to their semantic content. This directed attention may have consequences

for what is said and unsaid in any particular language. In this case, English-speaking narrators devote somewhat more narrative attention to descriptions of processes, while Spanish-speaking narrators tend to provide more descriptions of states. (In making this proposal, however, let me underline that I am talking about thinking for speaking only. I am making no claims about how millions of Spanish- and English-speakers conceive of life or act in the world.)

In our small sample of narratives to the *Frog*, where are you? picturebook, there are some suggestive differences by age and language with respect to the sorts of issues of location and motion that we have been examining. The analysis of verbs of motion can be enriched by adding German and Hebrew, since German patterns itself like English – with undirected verbs of motion and a rich and differentiated collection of locative particles and prepositions – and Hebrew patterns itself like Spanish – with directional verbs and a small collection of polysemous prepositions.

There are three episodes in the story in which a character falls or is thrown downward. We have seen two of them – the fall from the tree and the fall from the cliff; and here we add a third, in which the dog falls from a window. The analysis includes all of the verbs used to describe these scenes (mainly versions of "fall" and "throw") in English, German, Spanish, and Hebrew. At issue is whether the verb occurred alone or with some kind of locative addition – a particle or prepositional phrase indicating downward direction, source, or goal of motion. Table 3.2 presents the data for three-, five-, and nine-year-olds, giving the percentages of such descriptions that had a bare verb with no locative elaboration.

First consider the three-year-olds. It is already evident that English and German form one group, and Spanish and Hebrew another. Recall that, in comparing languages according to aspect, it was English and Spanish

Table 3.2. Percentages of downward motion descriptions with bare verb

	Age		
	Three	Five	Nine
English	4	27	13
German	15	2	0
Spanish	68	37	54
Hebrew	68	72	45

that formed one group, and German and Hebrew another. It is clear that, for psycholinguistic purposes, typological differences between languages must be considered separately for each semantic domain. The ways in which a language deals with issues of time may be quite different from its treatment of space, which casts some doubt on the grand overall conceptions of language and world-view proposed by von Humboldt and Whorf.

Table 3.2 shows that English and German three-year-olds hardly ever use a verb of motion without some locative elaboration, whereas Spanish and Hebrew three-year-olds use bare verbs of motion about two-thirds of the time. This clear difference in narrative strategy holds up across age as well. Although there are different developmental patterns, at each of the three ages the contrast between the two types of languages is maintained.⁸

The most interesting developmental pattern is seen in Spanish. Here there appears to be a U-shaped curve, with some five-year-olds providing relatively more locative elaboration than either three- or nine-year-olds. Some children of this age seem to be groping for more detailed description of trajectories, using English/German construction types that are redundant in Spanish; for example:

- (21) a. *Se cayó dentro de un agujero.*
'(He) fell inside of a hole.' [5 yrs.]
[= *Se cayó en un agujero* '(He) fell *en* a hole.']
- b. *Se cayó encima del agua.*
'(He) fell on top of the water.' [5 yrs.]
[= *Se cayó al agua.* '(He) fell *a* the water.']

And some five-year-olds add a locative adverb, *abajo* 'down' or 'downward,' as in:

- (21) c. *Le tiró abajo.*
'(He) threw him down(ward).' [5 yrs.]

These can be looked upon as attempts to compensate for an apparent gap in Spanish grammar. Yet they are different from the attempts at compensation that we encountered with regard to verbal aspect. There we found a few rare instances of German and Hebrew attempts to add distinctions of punctuality or durativity that are not marked grammatically in the language. Here, however, we have attempts to be more explicit, using tools that are part of the grammar. Again, we see that thinking for speaking is not a Whorfian straightjacket.

Interestingly, these attempts disappear after the age of five in Spanish. They seem to be replaced by the use of extended static locative descriptions, which make it possible to infer trajectories from the combination of a motion verb and the description of a scene. That is, the

Spanish child learns to allocate information in accordance with the "rhetorical typology" of the language. The following nine-year-old's example is typical:

- (22) *El ciervo le llevó hasta un sitio, donde debajo había un río.*
Entonces el ciervo tiró al perro y al niño al río.
Y después, cayeron.
'The deer took him until a place, where below there was a river.
Then the deer threw the dog and the boy to the river.
And then, they fell.'

The four languages also fall into two types on the basis of relative use of such locative description. Table 3.3 summarizes the use of elaborated locative narration of the fall from the cliff.

First compare English and Spanish: it is evident that this pattern of extended locative elaboration develops between the ages of five and nine in Spanish, but not in English. Comparable narrations by English nine-year-olds present compact phrases with verbs of motion and associated indications of path, but with no scene-setting descriptions, such as:

- (23) a. *So the deer ran away with him and dropped him off a cliff in the water.*
And they fell in the water.
- b. *And the deer ran with the boy on his antlers. So the dog was chasing the deer, and the deer just stopped, and the boy and the dog fell off a cliff into a swamp.*

German nine-year-olds are strikingly similar to English-speaking Americans, with little static scene-setting and compact verbal constructions that sketch out a trajectory; for example:

- (24) *Der Hirsch nahm den Jungen auf sein Geweih und schmiß ihn den Abhang hinunter genau ins Wasser.*
'The deer took the boy on his antlers and hurled him down from the cliff right into the water.'

Table 3.3. Percentage of narrators providing extended locative elaboration in describing the fall from the cliff

	Age	
	Five	Nine
English	8	8
German	0	17
Spanish	8	42
Hebrew	0	42

Finally, to complete the picture, nine-year-old Israelis are strikingly similar to Spaniards, as can be seen from the following Hebrew example:

- (25) *Ve ha'ayil nivhal ve hu hitxil laruts. Ve hakelev rats axaray, ve hu higia lemacok she mitaxat haya bitsa, ve hu atsar, ve hayeled ve hakelev naflu labitsa beyaxad.*
'And the deer was startled, and he began to run. And the dog ran after him, and he reached a cliff that had a swamp underneath, and he stopped, and the boy and the dog fell to the swamp together.'

To return to the overall theme once again, the contrast between these two types of languages seems to have important consequences with regard to thinking for speaking. In this instance, the unavailability of a particular grammatical device – a system of locative particles related to verbs – has rather large potential consequences for narrative organization. Spanish- and Hebrew-speaking children develop procedures of scene-setting in which a vaguely specified change of location becomes interpretable in context. One grammatical device: which serves this function is relative clauses, and we find that Spanish- and Hebrew-speakers use relative clauses far more frequently than English- and German-speakers. This is already evident at the age of three, indicating early development of a narrative style in which description and qualification are important (Berman & Slobin 1994).

4 Learning to think for speaking

One must, of course, be cautious in making large generalizations from a rather small sample of stories told about a single picturebook in several countries. Within this framework, however, it is encouraging to find that the patterns we have found in Spain seem to hold up in comparable data gathered by Aura Bocaz in Chile and Argentina (Slobin & Bocaz 1988), and that the English patterns are repeated in several different American samples. Much more needs to be done even with the Frog, where are you? picturebook in the remaining languages in our sample, not to mention necessary additions of other genres and languages.⁹

I am convinced, however, that the events of this little picture book are experienced differently by speakers of different languages – In the process of making a verbalized story out of them. For example, there is nothing in the pictures themselves that leads English speakers to verbally express whether an event is in progress, or Spanish speakers to note whether it has been completed; to encourage Germanic speakers to formulate elaborate descriptions of trajectories; to make Hebrew speakers indifferent to conceiving of events as durative or bounded in time. (And, if we were to go on to examine our Russian and Turkish stories, we would find an indifference to indicating the definiteness of story participants – a

category readily marked by our English, German, Spanish, and Hebrew narrators.) I suggest that, in acquiring each of these languages, children are guided by the set of grammaticized distinctions in the language to attend to such features of events while speaking.¹⁰

5 First-language thinking in second-language speaking

There is something dissatisfying in limiting ourselves to evidence that is so bound up with the acquisition and use of native languages. I have also suggested that the stability of grammaticized categories in historical language change can be taken as evidence of the cognitive importance of those categories for speakers. In conclusion, I would like to point to another type of evidence that seems to support my proposal that the ways one learns a language as a child constrain one's sensitivity to what Sapir called "the possible contents of experience as experienced in linguistic terms."

Consider the small collection of linguistically encoded perspectives that we have been examining: temporal contours of events marked by aspectual forms, movement and trajectories in space (and also indication of definiteness of participants mentioned in connected discourse). These are precisely the sorts of things that make it so hard to master the grammar of a second language. For example, it is very hard for English-speakers to grasp the Spanish perfective/imperfective distinction that is lacking in our native language. In fact, we seem never to master this system fully in Spanish. By contrast, we have little difficulty in figuring out how to use the Spanish progressive and perfect, or the Spanish definite and indefinite articles – since we have already learned how to make decisions about the linguistic expression of these notions in English. Yet there is nothing inherently easy or hard about any of these Spanish distinctions. For example, native French speakers have no trouble with the Spanish imperfective, since they have a similar category in French; but the progressive and perfect pose problems to them, since these are not French ways of looking at events. Turkish speakers have difficulty with definite and indefinite articles in learning to speak Spanish, English, and German, since there are no definite articles in Turkish. German speakers of English use the progressive where they should use simple present, although Turks do not make this error in English, since Turkish uses progressive aspect and German does not. Spanish learners of English object that we make too many obscure distinctions with our large collection of locative prepositions and particles. And so on. In brief, each native language has trained its speakers to pay different kinds of attention to events and experiences when talking about them. This training is carried out in childhood and is exceptionally resistant to restructuring in adult second-language acquisition.

Much of value for the **thinking for speaking hypothesis** could be **learned** from a systematic study of those systems in **particular second languages** that speakers of particular first languages find especially difficult to master. **Suggestive data of** precisely this sort **come** from a European Science Foundation project, "Second language acquisition by adult immigrants" (Perdue 1993). Two examples, **one** from *the* domain of time and the other from **the domain of space**, are instructive.

Consider **Italian-** and **Punjabi-speaking** immigrants to Britain (Bhardwaj, Dietrich, & Noyau 1988). **Italian and English are both "tense-prominent" languages** – that is, every finite clause must be grammatically marked as to its deictic relation to the **moment of speaking**. Italian immigrants readily acquire English past-tense forms. **This makes** it possible for *them* to construct **narratives from a situationally external perspective, relating a succession of past events as seen from the present, as is done in Italian**. **These speakers make far more frequent use of tense-marking than of the English progressive aspect**. Punjabi, by contrast, is an **"aspect-prominent" language**, and Punjabi immigrants **make heavy use of the English progressive to narrate events "from within," from the perspective of the protagonist, in analogous fashion to the narrative use of the Punjabi imperfective**.

In the domain of space the influence **of Punjabi on learners' early organization of English** is striking (Becker, Carroll, & Kelly 1988). In Punjabi, spatial locations are regions named by nouns, analogous to English expressions such as *on the top of the pile* and *at the back of the house*. Punjabi learners of English often treat prepositions as nouns, producing forms such as *put the on please*, *put the down chair*, and *pull the up* (1988:69). English relational terms have apparently been **reanalyzed as names of locations**. In addition, Punjabi focuses on states **as the results of processes** (somewhat like the Spanish use of participles discussed **above**). **This pattern also transfers to English**. For example, a newspaper lying **on** a table is referred to as put in *the table* by a Punjabi-speaker. The investigators suggest that **"he imagines that the newspaper was put there by someone. In Punjabi one says exactly the same thing"** (1988:73).

The European Science Foundation team concludes:

The influence of the lexico-grammatical systems of both the SL [source language] and the TL [target language] can be observed in the acquisition process. **The picture which emerges is quite a simple one – an adult acquirer tries to discover in the TL a system that is similar to that of his SL, and if he does not discover any, he tries to construct one; but since it is the TL material he has to use the outcome is invariably a hybrid which is an autonomous system (often consisting of loosely or tightly integrated sub-systems) which partakes of some features of both the "parent" systems but is identical to neither.** (Bhardwaj et al. 1988:86)

I propose that the grammaticized categories that are **most** susceptible to SL influence have something important in **common: they cannot be experienced directly in our perceptual, sensorimotor, and practical dealings with the world**. To be sure, all human beings experience sequences of events that **have** particular temporal contours, put objects in locations, and so on. Indeed, animals do the same. However, **only language** requires us to categorize events as **ongoing or completed**, objects as at rest or as at the end point of a trajectory, and so forth. Other categories seem to be less dependent on purely verbal categorization. I would imagine, for example, that if your language lacked a plural marker, you would not have insurmountable difficulty in learning to mark the category of **plurality in a second language**, since this concept is evident to the non-linguistic mind and eye. Or if your language lacked an instrumental marker it **should** not be difficult to learn to add a grammatical inflection to nouns that name objects manipulated as instruments. **Plurality and manipulation are notions that are obvious to the senses**.¹¹ Yet there is nothing in everyday sensorimotor interactions with the world that **changes when you describe an event as "She went to work" or "She has gone to work," or when you refer to the same object in successive utterances as "a car" and "the car."** Distinctions of **aspect, definiteness, voice, and the like**, are, par excellence, **distinctions that can only be learned through language, and have no other use except to be expressed in language**. They are not categories of thought in general, but categories of thinking for speaking. It **seems that once our minds have been trained in taking particular points of view for the purposes of speaking, it is exceptionally difficult for us to be retrained**.

It is interesting that Wilhelm von Humboldt anticipated *these* questions as well. He wrote:

To learn a foreign language should therefore be to acquire a new standpoint in the world-view hitherto possessed, and in fact to a certain extent this is so, since every language contains the whole conceptual fabric and mode of presentation of a portion of mankind. But because **we always carry over, more or less, our own world-view, and even our own language-view**, this outcome is not purely and completely experienced. ([1836] 1988: 60)

6 Conclusion

In sum, we can only **talk** and understand one another in terms of a particular language. The language or languages that we learn in childhood **are not neutral coding systems of an objective reality**. Rather, each one is a subjective orientation to the world of human experience, and this orientation **affects the ways in which we think while we are speaking**.

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Notes

- 1 *Über die Verschiedenheit des menschlichen Sprachbaues und ihren Einfluß auf die geistige Entwicklung des Menschengeschlechts.*
- 2 These facts pose problems for any acquisition theory, because the child must initially be sensitive to **potentially grammaticizable** distinctions. This problem goes beyond the goals of the present chapter. For discussion of these issues see Bowerman (1989), Pinker (1989), Talmy (1987), Slobin (1985).
- 3 My preferred formulation of a modified Whorfian hypothesis was offered by Charles Hockett: "The impact of an inherited linguistic pattern on activities is, in general, **least** important in the most practical contexts and most important in such 'purely verbal' goings-on as storytelling, religion, and philosophizing" (1954: 122). I would extend the definition of these "purely verbal goings-on" to all acts of speaking.
- 4 For the purposes of this chapter, "readily encodable in the language" is limited to closed-class grammatical morphemes – specifically, tense/aspect inflections, verb particles, and prepositions. Traditionally, the hypothesis of linguistic relativity and determinism has been most clearly stated with regard to obligatory distinctions as well as to the number of options provided by a language within a domain. For example, tense is obligatory in English but modality is optional. Nevertheless, the language provides a

small set of grammaticized modalities, with rigorous grammatical specification of their use (*would, should, can*, etc.). English and Spanish both have a closed-class set of locative prepositions, but the Spanish set is much smaller and consists of prepositions with more general meanings than in English. Languages also have "semi-open" sets of lexical items that are grammatically significant, such as verbs of aspectual phase (*start, finish, keep on*, etc.). Grammatical factors such as these should all have consequences for thinking for speaking.

- 5 The study was planned together with Dr. Ruth A. Berman of Tel-Aviv University in Israel (Berman & Slobin 1994). The full study now includes ten languages, with ten or more narrators in each age group: **English**: ages 3, 4, 5, 9, adult (Lisa Dasinger, Cecile Toupin: University of California, Berkeley; Virginia Marchman: University of Wisconsin-Madison; Tanya Renner: University of Hawaii). **Finnish**: ages 3, 4, 5, 9, adult (Lisa Dasinger: University of California, Berkeley). **German**: ages 3, 5, 9, adult (Michael Bamberg: Clark University; Christiane von Stutterheim: Universität Heidelberg). **Hebrew**: ages 3, 4, 5, 7, 9, 11, adult (Ruth Berman, Yonni Neeman: Tel-Aviv University). **Icelandic**: ages 3, 4, 5, 9, adult (Hrafnhildur Ragnarsdóttir: Reykjavik). **Japanese**: ages 3, 4, 5, 7, 9, adult (Keiko Nakamura: University of California, Berkeley). **Mandarin**: ages 3, 4, 5, 7, 9, adult (Guo Jiansheng: University of California, Berkeley). **Russian**: ages 4, 5, 6, 7, 9, 10, adult (Yana Anilovich: University of California, Berkeley). **Spanish**: ages 3, 4, 5, 7, 9, adult (Eugenia Sebastián: Universidad Autónoma Madrid; Aura Bocaz (Chile, Argentina): Universidad de Chile, Santiago). **Turkish**: ages 3, 4, 5, 7, 9, adult (Ayhan Aksu-Koç: Boğaziçi Üniversitesi, Istanbul, Aylin Küntay, University of California, Berkeley).
- 6 The original Spanish of the first version is as follows: *El niño miró por un agujero del árbol. Salíó un loro que le tiró al niño. Y le perseguían al perro las avispas. El niño se escondió detrás de una piedra y se voló el buho. Un ciervo que estaba detrás al niño como se subió... Y se tropezó encima de la- del ciervo, mientras el ciervo corría. Primero iba el perro. Le tiraron abajo en donde un río. Luego se cayó sentado.* [The last word is omitted from the translation because it has no natural English equivalent. The narrator is apparently trying to convey the idea that the boy fell/landed in a seated posture.]
- 7 It should also be noted that the Spanish perfective/imperfective distinction is **obligatory**: every past-tense verb must be marked as one or the other. Progressive, by contrast, is optional in both languages; that is, one may choose not to mark a verb as progressive. However, because English does not have any other means of inflectionally marking durativity, the progressive is used more frequently in English than in Spanish.
- 8 Differences between English and Spanish in narrative strategy are also reflected in literary fiction. In a recent study (Slobin 1996) of novels written in the two languages, the following differences were attested, parallel to findings from the study of elicited narratives: authors writing in English make more frequent reference to source and goal in association with verbs of motion; they also provide more information about manner of movement. Translations of English novels into Spanish omit some details of both path and manner of movement, whereas translations from Spanish into English preserve such information.
- 9 Our data consist entirely of elicited productions. Studies of comprehension and memory also would be pertinent. Further, it should be noted that the frog

stories are essentially monologues. As suggested by several participants in the conference on "rethinking linguistic relativity," crosslinguistic studies of interpersonal discourse would add dimensions of cultural relativity in the exchange of information and in negotiation of the content and flow of discourse. Thinking for speaking, then, is one component of an approach to communication that is situated in the particularities of languages and cultures.

- 10 It is through listening, of course, that children's attention is first drawn to the fact that certain notions are grammatically marked in the ambient language. This suggests that, once the grammar has been acquired, there may be related effects of "speaking for remembering," "listening for understanding," and "listening for remembering." That is, the form in which one produces information may influence how that information is stored and later accessed, and the form in which one receives information from others may influence how it is understood and stored. Leonard Talmy (personal communication) characterizes all of these listener-oriented counterparts to thinking for speaking as "thinking from hearing." Re proposes, however, that the influence of grammar may be washed out on the receptive end, since the form of an utterance underdetermines its interpretation. That is, the hearer uses all available information (grammatical, lexical, contextual, world knowledge) to arrive at a conceptualization of the speaker's communicative intent. For example, imagine listeners to the various styles of narrating the fall from the cliff. Once the listener has established that the boy fell from the deer's head over a cliff into some water, the differences between the English-style and Spanish-style versions may no longer play a role. One possible way to study the influence of grammar at the receptive end would be to do memory experiments with fluent adult bilinguals. If one thinks for speaking in Language A (either as speaker or hearer) and later recalls the content in Language B, are the grammaticized concepts of Language A in any way still present in the recall? (Moshe Anisfeld (p.c.) has suggested memory experiments with monolinguals speaking various languages, comparing a speaker's form of encoding with later memory for grammatically relevant details of the content.)
- 11 You may have difficulty remembering to use these markers on every occasion – as Chinese speakers of English do not always mark the plural, to take one possible example. But this is a matter of automatizing attention, which may be difficult in adulthood. What I am proposing is that some grammaticized categories may be obvious on non-linguistic grounds. For such categories, the problem in second-language learning is not to make the proper conceptual distinction, but to treat it as obligatory.

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