

In *Actes du 16<sup>e</sup> Congrès International des Linguistes* (CD-ROM), Elsevier (1998).

## **Regular metaphoricity in gesture: bodily-based models of speech interaction.<sup>1</sup>**

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Every aspect of our cognitive selves is shaped by the fact that we experience the world as embodied human beings. If we were to imagine intelligences without bodies, or with bodies as small as electrons, their experience of the universe would be radically divergent from ours. Being a human being means, for example, that our primary experience of a gravitic center is the planet we live on, rather than the nucleus of an atom; that we see the range of wavelengths of light in the human visual spectrum; that we have certain universal emotional experiences (*fear*, for example, probably being among them, as shown by universal physical responses and facial expressions [Ekman 1971; Ekman *et al.* 1972]). It also means that we each have our own vantage point: that our perception is done by our own bodies, so that *front* and *back*, or *far* and *near*, or *this* and *that*, are relative to each speaker's perceptual center. The spatiotemporal environment in general is experienced via human memory, human intentionality, and human experience of correlations and change.

This embodied experience of the world is certainly not just some non-social physical perception, however. Although cognitive linguists have stressed embodiment of cognitive structure sometimes to the neglect of more interactional aspects of cognition, any linguistic theory which argues that basic categorial judgments (is this object a *chair* or not?) are based not only on perception of physical shape and size, and on motor routines involved in interaction, but on human purposes, has already necessarily included social cognition in its understanding of cognitive structure. Our cognition is not only embodied, but physically and socially interactive with other embodied cognitive beings, and a rich area of cognitive activity is our understanding of social relationships; linguistic communication is constantly physically and socially situated in a broader frame of social and physical interaction, activities, and environment. It seems impossible to set the linguist the task of choosing between seeing cognition as embodied or as situated. We could not be situated as we are without being embodied.

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<sup>1</sup> I thank participants in the 1997 CSDL-3 conference in Boulder, Colorado for their comments on Sweetser (1997), a paper closely related to this one.

The domain which I am about to discuss, gesture accompanying speech, is both a fascinating embodiment of cognitive structure and a fascinating testimonial to the basically situated character of that embodiment. Taub's recent (1997) work on American Sign Language (ASL) has shown in some detail that signed languages are similarly interesting and complex bodies of evidence of the embodied and situated cognitive structures which they manifest. I shall here concentrate on gesture, showing first that it shows a rich and regular set of spatial metaphors whereby abstract concepts are "embodied" by being viewed in terms of concrete ones, and secondly that it links the speaker's body to the physical situation in metaphorical ways which link the speaker cognitively to the social situation. Embodiment and situatedness are inseparable in gesture.

### **Spatial metaphors in gesture.**

In gesture accompanying American English speech, there are systematic metaphorical mappings which are remarkably parallel to the mappings seen in American English linguistic usage. The first person I know of to remark on such regular mappings was Cienki (in press a, b), following up on citations of metaphorical gestures by McNeill (1992). Cienki argues that in his data (a series of interviews with American college students on the subject of academic honesty), students regularly use gestures marking a straight line ahead of the speaker to accompany mention of honesty, or "doing the right thing;" he also finds that speakers gesture up for morality and down for immorality, up when describing a good grade and down for a bad grade. These mappings are apparently identical to linguistic usages such as *straight* meaning honest or moral, *high moral standard* (vs. *low-down tricks*) meaning good morality, and *high* (or *low*) *grade*. The relevant linguistic usages of *high* and *low* have been examined in detail by Lakoff and Johnson (1980) and Sweetser (1995), and seem to be part of very general metaphors GOOD IS UP and MORAL IS UP.

Crucially, although Cienki's subjects did use the linguistic metaphors in question, he noticed that they did not necessarily use the gestural metaphors only when they were using the parallel linguistic ones: a student referring to a *better grade* (rather than a *higher grade*) might still gesture upwards, for example. In my data, the same is true. Speakers may use gestural and linguistic metaphors in parallel, or in complementary fashion. This means that the gestural metaphor may carry the full weight of conveying metaphorical construal, at least locally.

My own initial analysis of a series of videotaped academic lectures has turned up a rich set of metaphorical gestural mappings.<sup>2</sup> In Sweetser (1987) and

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<sup>2</sup> My data consist of eight academic lectures videotaped at the Midnight Special Bookstore in Los Angeles. Although none of the lecturers were particularly knowledgeable about gesture, all were very knowledgeable about metaphor, the theme of the lecture series. These results must therefore be noted as coming from data produced by speakers deeply interested in metaphor. Obviously, it will be necessary to continue the work on tapes of naive speakers' gestures. I must note, however,

Sweetser (1992), I laid out an analysis of a set of central metaphors for thought and reasoning, and for speech interaction, in English. These central linguistic metaphors for speech and thought turn out to have clear and regular gestural parallels in this data. Below is a list of some of the gestures involved, and the metaphorical mappings exemplified in their usages in the corpus examined.

## **A. IDEAS ARE OBJECTS; SPEECH INTERACTION IS OBJECT EXCHANGE**

(The “Conduit Metaphor;” see Reddy 1979, Lakoff 1992, Sweetser 1987, 1992.)

**1. Dominant gesture hand (right hand for right-handed gesturers, left for left-handed gesturers) index finger points successively to fingers of non-dominant hand,** as arguments or other listed ideas are “counted” in the accompanying speech. Iconically represents pointing at a succession of objects, and counting them in the view of the spectator. Metaphorically represents bringing the interlocutor’s attention to a succession of ideas.

(cf. linguistic usages such as *first...second..third* to number points; or the use of deictic *this* to refer to the preceding content in *this means that my hypothesis can’t be right.*)

**2. One or both open hands, palm upwards, held out towards interlocutor** at points when the speaker has just put forward arguments or information which she hopes the hearer(s) will agree with and assimilate into their knowledge bases. Iconically represents holding out an offered physical object to a potential recipient. Metaphorically represents a comment on the ongoing discourse: speaker requests hearer to notice that she has made this point or presented this evidence.

In a fascinating micro-version of this gesture, one speaker raised two fingers of the hand that was lying against the edge of the podium, just as he said *I’m gonna do this* (i.e., talk about the subject you might want to interrupt and ask about) *in a minute..*

(cf. linguistic usages such as *Here’s the idea*, or descriptive linguistic usages like that of *give* in *what gave you that notion?*)

**3. One or both open hands (if one hand, typically the dominant hand), extended palm outwards towards the interlocutor.** (cf. Kendon 1995 on this gesture, or one very similar to it, in Italian usage.) Iconically represents a barrier to an offered physical exchange, hence refusal of an offered physical

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that the lecturers have been quite surprised by the regularities which I discovered in their gestural patterns, of which none of them had been conscious. Further, since analyzing the tapes I have frequently observed parallel metaphorical gesture patterns in other speakers, in situations ranging from conference talks to dinner conversations. So it seems likely that the observed metaphorical mappings in gesture are not unique to this metaphorically sophisticated group of speakers.

object. Metaphorically represents a request to interlocutor not to speak now. May or may not be accompanied by verbal signals such as *wait a moment*, or *hold on*.

(cf. linguistic usages such as *refuse to accept an idea*)

**B. THOUGHT (or REASONING) IS MOTION THROUGH SPACE;  
SPEECH INTERACTION IS JOINT MOTION, or A JOINT JOURNEY.**

(Sweetser 1987, 1992; cf. linguistic usages such as *Where are we? We don't seem to be **getting anywhere** in this discussion; should we really **go on**?*)

**1. "B" hand (flat hand with fingers extended and together) and forearm move outwards from speaker, with the thumb upwards and the back of the hand leading so that the palm is facing inwards.** Iconically represents physical traversal of a path continuing onwards from the speaker's present location. Metaphorically represents described continuation of the reasoning trends (or of some list of concepts) instantiated in the immediately preceding speech of the speaker. May be accompanied by verbal cues such as *and so on* or *etcetera*.

**2. Similar to 1 in hand and arm configuration and position, but instead of tracing a smooth path outwards from the speaker, the hand rotates outwards in circles.** This gesture appears to be used in situations where discourse continuation is presented either as being unnecessary because it is obvious what follows, or as being simply tedious and repetitive. In the latter case, the verbal cue may be something like *(and so)on and on* (which would not normally co-occur with **B1**). Iconically represents physical traversal of a trajectory that starts from the speaker's current location but continues in circles, "not getting anywhere" or not getting very far, and re-traversing the same terrain. Metaphorically represents continuation of the ideas instantiated in the immediately preceding speech, when that continuation is not productive of much new communicative content.

**C. CONCEPTUAL STRUCTURE IS SPATIAL GEOMETRIC STRUCTURE;  
CONCEPTUAL RELATIONSHIP IS PHYSICAL CONNECTION,  
CONCEPTUAL SIMILARITY IS PHYSICAL CLOSENESS.**

(Sweetser 1995; cf. linguistic usages such as *That's real **close**, but not the same color; They're **closely connected** with the Linguistics Department; **distant** relationship; **far from** the same color*)

**Speakers regularly designate areas of the gesture space as associated with concepts in the discourse content. They consistently and recurrently gesture to the relevant location as they return to the associated topic.** One videotaped lecture shows the speaker regularly gesturing to one side when

discussing the political and moral views of conservatives, and to the other side when discussing liberal politics and morality. Similarly, one side of the speaker may represent a subject matter, and the other the analysis; one side may be the source domain of a metaphor and the other the target domain; one side may be faculty and the other administration.

Moreover, speakers saying they are going to *bring together* certain ideas (using a linguistic manifestation of this metaphor) may accompany it with a gesture which iconically represents bringing physical objects together: specifically, **the two hands come together, or one hand brings spread fingers together**<sup>3</sup>. This metaphorically represents bringing ideas into conceptual relationship or showing their similarity or compatibility. Alternatively, a speaker who is talking about conceptual divergence or variety may gesture with **two hands apart**. One speaker accompanies the phrase *the whole range of conceptual viewpoints* with a sweeping crosswise gesture that begins with the two hands side-by-side, palms down and fingertips outwards, and moves them away from each other until they are at the far left and right sides of his gesture space.

In some cases, added metaphorical mappings interact with this one. For example, a lecturer saying *Universal moral laws have to map onto concrete situations* accompanies this with a gesture which brought one hand's fingertips downwards to meet the fingertips of the other hand. ABSTRACT IS UP, CONCRETE IS DOWN (Lakoff and Johnson 1980) was here added to the general mappings of this broad metaphor. The iconic representation of a physical *connection* between a higher and a lower object in space is used to metaphorically represent conceptual *relationship* between an abstract principle and a concrete situation.

### **The situatedness of gesture and language.**

One thing that all the gestures mentioned above have in common is their relation to the situation around them. They are made physically by a speaker, in spatial relation to herself and to her interlocutor(s). Most of the gestures mentioned above are also metalinguistic - they are involved in negotiating and structuring the ongoing situated social interaction of which both speech and gesture are manifestations. But many of them can be used referentially as well as metalinguistically; for example, the **B2** "on and on" gesture can be used either in lieu of the speaker's own continuation (which is labelled as unnecessary), or when describing unnecessary continuation of some action on the part of some described agent. In that case, the speaker's body still serves as a deictic center, representing the current location from which motion is to continue.

All languages probably make metaphorical use of spatial vocabulary to refer to more abstract domains; certainly this is true of every language I have been able to get data about, including languages of widely divergent genetic

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<sup>3</sup> Cf. Kendon's (1995) *mano a borso*, which has a related but distinct usage.

origin, and of geographic locations on at least four continents. The kinds of metaphorical use of *physical* spatial structure discussed in this paper are, as some readers may know, by no means particular to gesture. Balthasar Bickel (1997) has insightfully discussed the way in which spatial behavior and physical orientation, as well as spatial language, is used by the speakers of Belhare (a Tibeto-Burman language of Nepal) to metaphorically represent social structure. Social and religious rituals present some obvious examples of the same general kind of thing in European and American cultures: the physical touching involved in shaking hands is emblematic of social connection; bowing or kneeling to show humility to authority is a spatial manifestation of POWER IS UP.

But most saliently, signed languages, which are articulated in visual space, have a linguistic structure which inherently makes use of physical spatial structure (the shape, location, orientation and motion of the articulating hands and body, and their interaction with the space around them). This bodily-centered articulatory space may represent another physical space; for example, in one possible scenario, the speaker may be describing an action which took place at some other place and time, using her own body as a representation of the actor's body and her location to represent the actor's location. But the articulatory space may also represent abstract conceptual structure; for example, a sign for "different" might involve moving the hands away from each other, while a sign for "same" might involve bringing them together (this is in fact true of the ASL signs SAME and DIFFERENT). Although I cannot devote significant space to the structure of signed languages in this paper, nearly all of the metaphorical structures I have mentioned above as evidenced in American English gesture accompanying speech, as well as in English-speaking linguistic usage, are familiar to sign language users and researchers as the bases of linguistically conventionalized metaphorical structures.<sup>4</sup>

A question which arises naturally is to what extent such metaphorical exploitations of spatial experience, and of the deictic situatedness of speech activity, are specific to a particular language. We have already seen that unrelated languages such as English and ASL both share spatial orientational and experiential metaphorical mappings. Although this might be attributable to contact, in fact many unrelated spoken languages share spatially based metaphorical structures with English: the FUTURE IS AHEAD, PAST IS BEHIND (or "ego-centered") metaphor seems to have some manifestations in every

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<sup>4</sup> For work on metaphor in ASL, I refer the reader to Wilcox (1993) and Taub (1997). Brennan's (1990) work on British Sign Language was pioneering in this area. Liddell (1990, 1995) has done extensive work on the systematic use of signing space to represent other spaces, whether concrete or abstract; Van Hoek (1996) has also written insightfully on the regularities involved in referential use of signing space to represent abstract mental space structure.

spoken language for which I have seen data, including Chinese, Japanese, and Wolof, and is also shared by a wide spectrum of unrelated signed languages.<sup>5</sup>

Much of our bodily experience has to be crossculturally shared, since we all live in similar bodies (bilaterally symmetric, front-back asymmetric, and so on) in the same gravitic environment, with similar perceptual apparatus.<sup>6</sup> Lakoff and Johnson (1980) argued that much of our metaphorical conceptual structure is based on experiential correlations: for example, the metaphorical mapping MORE IS UP is based on an experienced correlation between greater quantity and a higher vertical location of a top surface (as when we put something on the top of a pile and the pile is higher, or we pour water into a container and the surface level rises). Grady (1997a, b) argues that indeed all metaphorical structure is ultimately based in correlation of physical percepts (such as seeing a surface level rising) and subjective judgments or reactions (such as realizing that more contents are now in the container). Chris Johnson (C. Johnson 1996; Grady and C. Johnson 1997) has developed a theory of the cognitive development of metaphor in children, involving initial “conflation” of two domains (such as vision and knowledge, conflated by the salient and constant correlation of visual experience with informational input about the world), and subsequent conceptual separation of these domains (as the child realizes that vision and knowledge are not always correlated). Once they are fully separate, the remaining correlation-based connection is no longer simply metonymic, but may give rise to full structural metaphorical mappings between the two domains.<sup>7</sup>

If researchers like Grady and Christopher Johnson are correct, we have every reason to suppose that at least some of the same experience, including the experience of situatedness, will be manifested in any human language’s metaphorical system, and in any human culture’s broader gestural and interactional physical use of space. This does not of course mean that it will be manifested in exactly the same way. First of all, if some social or abstract domain is represented physically, it may be iconically represented in a variety of ways. Not every spatial word may be equally conventionally used in an abstract metaphorical sense (compare in English the conventional *the weeks ahead of you* with the less conventional *the weeks in front of you*). Similarly, not every forwards gesture, with every hand shape, will be used with identical metaphorical meaning of futurity. Iconicity is a flexible thing in itself: for example, to mime sweeping, one person might pretend to wield an imaginary broom in two fists, while another might use the hand to represent the head of the broom itself, leaving the wielder unrepresented. This would not show radically different

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<sup>5</sup> It is not, in any of these languages, the sole metaphorical structuring of time. For further information on this, and in particular a detailed discussion of the Wolof data, Kevin Moore’s forthcoming Ph.D. dissertation will be of great use.

<sup>6</sup> Clark 1973 is the landmark background to any work in this area of linguistic universals.

<sup>7</sup> I have described some of the metaphorical mappings between knowledge and vision in Sweetser (1990).

conceptualizations of sweeping, but only gestural exploitation of different aspects of the same conceptualization.<sup>8</sup> Add to this the possibility for further culture-specific variation in the mapping between the physical iconic representation and the metaphorically represented domain, and we can see that there is room for immense variation.

There are clearly major culture-specific aspects to gestural systems, as well as to linguistic systems (cf. McNeill 1992, Kendon 1995). Some of these have to do with apparently arbitrary choices of one form over another (rather like the broom-miming example), while others may have their basis in profound cultural differences: for example, Chinese appears to have more usage of up-down spatial language to refer to the past (as “up”) and the future (as “down”) than English does, and this may be correlated with the cultural salience of reverence towards ancestors in Chinese culture. Note that Chinese is here still exploiting POWER/STATUS IS UP, a metaphor which has been argued to have a universal basis in the relation between greater height (or higher physical position in space) and advantage in a confrontation, although this exploitation is quite culturally specific.

### **Experience, viewpoint, and situatedness.**

Recent cognitive approaches to linguistics can clearly profit by (re)joining streams with analyses of situated language, and with other socially based analytic methods. Cognitive linguistic approaches such as Fauconnier’s (1985, 1997) Mental Spaces theory have been used to describe the way in which viewpoint is presented in literary as well as everyday language (cf. Fauconnier and Sweetser 1996). Spoken and signed face-to-face language uses are the most directly “situated,” or as Langacker (1987, 1991a, b) or Liddell might prefer to say, “grounded.” But written language users seek more indirect methods of grounding. The cognitive system which is so richly manifested in language is one which is essentially concerned with interaction and the situation of the person who is carrying out any particular linguistic activity. And the universal and culture-specific ways in which metaphor is involved in this cognitive system are deep, pervasive, and deserving of much further study. This study should obviously be done in the context of gesture, spatial context, and other extralinguistic contextual factors, some of which may turn out to bear a closer relationship to linguistic cognitive structure than has previously been observed.

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<sup>8</sup> Taub 1997 (chapters 3-5 in particular) has brought new clarity to our understanding of the nature of iconicity, in signed languages in particular and in linguistic and extralinguistic representation in general.

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