UNEXPECTED METAPHORS[1]

David McNeill, University of Chicago

I shall explain what I mean by 'unexpected metaphors' in due course but I begin with a more familiar type, the 'expected metaphor'. So doing will set the stage and clarify what is actually unexpected about unexpected metaphors.

Expected metaphors

The hallmark of an expected metaphor is that it follows an established cultural pattern. Such a metaphor can appear verbally as well as gesturally, although not necessarily in the same utterance. It is 'expected' in the sense that, given a repertoire of metaphors embodied in a culture, form and content are more or less predictable. The accompanying drawings[2] present examples of such gestures. Figure 1 illustrates, in a gesture, what Reddy (1979) called the 'conduit' metaphor in spoken and written language. The gesture displays the image of a container or substance, an image that embodies the idea of the "next scene" in this case. The speaker's open, upright palm 'is' or 'contains' this scene. Conduit metaphors are widespread but do not appear in all cultures (cf. McNeill 1992).

Fig. 1 Conduit metaphoric gesture accompanying "and the next scene is" in speech.

Although in principle speech could have conveyed this metaphor it did not (presumably to avoid cumbersomeness). Also, as is again often the case, the gesture carried information related to the meta-level of discourse—the reference was to the structure, qua structure, of the story being recounted.

The second illustration (Figure 2) includes two metaphors bundled into one gesture—time is a moving object, in this case the temporal dynamics of a computer program, displayed as the speaker's own transverse motion, joined by a metaphor in

Fig. 2. Process as motion metaphoric gesture accompanying the speaker's utterance of "the dynamics of how you get through the* # right?"

which a process is a rotation (example due to Eve Sweetser). The combination metaphorizes what was also in speech, "the dynamics (metaphorically, a rotation of

hands) of how you get through (metaphorically, a transverse motion of whole body)".
Again, the metaphors are in gesture only or at least the rotation metaphor is gestural only.

Expected metaphoric gestures have been widely studied (for example, McNeill 1992, Webb 1996, Cienki 1998, Parrill & Sweetser 2004, Müller 2004, this volume). Cultural standards and the potential for counterparts in speech set expected metaphors apart from the 'unexpected' metaphors, described next.

Unexpected metaphors

Metaphoric thinking is not limited to cultural metaphors like the conduit or time is a moving object. There are other gestures that seem at first purely iconic, not metaphoric at all, but on examination turn out to incorporate metaphoric thinking. This metaphoric content is fleeting, one-off, and created afresh and instantaneously, as one speaks. Such gestures suggest a mode of thinking that is fundamentally

Fig. 3. Iconic gesture with "and drops it down the drainpipe"—the object being thrust down, a bowling ball, is also a metaphor for the concept of an antagonistic force.

metaphoric but also spontaneous and improvisational. The 'obviously iconic' gesture of a bowling ball being thrust down (Figure 3), in an oft-examined example (e.g., McNeill & Duncan 2000), presents *both* an image of thrusting down *and* an abstract idea in the form of this image (an idea, I will explain shortly, of an antagonistic force).

This essay examines this and other examples of such unexpected metaphors; identifies their role in speech, thought, and discourse; and aims to uncover some of the functions that explain how and why they occur.

Unexpected metaphoric gestures are not random. I propose they have both a discourse and an utterance creation function. *They form a bridge between the core idea unit or growth point of the utterance at the moment of speaking, and the larger discourse framework.* In this way, these gestures, *because* they are metaphors, help to maintain the coherence of the idea units in question with respect to the larger discourse, and organize speech output itself within this discourse. Unexpected metaphors also complete growth points by providing the imagery they require in combination with linguistic content. Expected metaphoric gestures have the same potential, and the two kinds—expected and unexpected—can be seen as two manifestations of the imagery-language dialectic as it engages abstract content, in the one case the culture providing the imagery ready-made and in the other the individual speaker generating it iconically and investing it with metaphoric significance on her own. The logic is that unexpected metaphors arise from the need to create images when the culture does not have them readily at hand. These images join linguistic content as growth points and differentiate what Vygotsky (1987) called psychological predicates, or points of contrast in the immediate ongoing context of speaking. Unexpected metaphors, precisely because they are outside the conventions of language and culture, can capture abstractions in novel ways and provide the fluidity of thought and language that is the essence of ongoing discourse.

I would not want to say that such metaphors are 'derived from' or 'based upon' iconicity even though iconicity is present; instead, like Lakoff & Johnson, I imagine that we think in terms of these metaphors directly. The iconicity aspect is important for a different reason. When the idea is abstract, when, that is, strictly speaking it is nonimageable, the aforementioned dialectic, to take place at all, draws on metaphoricity. This is how metaphoricity comes in—it fulfills an imagery-language dialectic. So, to quote Nobuhiro Furuyama (from an email communication), iconicity is a crucial part of metaphoric semiosis. But, if anything, metaphor sets the stage for iconicity, rather than the other way around. When the culture provides an image ready-made, we have an expected metaphor. When it does not and the speaker, fulfilling the imperative of the dialectic, sees the image as something else, we have an unexpected metaphor (cf. Müller's tripartite theory of metaphor: it is this seeing the image as something else that conveys that a metaphor is present).

The bowling ball metaphor

I have presented this example in the past as a case study of the growth point and how the growth point incorporates context (e.g., McNeill 2000). Now I shall bring out what has been implicit in this example, that the gesture is also an unexpected metaphor. The gesture (Fig. 3) is iconic for the bowling ball being thrust down, but it also is a metaphor of the idea of an antagonistic force. The speaker has just watched an animated color cartoon (one of the Sylvester and Tweety sagas, *Canary Row*), and is recounting it to a listener, who has not seen the cartoon but will retell it from the first speaker's rendition. There was no mention of gesture in the instructions to the participants—the task was described as storytelling.

The spoken part of the example is shown in line (2) below (line (1) will be referred to later). The first thing to notice is that the timing of the gesture stroke (boldface) is somewhat off, if we think gestures should line up with lexical affiliates. The stroke *excluded* the verb, "drops"; it coincided with "it down", and in this way combined two constituents, the Figure and Satellite (using Talmy's 2000 categories), but excluded another, the Activating Process, which in the sentence structure actually comprises a unit more tightly coupled with the Figure (numbers here and below refer to the sequential order of the utterance in the narration):[3]

(1) he tries going [**u**p] [the ins**id**][e of th**e drai**npipe] and Tweety Bird runs

(2) and gets a bowling b[all and drop<u>s</u> **it do**<u>wn</u> the drainpipe]

(brackets showing the onset and completion of the gesture phrase; boldface the gesture stroke; underlining pre- and poststroke holds). This timing is not a mystery, however, if we regard the gesture as a metaphor for an antagonistic force. From this vantage point the synchronized gesture and linguistic segments agree precisely. The "it" indexes the bowling ball, which metaphorizes the antagonistic force, and the "down" refers to the direction the force is taking. The verb, "drops", in contrast, refers to Tweety, the character who was the agent of the dropping or thrusting but not the force in question.[4] In short, "drops" was outside the metaphor and was accordingly excluded from the gesture that carried the metaphoric meaning.

The exclusion of "drops" was no mere slippage; timing of gesture and speech shows that it was motivated. First, the preparation phase has two features that skip the verb. Preparation began at the first mention of the bowling ball in the preceding clause. This shows that the bowling ball was already the focus. And preparation continued right *through* the verb, suggesting that the verb was irrelevant to this focus. Further, a brief prestroke hold seems to have preceded "it down" (although coding varies), which, if present, targeted the stroke on the "it down". Finally, an unmistakable poststroke hold lasted exactly as long as it took to complete the articulation of "down", preserving the semantic synchrony of the gesture stroke with the articulation of the downward path in speech. So the stroke fully and exactly timed with just two words, "it down", and excluded the lexically affiliated third, "drops". The question is: why?

Catchments

How can we tell, in general, what unexpected metaphoric meaning a gesture may have, or that it has such a meaning at all? For this, we must look to the context prevailing at the moment of the gesture. The curved two-handed gesture was part of a family of similar gestures, a 'catchment'. Surveying the full catchment reveals the thematic idea of an antagonistic force whenever a curved two-handed gesture occurred in this stretch of the narration (the direction of motion, trajectory, and details other than two-handedness and curvature varied according to the individual events; that is, the gestures combined the object and meta-level information).

A catchment in general is recognized from recurrences of gesture form features over a stretch of discourse. It's a kind of thread of consistent visuospatial imagery running through the discourse. The logic is that discourse themes are linked to images. These images produce gestures with recurring features. Thus, working backwards, the catchment offers clues to the discourse themes in the text with which it co-occurs.

In this example, several catchments can be identified from hand use:

C1 - *1 handed* = Sylvester as a solo force. One-handed gestures occur in items (1) and (6), and tie together references to Sylvester as a solo force. The single hand has a pointing 'G' shape (as the classic extended first finger, the rest of the fingers and thumb curled into the palm is known in American Sign Language), a feature also tied to the Sylvester theme (but with a different significance—the shrinkage he had to undergo to get his plump body inside the pipe, as well as directedness).

(1) he tries going [**up**] [the ins**id**][e of th**e drai**npipe]

(6) [and he come**s out the bot**tom of the drai][npipe

C2 - *2 similar hands* = the bowling ball as an antagonistic force. Two-handed symmetrical gestures in items (2), (7), (8) and (9). They group descriptions where the bowling ball is the antagonist, the dominant force. The 2-handed symmetric shape highlights the bowling ball throughout this catchment.

(2) Tweety Bird runs and gets a bowling b[all and drops **it do**wn the drainpipe]

(7) and he's **got this** big bowling ball inside h][[im

(8) and h**e rolls on down**] [into **a bow**ling all]][ey

(9) and then **you hear a sstri**]ke

C3 - *2 different hands* = the relative spatial positions of the bowling ball and Sylvester inside the pipe. Two-handed asymmetrical gestures are in items (3), (4) and (5), and group items in which the bowling ball and Sylvester are equals, differing only in their positions in space and direction of motion. Both hands have a pointing 'G' shape, again possibly signifying shrinkage, except at (5), when the lower Sylvester hand opened slightly for the swallowing.

(3) an[nd / / a**s he's** coming] [up

(4) and the **bowling b**all's coming do][wn

(5) he **ssw**allows it /]

While it's true that the 'it down' gesture stroke was the first occurrence of the catchment, the **C2** catchment with its antagonistic force theme apparently was already active, arising with Viv.'s (the speaker's) first mention of the bowling ball at the end of the preceding clause, in (2). It was then the preparation phase for the stroke started. What seems decisive is that at the start of this preparation Viv.'s hands were shaped the way they were for the downward stroke itself, the shape of hands over the bowling ball. The hands were also facing down in the agent's shape, the orientation they have for Tweety's launch. So all the ingredients of the antagonistic force metaphor seem to have been present at that moment—the bowling ball as a force, Tweety as the avatar of the force, and the transference of the force from Tweety to bowling ball.

The explanation

None of this was copied from the animated stimulus itself—there, Tweety supported the bowling ball from the bottom rather than curling hands over the top, and released it rather than shoved it into the pipe; in other words, the gesture in Fig. 2 is the speaker's *construction* of the event to have the properties we discover, together with metaphoricity, the whole enabling an imagery-language dialectic and a discourse focus on the antagonistic force theme, while keeping the narrative line and assorted dramatis personae true to the facts of the cartoon. The gesture with "it down" was in the symmetrical **C2**. It was thus part of the various guises in which the bowling ball appeared in its role as an antagonist. It is not a 'symbol' of this force; it symbolizes the bowling ball and its motion downward, as such, but here the bowling ball and this movement presented the idea of a force contrary to Sylvester. The speaker at this point had construed the cartoon as a paradigm of antagonistic forces—bowling ball (surrogate for Tweety) against Sylvester, and the forces differed in direction (down for the Tweety-bowling ball force, up for Sylvester). Becoming a metaphor for the antagonistic force, the bowling ball was a bridge from the thematic content of the catchment to the individual growth point. The metaphoricity of the gesture was in this way an *essential* feature of speech and thought, and the linkage of both to context.

The upper story window metaphor

The next example presents the idea of inaccessibility as a separation in space. The metaphor uses an iconic image depicting two characters from the cartoon stimulus, one in the upper story window of a hotel and the other at street level, below, to present this abstract idea. The common thread, the catchment, is this image. It links the metaphor to the successive iconic depictions of swinging, climbing, etc. Again, iconic imagery fits the abstract meaning, and again the image ties a growth point to discourse. The speaker begins with an explicit spoken reference to inaccessibility and has her two hands in a configuration of spatial separation (Figure 4.1—left panel shows the hands just before the stroke, right panel the configuration at the end of the stroke; the stroke occurred during the boldface portion of speech, "**ty Bird's ings* inaccessible**"—the * signaling morphological discontinuity). She then repeats the configuration with more descriptions, 7 in all—Sylvester has to climb up somehow (Figure 4.2—left panel just before the stroke, right panel just after it; stroke during "climbs"). He devises various strategies, including swinging on a rope from another building (Figure 4.3—left panel at end of the prestroke hold phase shown in the first underlining, right panel at end of stroke and during the poststroke hold phase in the second underlining; stroke itself during "across") and walking on nearby trolley wires (not illustrated). In the inevitable logic of the cartoon none succeeds, hence the continuing relevance of the idea of inaccessibility. The metaphor appears in the final configuration of each gesture. In Fig. 4.2, the climbing gesture iconically conveys climbing; then ends with the hands in the metaphoric 'inaccessibility' configuration, and a similar sequence of iconic depiction followed by the metaphor of inaccessibility occurred in each of the gestures. The discourse effect is to link the iconic depictions (climbs, swings, etc.) to the inaccessibility theme, not unlike how an expected metaphor conveyed a discourse structuring function in the "next scene" example.
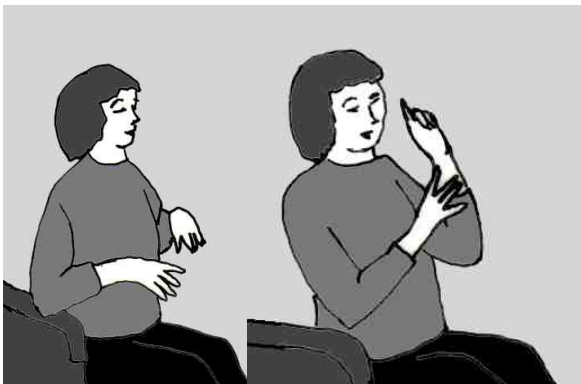

Fig. 4.1. part of the problem is that [Twee**ty Bird's ings***
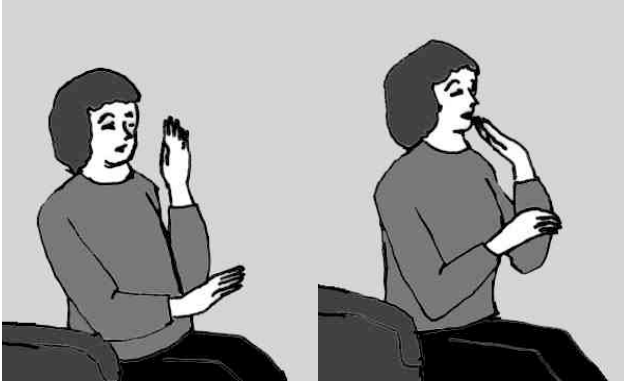**inaccessible**] because he can't really just go in the front door of this hotel...

Fig. 4.2. [so he has t**o climb**]

Fig. 4.3. <um> / tryi[ng to s<u>wing</u> **across** <u>by</u> a rope #]

Fig.4. Gestures where an upper story window is a metaphor for inaccessibility.

The two spaces metaphor

My third example utilizes space to convey the idea of an opposition, which was a narrative theme for this speaker. The catchment was a spatial map embodying this idea in the form of the left space versus the central space. The spaces did not have other values and in fact the references of each shift, but opposition is a constant feature. Figure 5 shows the speaker's depiction of what he took to be a moral ambiguity in a Hitchcock film (*Blackmail*).[5] In his opinion there was a conflict between canonical ascribed morality and actual effective morality. He uses space to metaphorize this opposition, as a concept in itself. In panel (a) he is saying "everyone's morals are very ambiguous 'cause [**they're sup**]posed to be the good guys", and indicates the space to the left (right hand
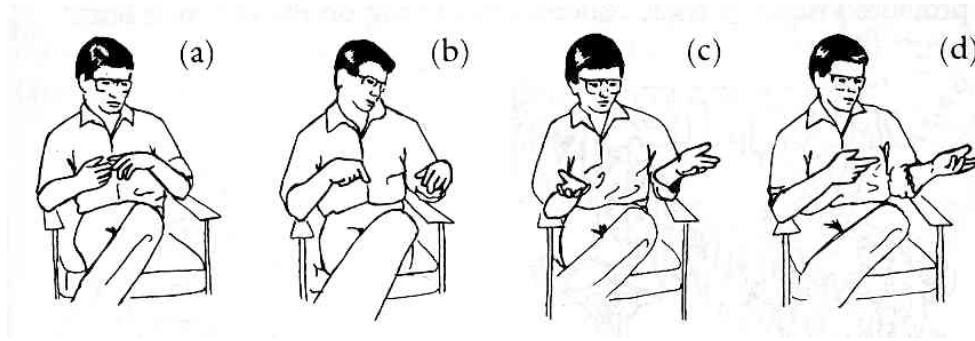
Fig. 5. Space as the metaphor for moral ambiguity in the Hitchcock classic, *Blackmail*.

pointing). In (b) he continues with "[**but she**] really did kill him", and points to his front space. The opposition is continued in (c), with the central space again indicated but this time for ascribed morality; he says "and [**he's a**] bad guy", and then concludes with the left space for real morality in (d), "[**but he really**] didn't kill him" (McNeill 1992, p. 155). Morality, whether fake or real, is laid out like a map. Which side (center, left) has which value is indeed unexpected (e.g., the 'sinister' side is the 'real' pole in (d)) and variable; instead space maps the idea of contrast itself, and does so in a running commentary on the discourse: the next opposite value = the opposite of current space. This is an image not given culturally (cultural uses would be, e.g., future is in front, or back, cf. the Aymara system of temporal metaphors, Núñez & Sweetser 2006; or good is up, bad is down, Lakoff & Johnson).

What unexpected metaphors do, and how they do it

We have examined three unexpected metaphoric gestures from different speakers (all speaking English; however speakers of other languages presumably also create them). In each an iconic gesture presented another, more abstract conception. The metaphors are bridges from thought to context, from ideas to discourse. This section offers hypotheses of how and why unexpected metaphors come about.

For the bowling ball gesture to be a component in a growth point, the content it carries had to be differentiatable from its **C2** catchment, and this *required* it to be a metaphor: the bowling ball conceived of as a kind of downward moving antagonistic force. This catchment-metaphor relationship is an important clue to how unexpected metaphors work. The metaphors are essential features of thinking in context. They function in conjunction with fields of oppositions (the array of potential contrasts that constitute the context at each moment) and engineer the differentiation of growth points or psychological predicates from these fields. In the bowling ball example, we infer from the catchment that the field of oppositions was 'ways of countering Sylvester with a bowling ball'. Then, within this field, a growth point consisting of "it down" plus the image of thrusting down was differentiated: one way to counter him, said the embodied idea, was to thrust the bowling ball down the pipe—this motion was not purely descriptive of the bowling ball but also conveyed the direction of the antagonistic force, and it was as this metaphor of a downward force that it could be differentiated from the context of ways of thwarting Sylvester. In the growth point model a field of oppositions

and the differentiation of a growth point within it are both necessary as the chief source of meaningfulness; they function jointly, this combination of the point of differentiation and the field from which it is differentiated. The speaker creates a field of oppositions, like ways to counter Sylvester, in order to make the differentiation possible with the intended significance. Both the field and the growth point are parts of the meaning creation. Metaphoricity is an integral part of this process in cases with abstract content. Such is one reason why metaphor would be an essential engine of language and thought.

Putting these conclusions together, we can say that a growth point that includes an iconic component can also have a metaphoric component that utilizes the same image, and this double layering is essential to the growth point when the intended content is an abstract idea in context. Metaphoric imagery using iconicity is a vital component of speech in this model.

Unexpected metaphors do not spring from a vacuum of course. The upper story window metaphor linked to the idea that something overhead can be inaccessible; so the image of Tweety above and Sylvester below was stabilized and connected to the idea of inaccessibility. Similarly, the two spaces metaphor depended on the obvious fact that two spaces are not the same space, hence could be linked the idea of a contrast. Shared features of significance are the links whereby the metaphor draws forth an image, an operation I imagine to be similar to the blending described by Parrill & Sweetser (2004) in terms of mental space theory (Fauconnier & Turner 2002). Also, some unexpected metaphors share imagery with expected metaphors. Being outside convention, however, they express it in novel ways. The unexpected metaphor of a force against Sylvester, the bowling ball, links to an expected metaphor of causation as a forced movement (cf. Lakoff & Johnson 1999). Although Lakoff and Johnson do not speak of a category of cultural metaphors, they provide linguistic examples that seem to fit the concept (gesture versions of which presumably would mostly include directed motions), for example: "FDR's leadership *brought* the country out of the depression. The news *propelled* the stock market to record heights. The trial *thrust* O.J.'s attorneys into the limelight." (p. 184, italics in original). Looking at just the linguistic forms, all are verbs. The bowling ball metaphor, however, actively excluded its verb—"drops"—a verb that parallels "thrust" in the last example. The unexpected metaphor focused not on 'thrusting' or 'dropping' but on the bowling ball itself and its direction of motion—this was the antagonistic force. In common with the verbal metaphor the bowling ball gesture was a directed motion, but the growth point, the *combination* of linguistic categorial content and image, inhabited causation in a novel way. Such is the freedom with unexpected metaphors.

Furthermore, each unexpected metaphor implies a catchment although not every catchment implies a metaphor, because some catchments are threads of solely object-level content.[6] Catchment incidence is huge (cf. Furuyama 2001), thus opening the way for unexpected metaphors, but the adventitious intersection of genre, content, and culture sets the actual frequency. The readiness of the mind to generate metaphors without cultural guidance strongly reinforces the conclusion by Lakoff & Johnson and many others, that metaphoricity is an integral part of cognition.

Unexpected metaphors exhibit the two-way interactions that I.A. Richards argued must occur in all metaphors (Richards 1936). The vehicle, he said, informs the referent, and also the referent the vehicle; metaphor alters both. The antagonistic force was

changed by the bowling ball into a particular instantiation of force with qualities (such as the ability to roll) that became constitutive of the force in the episode logic. Simultaneously, the antagonistic force changed the bowling ball into an abstract idea. The upper story and the two spaces in their metaphors changed into inaccessibility and contrast, respectively, and these meanings in turn altered the upper story and spatial images by giving them abstract content. In other words, the interactions that characterize cultural metaphors also emerged with unexpected metaphors.

Dynamic and static

To finish this essay I will place the discussion into a wider context of two dimensions of language. On the static dimension language appears as an object of great internal complexity, but not a process. Expected conceptual metaphors have the requisite qualities to be fully visible on this dimension—they are listable, fixed, and identified through the synchronic method; the verbs cited previously from Lakoff & Johnson are a convenient illustration—verb in English is the form in which the metaphor emerges statically. Classically, language on this dimension has been situated in a paradigm established by Saussure which continues in many grammatical models to the present day, including cognitive grammars (cf. Langacker 2000). To see unexpected metaphors, however, requires looking at language on a dynamic dimension , a view more familiar from the Vygotskian tradition. On the dynamic dimension language appears as a process, not as an object. And a metaphoricity comes into view on this dimension with far wider scope. The dependence of unexpected metaphors on context is one sign of the dynamic dimension and their role in differentiating psychological predicates is another. The bowling ball going downward as a metaphor of an antagonistic force depended crucially on context—it was a psychological predicate, was differentiated within a catchment, and this catchment realized the thematic content of ways-of-thwarting. Without these dynamic perspectives the metaphor would be invisible and not conceptualized. As a minimal unit of an imagery-language dialectic the growth point combines the static and dynamic dimensions at given moments, hence requires both dimensions. A growth point can be formed from imagery sourced with either expected or unexpected metaphors, but has different shadings depending on which—more conventional with the expecteds (such as moving the body forward for time), more improvised with the unexpecteds (such as the bowling ball as a force). Given contexts may call out different balances of these poles. The lecturer in Fig. 2 had an abundance of ready-mades for the workings of a computer.[7] Cartoon narrations however find little ready-made imagery for themes like inaccessibility or antagonistic forces. To differentiate these themes narrators created fresh metaphors out of instances of iconicity. Speakers display a capacity for making virtually any concrete image into a vehicle for something else. Other dynamic cases exist where cultural metaphors are 'awakened' with some inventive modification that goes beyond convention (cf. the "gefunkt" or 'sparked' metaphor in Müller 2004, an expected metaphor performed in an unexpected way for the 'sparking' of love at first sight). The distinction between the static and dynamic dimensions of language, and ways to combine them are discussed at length in the book cited previously (McNeill 2005).

And gesture morphemes

Although not strictly germane to this essay, the search for gesture morphemes exerts a strong appeal to researchers seeking to understand the systematicity of gesture, and some discussion of it may not be out of place, especially since often the puzzle in defining gesture morphemes is to avoid mixing them up with metaphors of the expected kind.

A morpheme in the linguistic sense is a recurring form-meaning pair maintained by a linguistic culture; hallmarks are that it is listable and (above all) held to socially maintained standards of form, hence is part of the kind of system that Saussure called langue. A strong case for morpheme status in this sense can be made for some gestures; many of the Neapolitan examples described by Kendon (2004) are performed, as he emphasizes, with 'crispness'—a word implying attention to form, as standards would require (I have been personally corrected by Kendon in the performance of one of these gestures during a lecture demonstration; while not concocted in advance, the stunt was a striking exhibition of standards).

While unexpected metaphors lack these essential properties, expected metaphoric gestures do recur with overlapping forms and conceivably could be incipient gestural morphemes. Many of the examples cited as potential morphemes seem to include variations on the conduit gesture (cf. Webb 1996, Müller this volume)—the palm up, open hand paired with the meaning of a discursive presentation; a claw hand next to the head for 'an idea in the mind', and many others. Indeed, a morpheme consists of such a pairing of form and meaning. However, it is important to acknowledge the implication of the fact that each of these gestures does embody a cultural metaphor: the *metaphor itself* is also a recurring pair of form and meaning. No further standard of gesture form, qua a good form, is implied or required. The conduit metaphor informs the palm up, open hand gesture and gives it the significance of a container or presentation; likewise the claw next to the head (the head is another metaphor or, more precisely, metonym for the presumed inhabitant of the head; cf. Ishino 2004). In a logical sense, a morpheme interpretation thus lacks necessity and Occam's dreary razor shaves it off. Tellingly, expected metaphoric gestures lack the crispness that Kendon notes in the Neapolitan examples. Any maneuver within broad limits is good enough so long as it contacts the metaphor base (indeed, the claw hand was presumably palm down in Webb's 1996 example). If expected metaphors are just the cultural ready-mades that unexpected metaphors otherwise provide, we would not find a fundamental break between the two in semiosis. In all cases, expected and unexpected, the mechanism is to use gesture for structuring and focusing the discourse. It is likely that some expected metaphoric gestures become involved in a grammaticization processes that, in time, turns them into gesture morphemes; indeed, some of the Neapolitan examples Kendon describes include elements that seem to have begun as metaphoric gestures, then stabilized as cultural forms.

To summarize, the following layout shows a continuum of gestures differing in how gesture form is established:

Autochthonous	Cultural images with meaning	Cultural *forms* with meaning
Unexpected metaphors	Expected metaphors	Gesture morphemes

In this scheme, unexpected metaphors like the bowling ball as an antagonistic force are autochthonous creations by an individual speaker; expected metaphors like the conduit cup of meaning are culturally specified imagery; and gestural morphemes like the "OK" sign and Neapolitan gestures have standards of form. The continuum also aligns with the dimension of conventionalization, its degree, and the locus within the gesture where it is felt. Unexpected metaphors are conventionalized only in the sense that human actions in general are (for example, an American and non-American may move in culturally recognizable ways) but not as metaphors or as forms. Expected metaphors are conventionalized as metaphors but not as gesture forms. Morphemic gestures have conventionalized standards of form (hence the 'crisp' performances of Neapolitan gestures and to some degree emblems like "OK").

References

Cienki, Alan 1998. Metaphoric gestures and some of their relations to verbal metaphoric expressions. In Jean-Pierre Koening (Ed.), *Discourse and Cognition: Bridging the Gap* (pp. 189-204). Stanford: CSLI Publications.

Fauconnier, Giles & Turner, Mark. 2002. *The Way We Think: Conceptual Blending and the Mind's Hidden Complexities*. New York: Basic Books.

Furuyama, N. 2001. *De-syntacticizing the Theories of Reference Maintenance from the Viewpoint of Poetic Function of Language and Gesture: A Case Of Japanese Discourse*. Ph.D. Dissertation, University of Chicago.

Ishino, Mika 2007. *Metaphors and Metonymies in Gesture and Discourse*. Ph.D. Dissertation, Department of Linguistics, University of Chicago.

Kendon, A. 2004. *Gesture: Visible Action as Utterance*. Cambridge: Cambridge University Press.

Lakoff, George & Johnson, Mark 1980. *Metaphors We Live By*. Chicago: University of Chicago Press.

Lakoff, George & Johnson, Mark, 1999. *Philosophy in the Flesh: The Embodied Mind and Its Challenge to Western Thought*. New York: Basic Books.

Langacker, Ronald 2000. *Grammar and Conceptualization*. Berlin: Mouton.

McNeill, David 1992. *Hand and Mind: What Gestures Reveal About Thought*. Chicago: University of Chicago Press.

McNeill, David 2000. Catchments and contexts: Non-modular factors in speech and gesture production. In D. McNeill (ed.), *Gesture and Language*, pp. 312-328. Cambridge: Cambridge University Press.

McNeill, David 2005. *Gesture and Thought*. Chicago: University of Chicago Press.

McNeill, David & Duncan, Susan 2000. Growth points in thinking for speaking. In D. McNeill (ed.), *Gesture and Language*, pp. 141-161. Cambridge: Cambridge University Press.

Müller, Cornelia this volume. What gestures reveal about consciousness of metaphoricity.

Müller, Cornelia 2004. *Metaphors Dead and Alive, Sleeping and Waking: A Cognitive Approach to Metaphors in Language Use*. Habilitationsschrift, Free University Berlin.

Núñez, Rafael & Sweetser, Eve 2006. In Aymara, next week is behind you: Convergent evidence from language and gesture in the crosslinguistic comparison of spatial construals of time. *Cognitive Science* 30: 401-450.

Parrill, Fey & Sweetser, Eve. 2004. What we mean by meaning: Conceptual Integration in gesture analysis and transcription. *Gesture* 4: 197-219

Reddy, Michael 1979. The conduit metaphor: a case of frame conflict in our language about language. In A. Ortony (ed.), *Metaphor and Thought*, pp. 284-297. Cambridge: Cambridge University Press.

Richards, Ivor A. 1936. *The Philosophy of Rhetoric*. New York: Oxford University Press.

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

Vygotsky, Lev S. 1987. *Thought and Language*. Edited and translated by E. Hanfmann and G. Vakar (revised and edited by A. Kozulin). Cambridge: MIT Press.

Webb, Rebecca 1996. Linguistic features of metaphoric gestures. In Messing, Lynn (ed.), *Proceedings of WIGLS: The Workshop on the Integration of Gesture in Language and Speech*. Applied Science and Engineering Laboratories, Newark and Wilmington, Delaware (Oct. 7-8).

Notes

---

[1] I am grateful to Nobuhiro Furuyama and Shuichi Nobe for very useful discussions of points in this essay. Grants from NSF and ARDA supported the preparation of the article.

[2] Fey Parrill is the artist.

[3] Notation: **[** is the onset of the gesture phrase, when the hands move from rest or a previous gesture into position to perform the stroke; **]** is the end of the gesture phrase; **boldface** is the gesture stroke itself, the meaning-bearing phase of the gesture, performed with effort, and the only phase that is obligatory; **underlining** is a pre- or poststroke hold, a brief cessation of motion that tends to ensure the synchrony of stroke and targeted speech. Gesture phrases can occur inside other gesture phrases and this is marked by a double **'[['** and **']]'**. **The preparation phase** is the interval between the onset of motion '[' and the beginning of the stroke or prestroke hold; **the retraction phase** is that between the end of the stroke or poststroke hold and the end of motion ']'. In the speech transcription, a **'/'** is a silent pause and a **'*'** is a self-interruption. **The onset of preparation** is the first indication the idea unit in the stroke has come to life—in this example, with the word "ball" in the preceding clause. **A prestroke hold** suggests the linguistic material co-occurring with the stroke was targeted. **A poststroke hold** suggests the stroke and its speech are not merely co-occurring but are a single production. Finally, **the end of retraction** can be seen as the switching off of the idea unit.

[4] More precisely, Tweety was the original antagonistic force but the causative construction, "and (Tweety) drops it down", with "drops" the verb, transferred the antagonistic force to the bowling ball—the entity the speaker realized had to be the carrier of the force (see McNeill 2005 for a full discussion).

[5] Laura Pedelty is the artist. This figure originally appeared as Fig. 6.7 in McNeill (1992).

[6] The four living space catchments described in Ch. 5 of McNeill (2005), for example, are iconic and/or deictic but seemingly not metaphoric (contrary to what I once believed).

[7] Computation seems to be both a source of metaphors and itself is often described by metaphors like motion through space and rotation.