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Creativity and the Agile Mind

A Multi-Disciplinary Study of a Multi-Faceted Phenomenon

Edited by
Tony Veale, Kurt Feyaerts and Charles Forceville

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For Marc DeMey, our Agile Minder

Contents

Alan Cienki and Irene Mittelberg

Creativity in the forms and functions of spontaneous gestures with speech

1 Introduction

The manual gesturing people engage in while talking is a form of behaviour which moves in and out of our conscious awareness. Unlike the intentionally created products of the graphic arts or the performances of music, theater, or dance, gesturing is an everyday process we engage in, sometimes with, and sometimes without communicative intent. Whereas choice is a key element of the process of artistic creation (as Veale et al. [this volume] discuss in their introduction), it is difficult to apply the notion of "choice" to gesture with speech, given how gestural behaviour fluctuates on either side of the border of conscious and unconscious production. Furthermore, unlike most created products, with the exception of dance, the medium of gesture is the body itself. And unlike languages, with form/meaning mappings codified in words or signs, spontaneous gesture is not an independent symbolic system, but a behaviour that is produced with, and dependent on, speech.

1.1 On what we mean by spontaneous gesture

While any movement of a body part that involves effort could be considered a "gesture", our primary focus will be on gestures of the hands, due to their potential range for expression. Kendon (1988) introduced a continuum of four different types of meaningful hand movements, namely "gesticulation", "pantomime", "emblem", and "sign language". This chapter will focus on the first kind, with some mention of the second. The third kind, emblems, are codified gestures with a fixed meaning, such as the o.k. sign, produced by forming a circle with thumb and index finger, which denotes approval in many Western cultures. Emblems have received considerable attention in gesture research (Calbris [1990], Kendon [2004], Müller & Posner [2004]), but they will not be included here, as the fixed nature of their forms and functions makes them less relevant for our topic. We will not discuss creativity in signed languages, either, although insightful work has been done on creative expression in, for instance, American Sign Language (ASL) (see Liddell [2003], Taub [2001], Wilcox [2000]). Even though signed lan-

guages use the same kind of articulators as gestures and also unfold in space and time, they are independent communicative systems.

For a more detailed characterization of the different movement types, McNeill (2005: 6–12) breaks up the Kendon continuum (McNeill [1992: 37]) into four continua. Each of these continua highlights a particular dimension: the relationship to speech, the relationship to linguistic properties, the relationship to convention, and the character of semiosis. Focusing on the properties of "gesticulation", we can say that first of all these kinds of gestures are characterized by an obligatory presence of speech. In other words, these gestures are polysemous forms that receive their specific meaning in conjunction with the co-occurring speech. Second, while spontaneous gestures show structural and semantic regularities, they do not exhibit a fixed grammatical system comparable to that of spoken or signed languages. Third, spontaneous gestures are in principle non-conventionalized; and fourth, the character of their semiosis is global in that the meaning of a gesture is a synthesis of its different parameters and movement phases.

1.2 On what we mean by creativity in the context of gesture

What does it mean to look at gestures with speech as "creative" or not? By way of background, we should note that a prototypical gesture passes through three phases: preparation, stroke, and retraction (Kendon [1980, 2004:ch.7]). Let us briefly consider one of our examples, to be discussed further below. The speaker on the right in Example 1 mentions university exams in which one has to write an essay in a limited period of time. He exclaims, "Oh, an essay! You have to write fast!" Just as he is beginning the utterance, saying "Oh, an" (Figure 1a), the speaker, who is left-handed, lifts his left hand up from his lap (the preparation phase). During the rest of the utterance ("essay! You have to write fast!") he holds up his left hand at chest level in a position with the fingers closed as if holding a pen, and repeats a left-to-right movement ten times along the path indicated by the arrows in Figure 1b (the stroke phase). As he is finishing the word "fast" and afterwards, his hand returns to a rest position (Figure 1c, the retraction phase). In this and the following examples, the entire gesture unit will be enclosed in square brackets [ ] and the stroke phase will be indicated in **bold** type.

Example 1: "[Oh, an **essay! You have to write fast**!]"

In the examples in this chapter we will focus on the most prominent part of the gestures, the stroke phase. This is "the phase carried out with a quality of 'effort'" (McNeill [1992: 376]), in contrast to the preparation and retraction phases. The

(1a)   (1b)   (1c)
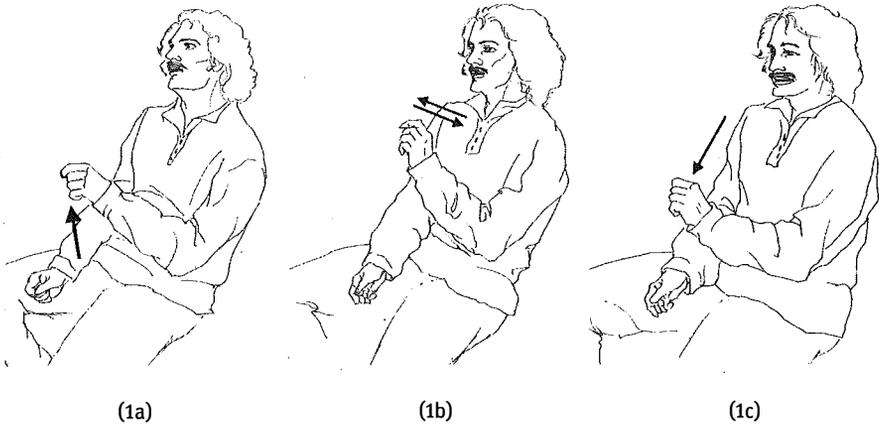
Figure 1: Preparation phase (1a), stroke phase (1b), retraction phase (1c).

stroke phase is considered to be the core of the movement in a given gesture, the minimum required to identify a gesture as a unit of analysis (Kendon [1980, 2004]). In terms of gesture analysis, McNeill (1992: 375) also notes about the stroke phase that, "[s]emantically, it is the content-bearing part of the gesture".

Our study on creativity in gesture draws on video data of speakers of American English from two types of communicative contexts: one monologic (academic lectures on linguistics) and one dialogic (conversations between students about academic behaviour). Creative gestures were distinguished according to both formal and functional criteria. In addition, we assume a dynamic interrelation between the semiotic forms and functions of the gestures in question and what we might want to call semiotic acts of "ad-hoc cognitive creativity". As we will show throughout this chapter, gestural performance is an inherent part of the multimodally achieved strategies speakers employ to various degrees in order to meet problem solving and communicative challenges which present themselves locally in the ongoing discourse.

Furthermore, in line with Veale et al. (this volume), we argue that creative gestures have a dual nature: on the one hand (so to speak), they are being used for a particular purpose, e.g., often to depict a referent. On the other hand, they are doing something more: they are gestures which are more effortful, according to the criteria described below, and as such they require greater involvement on the part of the speaker/gesturer in their production. Let us begin with a look at what physical, formal characteristics of some gestures might warrant their categorization as "creative".

2 Formal characteristics of creative gestures

We can characterize gestures as creative according to a number of characteristics based on their form: the use of greater than normal dynamicity, the use of a more extensive gesture space, and the coordination with other embodied aspects of production, such as body shifts and/or exaggerated facial expressions. While these forms may be more likely to be noticed by and have certain effects on the addressee, we are focussing on the side of the gesturer's creativity in production, rather than on the addressee's responses to such gestures.

2.1 The use of greater than normal dynamicity

Focussing on the stroke phase of a gesture, we can note that some gestures are more dynamic in that they involve greater speed and intensity than others produced by the same speaker in the given context of talk. In these gestures, the greater effort that is characteristic of the stroke phase is exerted particularly in the movement itself, rather than, for example, in the degree of tension in the hand shape. The dynamicity of such gestures may also involve a further movement of the hands away from their original rest position than is typically found in that speaker's gesturing. This latter factor is clearly connected with the amount of space covered by the gesture, which is the next formal characteristic of creative gestures to be considered. But first let us consider an example of greater than normal dynamicity in the use of gesture.

The gesture shown in Figure 2 (Mittelberg [2010]) illustrates the idea that boundaries between grammar and language may be "blurred". It starts out with two hands held apart, palms facing each other; then the palms get suddenly pushed towards each other to convey the idea of fusion. The speaker here makes reference to the theory of emergent grammar (Hopper [1998], Larsen-Freeman [2003]) which sees linguistic form as being motivated and shaped by discourse-pragmatic forces, that is, by language use. The speaker argues that grammar is not static, but is a dynamic system and that it should be taught as such in the context of second language acquisition. The following excerpt gives an idea of this dynamic understanding of grammar, which gets translated into a comparably forceful, bimanual gesture exhibiting a relatively high level of energy. In this example and those below, the stream of discourse is broken down in intonation units; dots indicate pauses, two (..) for shorter ones, and three (...) for longer ones.
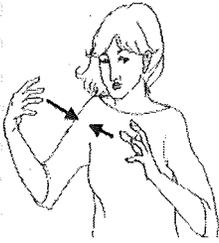
Figure 2: Gesture representing the action of blurring boundaries between entities.

Example 2:
"it sees the use and **gram**mar together
... grammar coming **out of** the use
... you learn by doing
rather than
you learn first the **rules** and then you do **them** ...
[it **blurs** the boundary] between ... learning and doing.

2.2 The use of a more extensive gesture space

The central gesture space, the area in front of the stomach and chest (McNeill [1992: 86–88]), is the default area most easily used for gesturing. Producing gestures in either direction beyond that space normally requires more effort, particularly if one uses more peripheral areas, such as those further out to the right and/or left than shoulder-width, below the waist, or above the neck. Gestures produced in such peripheral areas are characterized here as creative because of this greater effort involved in their production.

The following example, adapted from Mittelberg (2010), seems to suggest that complex cognitive scenarios call for creative verbo-gestural descriptions. The following bimodal demonstration, taken from a lecture on linguistic morphology, provides an example of the understanding that the two elements that jointly build a type of grammatical affix called a circumfix (consisting of forms before and after the word stem) seem to be attached at a level above the word level. In her attempt to illustrate the hidden organization of such a complex morphological structure, the speaker makes an arch-like gesture whose initial phase is captured in the image below (Figure 3). After holding both hands above head level for several seconds, the speaker simultaneously draws them down to waist level, one hand to the left and the other to the right of her body. This gesture can also be interpreted as tracing a semi-circle, which would go well with the attempt on the

part of the speaker to use a nonce-verb ("circums") which does not exist but has the potential to describe the idea behind the function of a circumfix. There is thus also a certain degree of linguistic creativity involved here, even if unintended. Put differently, the topic of the demonstration is morphology, i.e., word building processes, and at the same time a novel word is being constructed. The idea that the "circumfix encompasses the front and back of the word" is subsequently represented by a bimanual palm-center open hand gesture (not shown here). The speaker's two hands are held more than shoulder-width apart and seem to be holding the entire morphological structure by its front and back, where the indication "front" corresponds to the part that the speaker's left hand seems to be holding and "back" to the edge that the right hand seems to enclose. Here and in the examples below, restarts of utterances are indicated by a double dash (--).

Figure 3: Gesture representing the hierarchical organization of a "circumfix".

Example 3:
... here in blue,
... another class of affixes,
which is called the circumfix,
... this is,
... sort of a,
schizophrenic kind of--
kind of affix,
it's sort of both a prefix and a suffix at the same time,
[... **it just sort of** ("phih" -- vocal noise),
circums the--,
... circus--,
... encompasses,
them,
the front and back end of the word...]

A close look at this example reveals that the principle of duality is at work in more than one way. We just saw that the word-building process is not only talked about but also physically embodied through the simultaneously produced gestures. Furthermore, it is not only an explanation of the term "circumfix", but also a realization on the part of the speaker of what a linguistic element of this type does and what the logic behind the composition of a word containing a circumfix is. As we will discuss in more detail below, duality tends to be invoked by the physical rendition of abstract structures and processes, that is, by the metaphor CONCEPTUAL STRUCTURE IS PHYSICAL STRUCTURE (Sweetser [1998]). Cognitive and performative aspects thus layer in various ways in this multimodally achieved semiotic act that belongs, according to our criteria, to the category of creative gestures.

In addition, gestures may be produced in a more central space but may take up more of that space than is usual, and so be more extensive in terms of the volume of space which they cover. This more extensive use of gesture space is also likely tied to higher dynamicity, involving great activity within the space in front of the speaker. Such gestures will be categorized here as creative, again, because they stretch the parameters of conventional, non-creative gesturing through the exertion of greater effort.

An example of this can be found in Cienki (1998) in which two American students are discussing whether it is ethical to use an old copy of a written test, called a "back-test", from when a course was offered in past years, to prepare for a test on the same subject matter in the same course now. One student says that back-tests are not useful, because you don't know if the instructor ("he" in the conversation) is going to give the students the very same version of the test now. But the other student, quoted below, then sets up a scenario to provide his explanation, making a series of pointing gestures back and forth while distinguishing past time and the back-test (left) from the present time of taking the test (right). The students are seated facing each other, and the gestures all occur in a central gesture space, at stomach-height, but they criss-cross the entire left-to-right extent of it. The transcript below, adapted from Cienki (1998: 197–198), gives a sense of the movement. The pointing gestures are marked as follows: RH indicates the right hand, LH the left hand, and 2H stands for both hands. The words "left", "right", and "center" note the space, relative to the speaker's torso, that the hands moved to and pointed to, with arrows indicating a horizontal stroke with the pointing. Intonation units are separated with commas.

Example 4:
I'm just saying if you-- [do you think if you **stu**dy from uh, from
RH left

a **back** - **test**   as**sum**ing] that you um have [the **ques**tions to the
RH left→right   RH right   *2H left*   →

test and **study** for this], [and even though he **chang**es it], you [still
right   2H left   *RH right*

committed this], [but the **test**-taking experience] [**was**], [whatever,
2H center   *RH right*   *2H right*

the **nat**ural test-taking experience, you **come** in not knowing, **and**
2H right   *2H right*   *2H right*

you're tak**ing** this test, but you have this **guilt** beforehand,
       2H right   *2H left*

but it doesn't save...]
2H left → right

2.3 Coordination with other embodied aspects of production

Another formal feature found with the use of some manual gestures is their accompaniment by, and coordination with, other bodily behaviour. One category of examples includes body shifts, such as turning one's torso in a different direction, or tilting one side of one's body up or down. Another example can be seen in the use of exaggerated facial expressions, including extreme frowns, pursing of lips, raising of eyebrows, and so on.

In Example 5, taken from Mittelberg (2006), the speaker not only performs shifts with his upper body, but he also bends his knees in a way that he ends up going partly off the screen of the video recording. Trying to convey the idea of multiple embedded phrases within a complex sentence, the speaker, who stands in front of a blackboard displaying a syntactic tree diagram, keeps pointing to different embedded clauses within the tree structure. In doing so, he follows with his left hand the branches extending toward the bottom of the tree (G1–G3) and then goes on to point to imaginary extensions of the tree (in the form of additional phrases). He first touches certain regions of the blackboard and finally goes off and below the board while lowering his upper body (G4–5), first to the right and then to the left side, each time referring verbally to the fact that phrases can contain embedded phrases – almost endlessly.

Example 5:
        G1
[that **noun** phrases]
        G2
[can **contain** prepositional phrases] (...)
                G3
[which can **contain** noun phrases]
                G4
[which can **contain** prepositional phrases]
  G5
[**which** can contain (...) and so on]
alright
                    G6.1
[but I wanna come **back** up here]
G6.2
[**just** to point something out to you]

At the end of this pedagogically motivated illustration that engages the entire body, the speaker mentions that he wants "to come back up here" (G6.1/2) to continue his explanation, and he in fact does return to a regular upright position in front of the board, holding up both hands in the upper center of gesture space. Again, according to our view, this extensive use of space can be said to be a creative gestural performance.

One example of exaggerated facial expressions found in the data involves two of the students talking about different types of exams, discussed above in Example 1. In the more detailed transcript below in Example 6, the caret (^) indicates primary stress, the grave accent (`) notes secondary stress.

Example 6: "`Oh, an **^essay! You `have to ^write fa=s**t!"

As discussed previously with Figure 1a–c, the speaker makes an exaggerated writing gesture back and forth during the portion of the utterance in hold type. But leading into the first word ("Oh") he prominently raises both eyebrows as he lifts his head up higher to begin speaking, and he repeats the eyebrow raise on the first syllable of "essay". On "write" he moves his head slightly forward, and with the word "fast" he begins and holds a smile. The entire example lasts only 2.5 seconds, but it constitutes a burst of activity, an ad-hoc compression of behaviours.

2.4 Coordination with other embodied aspects of production

The use of greater than normal dynamicity (for the given speaker) in gesturing, the use of a more extensive gesture space, and coordination of other aspects of embodied expression are features of gestures' production which involve greater exertion of effort. We argue that these characteristics are manifestations that "something else is going on" with gestures so produced. Such gestures are not merely *done*, they are also *shown* (Brandt 2004: 219). The spontaneous performative nature of these gestures leads us to consider them examples of ad-hoc creativity. They constitute examples of what Clark (1996: ch.1) describes as two layers of action. The first layer is at the heart of any conversation and consists of "actual people doing actual things" (Clark [1996: 17]). The second layer is built upon the first, and can involve the actors in the first layer taking on other roles, discussing hypothetical situations, telling jokes, or otherwise creating an imaginary domain, even if only for a moment. In Goffman's (1974) terms, we can say that the performative features of creative gestures constitute a kind of "keying" that another layer (and understanding) of action is in play.

As the examples above show, the characteristics of creative gestures' forms are not discrete, and may co-occur. Indeed, we would argue that creativity in terms of the forms of gestures is a family-resemblance category (in the sense of Wittgenstein [1953] and Rosch & Mervis [1975]), whereby a gesture can be qualified as *creative* according to a variable number of features.

In contrast to the gestures that are creative in form, we consider gestures to be prototypically non-creative if they are low in dynamicity, if they use a limited amount of space (especially if focussed in the default central gesture space), and if they only involve movement of the hands and possibly the forearms. We can thus think of a scale of gesture forms, going from the most creative and exhibiting all of the creative features discussed above, to the less creative, and then simply to the non-creative gestures. In our data we found that non-creative gesture forms seem to be the most prevalent; this finding aligns with the fact that such gestures are also the ones which are the least effortful to produce. Simple up-and-down movements that are rhythmically aligned with the speech, so-called "beats" (McNeill [1992]), fall into this category. A relatively low degree of creativity is also observable in anaphoric uses of iconic gestures which imply a reduction in form when the same referent is referred to several times over a stretch of discourse. Whereas the first gestural depiction of a newly introduced referent object might be clearly articulated and comparably more iconic, subsequent gestures referring to the same object or idea have been observed to be reduced in size and precision (McNeill [1992, 2005]). Such a progressive reduction of gestural forms through repeated use seems to rely on principles of economy and metonymy: less effort is needed to

produce anaphoric gestures, but they still may evoke the original more fully articulated gesture and the referent object they depict through pragmatic inferencing (Mittelberg [2006], Mittelberg & Waugh [2009], Müller & Cienki [2006]).

An additional point we have observed is that gestures fitting these criteria for creativity in form tend to be iconically related to the content of the co-gesture speech. Either they depict some aspect(s) of an entity (object or person), relation, or motion being talked about – and so involve concrete reference – or they represent some aspect(s) of a physical form, spatial relation, or motion which relates to an idea the speaker is mentioning – and so involve abstract reference (see the category of referential gestures in Müller [1998b: 110–113], and its interpretation and application in Cienki [2005]). Inspired by the different tools and techniques artists use to depict objects and events, Müller (1998b) further proposed a set of gestural modes of representation through which gestural form comes about: hands may *draw* the outline of an object in the air, *mould* three-dimensional forms, *act* and thereby enact a manual action, or stand in for, i.e., *represent*, an object. Indeed, gestures iconically represent the ideas and actions being talked about with different types and varying degrees of iconicity (Mittelberg [2008]). As we'll see below, this iconic motivation behind the gestures' forms relates in important ways to the functions which such creative gestures serve.

3 Creativity in the functions of coverbal gestures

Creative gestures also appear to serve particular functions. Besides illustrating individual objects or concepts, gestures may support the elaboration of an idea over an extended stretch of discourse, provide a synthesis of a creative idea which appears in the accompanying speech, or make meta-comments on the speaker's attitude toward the subject being discussed. We will discuss these aspects one by one below.

3.1 Elaboration of an idea

Gestures allow speakers to deliver multimodal descriptions of complex scenarios. In particular, if similar gesture features can be observed in the same sequence of speech they may convey images of specific discourse themes. McNeill (2005) and colleagues (McNeill et al. [2001]) have called the recurrence of the same gestural form within a discourse segment a *catchment*: "two or more gesture features recur in at least two (not necessarily consecutive) gestures. (...) A catchment is a kind of

visual thread of visuo-spatial imagery that runs through a discourse to reveal the larger discourse units that emerge out of otherwise separate parts" (McNeill et al. [2001: 10]). These observations were inspired by Kendon's (1972) identification of what he called "locution clusters'", which can be understood as "paragraphs of meaning", where a discourse theme is elaborated through the temporal integration of the three hierarchies of communicative action: kinesic, prosodic, and discursive.

As a specific illustration, consider Example 7, from the student data, in which the speaker is discussing whether the decision to act honestly or dishonestly when taking an exam is a clear one or not.

Example 7:
The problem comes in when you start analyzing what's next, you know, what result will either of these have, y'know, if y-- if you do th-- the honest thing, will you maybe get the worse grade and, y'know, have trouble in the future, or if you do the dishonest thing, will you get ahead? [But, ... ^**you** ^**know.**] It has nothing to do with the ends, it has to do with the means... and the means of d-- the making of th-- the decision.

While the speaker makes a variety of gestures, she makes a unique one during the underlined phrase "you know" as shown in Figure 4. In the gesture, the two hands are slightly cupped, palms facing each other, and they make a slight rotating motion at the wrist, back and forth two times between the positions shown in Figures 4a and 4b.

It is not clear what the motivation is behind the image being created co-temporally with the stressed words "you know". However, one and a half minutes later in the conversation on the same topic the speaker animatedly interrupts her interlocutor to utter the words in Example 8:

Example 8:
      G1.1
[But you ^**still** ^**know.**]
      G1.2
[You ^**still** ^**know** what th--]
      G2.1   G2.2
[**what the right is** and **what the wrong is.**]
De`spite the fact of--
y'know,
despite the--
the end result,
the future.

(4a)   (4b)

Figure 4: Alternating hand orientations on "you know".

Here each of the two times (G 1.1/2) that the speaker (emphatically) says "you still know" she resumes the two-handed gesture made earlier, but now with the hands slightly further apart and moving them more extensively. With the phrase "what the right is" she shakes the one hand in position two times (G2.1, Figure 5a), and while saying "what the wrong is" she shakes the other hand in position (G2.2, Figure 5b), thereby showing what it is that "you know", namely: what is right and what is wrong.

(5a)   (5b)

Figure 5: "what the right is" (G2.1 = 5a) and "what the wrong is" (G2.2 = 5b).

In returning to the same idea and elaborating on it, the speaker also returns to a gesture sequence involving both hands, but using each hand in turn and in a more dynamic and effortful fashion, making a gestural catchment as well as a verbal connection to the utterance earlier. Given the repetition of the same stress pattern across the two examples ("^you ^know" and "^still ^know") we see all three of Kendon's (1972) three hierarchies of communicative action playing a role in the catchment – the discursive, the kinesic, and the prosodic.

Compare Müller's (2008b: 233–238) microanalysis of a woman talking about her first love relationship, which lasted for several years and had many good as well as bad periods before it finally ended. The speaker first describes it (in German) as having been "basically a kind of up and down, with the-- the permanent tendency down`hill"[1] and only makes a couple of small head tilts to the right side while saying this. She then elaborates, "but it went-- well it began like ^this, and then flattened on out like this"[2] at which point she traces a large sine-curve in the air in front of her with her left index finger, beginning high above her head on the left side (with her wrist up above the top of her head), continuing up and down across her torso off to the right side, finishing with her left arm across her front as her left hand is at waist-level on her right, her index finger pointing to the right side. Here again the catchment of movement downward from left to right along the frontal plane and its elaboration corresponds to a discursive elaboration of the verbal utterance of the idea, which also receives more prosodic marking (with stress and vowel lengthening). We also see here how the use of a more extensive gesture space and of greater than normal dynamicity in gesturing can not only serve to creatively elaborate on an idea, but also, as Müller argues, highlight the metaphoricity of the idea being expressed.

Note how these aspects of elaboration of an idea stand in contrast to the function of gestures such as small beats for emphasis (small back and forth movements), common discourse-structuring gestures (such as counting off a list of topics on one's fingers), or simple iconic representations (e.g., using a flat horizontal hand to stand for the top of a table that is being described). These gestures have a discursive or referential function which does not provide the extent of elaboration of an idea found in the other gestures described in this section, and so can be considered non-creative or low on the scale of creativity in terms of function. Their non-creative or low-creative functional status also appears to

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1 In the original, "eben ein relatives auf und ab, mit der-- mit der ständigen Tendenz berg`ab" (adapted from Müller [2008b: 234]).
2 "aber es ging-- ne es startete ^so=, und flachte dann so= weiter ab" (adapted from Müller [2008b: 235])

correlate with their simplicity of form, normally using the more central gesture space in front of the torso as well as less dynamicity and tension, all of which require less effort.

3.2 Synthesis of an idea

What instances of creative gesture use share are contexts of high communicative pressure: the impetus to express a complex idea quickly. We propose that the cognitive and communicative challenges of this type of situation give rise to cognitive leaps (Coulson [2001]), as conceptual pathways are either overstretched or compressed. Cognitive creativity via compression can be found, for example, in the use of metonymy, metaphor, and conceptual blending expressed in gesture with speech.

Since most (iconic) gestures give only a partial – and often rather sketchy – rendition of the idea, action, or object they refer to, they tend to be metonymic in nature in one way or another. Gesture research has shown that different kinds of metonymic modes motivate not only gestural expression, but also underlie the interpretation of gestures. Metonymy has been identified as one of the semiotic modes that drives sign constitution in coverbal gesture (Bouvet [2001], Gibbs [1994], Müller [1998b]). A further function of metonymy is guiding processes of conceptual inferencing on the side of the observer of a gesture. For example, if the speaker refers to an object that seemingly rests on the palm of her hand, the observer needs to cognitively and pragmatically infer the imaginary object from the physical, i.e., visible manual articulators (Mittelberg [2006, 2008]; Mittelberg & Waugh [2009]). We propose that minimal gestural portrayals of objects or actions, as in the cases of anaphoric reference discussed above, may reflect compressions of conceptual pathways, and exaggerated depictions, like in the circumfix example, can be seen as cues by the speaker for the establishment of new conceptual structures on the part of the listener/viewer.

So in Example 1 (see also Example 6), the gesture involves enactment of the process of actual writing, but only selected aspects of the writing scenario are performed – the hand shape and the general motion, but not the normal position (writing on the horizontal surface of an exam paper) and no writing implement was being held and no paper was being written on. Part of the writing scenario thus stands metonymically for the whole event (Müller & Cienki [2006]).[3]

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3 See also Forceville (2009) on multimodal metonymy, which discusses the function of hands as metonyms in shots of Carl Dreier's silent film *Jeanne D'Arc*.

Metaphoric gesturing involves depicting aspects of the source domain that the speaker is reasoning with (Cienki & Müller [2008]). Metaphoric gestures inherently involve the compression of representing a physical form, relation, or motion which maps onto an idea, relation, or process which is abstract, or at least not physical. In this sense they also are an example of the duality which is so characteristic of creativity (Veale et al., this volume), in this case via representation of the abstract as concrete in gestural form. How duality may come to the fore in metaphoric gestures was already briefly discussed above regarding the illustration of the circumfix (Example 3), but let us go back here to the gesture that depicts the blurring of boundaries between grammar and language use (Example 2). The speaker portrays an image of physical energy and forceful action in order to illustrate the fusion of a set of abstract grammatical rules and dynamic processes of language use. In the phrase "it blurs the boundaries" the word "blurs" is the stressed element in the intonation unit and thus carries weight, but it also co-occurs with the stroke phase of the accompanying energetic gesture, consisting of two open hands, palms facing each other, that are suddenly pushed towards each other. While it remains unclear how exactly one has to imagine boundaries in the abstract realm of grammar and communication, the idea of fusion brought about by natural forces comes across clearly. This gestural portrayal occurs at the end of a lengthy explanation of what "emergent grammar" entails and renders one of the crucial ideas behind the theory in a nutshell (see Mittelberg [2006, 2010] for more details). It is this metaphorically driven, bimodal solution to a cognitive and communicative challenge that we consider the factor that lends the character of a creative performance to this specific gesture.

Blending has been described as a process which can take place on the level of expression as well as on that of conceptualization (Turner & Fauconnier [1995]). Instances of creative gesturing show this blending of expressive forms and concepts particularly vividly, especially as they involve metaphor. The gesturing hands themselves provide material anchors for imagistic concepts which the speaker is thinking with (see Parrill & Sweetser [2004]; Williams [2008]). So in the explanation of the circumfix in Example 3, the speaker is talking about how the grammatical morpheme is positioned within a word (particularly in terms of how the word looks when written) while simultaneously tracing a large arc in the air, over where the word is to be understood as located in space. The speaker, in real physical space, presents a blend of expressions, as her words and gestures represent some different aspects of the concept being explained, and indeed as she herself becomes the circumfix she is explaining. In turn, her multimodal explana-

tion provides cues for how to integrate these elements on the conceptual level.[4] This kind of integration of forms can be seen as a representation of the speaker's conceptual blend(s), which in turn can provide input for the addressees (in this case, the students) to integrate the given concepts. The example shows the kind of compression, of both forms and concepts, which is characteristic of blends: putting the concepts on a human scale which serves to compress what is diffuse, go from instances of the Many to the example of the One, thus expressing (and hopefully communicating) global insight (Fauconnier & Turner [2002: 312–325]).

3.3 Meta-comment on the speaker's attitude

Creative gestures can also serve the function of performing a comment which reflects the speaker's attitude toward the topic being discussed. The reflection of a non-neutral stance in gesture would, in our view, enhance the creative qualities of a bimodal rendition of an idea or a scenario. In the context of teaching grammar and linguistic theories, different degrees of speaker involvement toward the subject matters at issue were observed. For example, we saw that a primarily iconic representation of a referent object or an action may show additional emotive and appellative dimensions. That is, a gesture and other forms of bodily communicative behaviour can give us hints about the emotional state of the speaker-gesturer and also of her or his attitude or intend to evoke an insight on the part of the audience. In example 5 above we saw that the speaker leaves his regular upright position and bends his knees in order to depict the idea of endless syntactic embedding, i.e., endless syntactic tree branches that extend from the blackboard toward the ground. Leaving the default center gesture space and the appropriate upright body posture while trying to convey particular concepts and theories seems to attest a strong engagement on the side of the teacher. In addition, gestures exhibiting a high degree of energy or impetus, as shown in Example 2 (blurred boundaries) also point to the emotive and attitudinal dimensions of such illustrations, thus highlighting the importance of a certain idea (to the speaker) and his or her intent to bring it across to the audience. Exaggerated movements and non-conventional communicative behaviour employed to persuade the audience are thus part of the creative techniques that speakers employ during the spontaneous performances we have explored here.

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4 Mittelberg and Waugh (2009) explain this process in terms of cognitive contiguity, i.e., metonymy, holding between the individual elements.

In Example 1 (and 6) above, the facial expressions accompanying the manual gesture can be interpreted as showing that the verbo-gestural utterance is not just about writing; it is also about the speaker's indication of this aspect of essay exams as something noteworthy, to be taken into account. The speaker does not merely represent writing; he performs the action in an "extra-ordinary" manner – it would be highly unusual to actually be writing in this way, on a vertical surface, while making those facial expressions. In sum, the action of making writing motions while highlighting via co-gestural expressions that one is *not* writing constitutes a duality of behavior (apparently doing an action, but in fact not, because it is being done as a performance) which we consider creative, essentially bringing the theatrical into everyday life.

4 Discussion and Conclusions

We have seen that creativity in gesture can be characterized in terms of formal criteria of gesture production as well as functional roles which gestures can serve. As one might logically expect, these criteria normally converge: the techniques of creative gesture production afford elaboration, synthesis, or meta-commentary on the topic in the co-gesture speech. From our data we have seen some particular contexts which were characterized by creative gesture use, namely ones involving problem-solving by the speaker and/or high pressure to communicate a complex idea. One or both of these factors were relevant for the instructors lecturing about linguistic theories and for the students discussing issues of academic honesty. In each case, the speakers were working toward creating and presenting a solution to a problem of some kind, and this was facilitated by presenting the idea under discussion as an object, materially and visually, in the form of gesture. This provided an externalization of the idea, thus possibly making it easier to apprehend, for the speaker and/or for the other participant(s). Creative gestures therefore appear to serve functions which are more discrete (as in making a specific point), in contrast to non-creative gestures, whose functions are often vague and multifarious (witness the many, possibly overlapping, functions of an open hand, palm turned upward, produced with little effort in the central gesture space low in front of the speaker [Müller 2004]).

Creative expression in gesture differs from creative production in artistic or other visual media. The other media discussed in this volume involve products that are preserved by means of their media, they are meant to be disseminated to a mass-audience, and they are produced with the knowledge (and the hope) that the product will be reflected upon by many people in the future. In the fine arts,

the creation of unique drawings, paintings, and sculptures usually requires a lot of time and effort, perhaps several new beginnings, sketches, and multiple stages of adding, erasing and changing parts of an emerging whole. Here, the creative process is a rather conscious act consisting of a few up to countless brushstrokes or layers of color. Its course may further be motivated by cognitive mechanisms and specific techniques of the artistic movement or school an artist belongs to (Brandt [2006]). Cubists, for instance, did not determine the level of abstraction with which to represent an object or a person in the spur of the moment, but followed carefully employed formal principles. In their quest for depicting the essence of things, each motif systematically underwent the same process of metonymic transformation (Mittelberg [2011]).[5]

Spontaneous gesture with speech, however, is an ad-hoc creation which is fleeting; it is produced for a momentary context, and is part of the process of communication, rather than being a preserved product. In addition, the gesture is created for a highly specific audience, often of a single person. Creativity in gesture is also a matter of degree: it is a graded or scalar phenomenon correlating with how graphically the speaker expresses an idea in gestural form. This is also consistent with the graded nature of our consciousness of gestural behavior itself. For example, Müller (2008a) notes that there are several cues which can indicate speakers' greater awareness of their own gesturing in a given context, such as production of the gesture high enough up in the gesture space so as to be in the line of sight of the addressee, and speaker's own eye gaze at the gesture.

By contrast, most of the gestures in our data fall into the category of the non-creative according to their forms and functions. This correlates with what is known from the literature on coverbal gesture – that most of the time the speakers are not very aware of the gestures they are producing while talking.

However, although creative gestures represent forays into imagined worlds, they do not usually involve wild pantomiming; they are not random or structureless. They still follow the basic structuring principles of gestures as a whole which were mentioned earlier, such as the iconic modes of representation (Müller [1998a, 1998b]), and metonymic extension and metaphoric mapping from physical schemas for purposes of abstract representation. In sum, creative gesturing builds upon and extends basic structures of gesture production in the process of expressing, and facilitating, creative thinking and *ad-hoc* multimodal performances.

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5 See also Turner (2006) on the role of "double-scope integration" and "conceptual compression" in art.

5 Acknowledgements

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Charles Forceville
Creative visual duality in comics balloons

1 Introduction

Creativity often results from the surprising combination of two or more elements or angles to produce a novel phenomenon that is more than the sum of its parts. It is this intuition that underlies Arthur Koestler's view of creativity, for which he proposes the term *bisociation*: "The bisociative act connects previously unconnected matrices of experience" (Koestler [1969: 45]). To deserve the accolade "creative," however, there are further criteria to be met than only innovatively merging two elements. An important requirement is that, given human beings' fundamentally goal-driven behavior, the end product is somehow the solution to an explicit or implicit *problem*. Consequently, creativity can never be discussed generically; it must always be assessed and evaluated with regard to a more or less specific situation in which a "maker" (of a sentence, building, poem, argument, painting, software ...) searches for, or hits upon, a solution to a problem she encounters or sets herself. It is partly because of the highly contextualized nature of creativity that it is very difficult to come up with non-trivial generalizations about it. But perhaps the challenge is even more fundamental: generalizing about creativity entails finding pertinent patterns in pattern-breaking. That looks like a hopeless paradox. But if the kind of problem at hand has a very limited set of parameters, it may nonetheless be possible to evaluate the creativity involved in its solution.

The type of situation to be discussed with reference to its creative exploitation belongs to the realm of symbol use, perhaps humankind's most crucial evolutionary achievement (Deacon [2006: 33]). The kind of symbol that will be discussed here is the text balloon in comic strips. Typical balloons are containers conveying the spoken text or thoughts of the characters to which these balloons are linked via a so-called "tail" or via "thought bubbles." Given this transparent goal of balloons, and their high degree of standardization (Forceville et al. [2010]), it is possible to investigate and evaluate creative deviations of the norm that are successful because they concisely and elegantly fulfil a clear function – however local and small-scale the achievement may be.

In order to chart and examine such creative deviations, I will draw on Fauconnier & Turner's Blending Theory (BT), a theory which, indebted to Koestler (1969), the authors claim can model "emergent structure" (Fauconnier & Turner [2002: 383]) and hence potentially "creativity." The approach, however, still has certain shortcomings. Therefore, this chapter takes BT as an inchoate model of