



# LANGUAGE AND THE CREATIVE MIND

*edited by*

**MIKE BORKENT, BARBARA DANCYGIER,  
and JENNIFER HINNELL**

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# Contents

<b>Acknowledgments</b>	<b>viii</b>
<b>Contributors</b>	<b>ix</b>
<b>‘Language and the Creative Mind’: New Directions in Cognitive Linguistics</b>	<b>xiii</b>
MIKE BORKENT, BARBARA DANCYGIER, AND JENNIFER HINNELL	

## *Creativity versus Conventionality*

<b>1</b>	<b>Development of Metaphorical Thinking: The Role of Language</b>	<b>3</b>
	DANIEL CASASANTO	
<b>2</b>	<b>Conventional but Not Dead: The Role of Metaphorically-Based Connections in the On-Line Processing of Prepositional Meaning</b>	<b>19</b>
	MICHELE I. FEIST AND BROOKE O. BREAU	
<b>3</b>	<b>Creativity and the Sensorimotor Grounding of Mathematics</b>	<b>37</b>
	BODO WINTER AND TEENIE MATLOCK	
<b>4</b>	<b>How Creativity Strains Conventionality in the Use of Idiomatic Expressions</b>	<b>49</b>
	PATRICK J. DUFFLEY	

## *Constructions and Frames*

<b>5</b>	<b>The Indefinite Article in Complex Quantifiers</b>	<b>65</b>
	RONALD W. LANGACKER	
<b>6</b>	<b>‘Leap’ or ‘Continuum’?: Grammaticalization Pathways from Conjunctions to Sentence-Final Particles</b>	<b>83</b>
	MITSUKO NARITA IZUTSU AND KATSUNOBU IZUTSU	

- 7 **Negative Affect Conditionality in Korean -*taka*** 101  
JISUP HONG
- 8 **Favorable and Unfavorable Effects: A Typology of Benefactive and Adversative Constructions in Japanese, Korean, and Ainu** 119  
KATSUNOBU IZUTSU AND TAKESHI KOGUMA
- 9 **A Multi-Frame Analysis of Separation Verbs** 137  
SEIKO FUJII, PAULA RADEZKY, AND EVE SWEETSER

### *Creativity and Discourse*

- 10 **Creative Reading, World, and Style in Ben Jonson's 'To Celia'** 157  
PETER STOCKWELL
- 11 **What is Literary 'Atmosphere'? The Role of Fictive Motion in Understanding Ambience in Fiction** 173  
MARK DEGGAN
- 12 **Motion Metaphors in Political Races** 193  
TEENIE MATLOCK
- 13 ***Think of it as*: Spacebuilders and Grounding in Public Science Discourse** 203  
CAROL LYNN MODER
- 14 **Conceptual Blending in Allegorical Political Rhetoric: Creativity in Managalase (Papua New Guinea) Oral Tradition** 219  
WILLIAM H. MCKELLIN

### *Viewpoint, Language, and the Body*

- 15 **Creativity Across Modalities in Viewpoint Construction** 239  
EVE SWEETSER
- 16 **Multimodal Construction Grammar** 255  
FRANCIS STEEN AND MARK TURNER
- 17 **Thinking with the Body: Conceptual Integration through Gesture in Multi-Viewpoint Model Construction** 275  
DAVID DELIEMA AND FRANCIS STEEN
- 18 **Metaphors for Sensorimotor Experiences: Gestures as Embodied and Dynamic Conceptualizations of Balance in Dance Lessons** 295  
CORNELIA MÜLLER AND SILVA H. LADEWIG

- 19 Balancing Acts: Image Schemas and Force Dynamics as  
Experiential Essence in Pictures by Paul Klee and their  
Gestural Enactments** 325  
IRENE MITTELBERG
- 20 Where Do Cognitive Biases Fit Into Cognitive Linguistics?  
An Example from the ‘Curse of Knowledge’** 347  
VERA TOBIN

*Sound, Image, and Communicative Modalities*

- 21 Wiggle Room: How Gestural Parameters Affect Singer and  
Audience Cognition in Art Song Performance** 367  
RENA SHARON, LAUREL FAIS, AND ERIC VATIKIOTIS-BATESON
- 22 Iconic Pitch Expresses Vertical Space** 393  
NATHANIEL CLARK, MARCUS PERLMAN, AND MARLENE  
JOHANSSON FALCK
- 23 Convergence in Music and Language Syntactic  
Representations** 411  
CHRISTINA GALEANO
- 24 Elastic Anchors for Imaginative Conceptual Blends: A  
Framework for Analyzing Animated Computer Interfaces** 427  
KENNY K. N. CHOW AND D. FOX HARRELL

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# Balancing Acts: Image Schemas and Force Dynamics as Experiential Essence in Pictures by Paul Klee and their Gestural Enactments

IRENE MITTELBERG

## 1 Movement and Balance in Artworks and Gesture

Our sense of balance is essential to functioning in the world. Entrenched through bodily interactions with the environment—such as moving on uneven grounds or being exposed to physical forces—it enables us to perceive (im)balance in various physical and cultural domains of experience. These include life balance, physical and emotional well-being, power relations, ecological systems, but also arguments, models, and mathematical equations (Johnson 1987: 74ff.). Balance is an integral part of what Gallagher (2005) subsumes under the notion of *body schema*, which posits tactile and sensorimotor capacities as central to the physical, social and cognitive being-in-the-world of a unified body and mind. The upright and stable posture of the torso or full body is a precondition for many basic physical activities: e.g. standing, sitting, walking, riding a bike, and performing coordinated manual actions such as eating, writing, drawing, or playing an instrument.

More artful bodily balancing acts comprise dance and certain kinds of acrobatic performances (examples of which are captured in the pictures discussed below). So naturally balance is also a constitutive aspect of aesthetics regarding both nature and culture (Arnheim 1974; Stebbing and

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Heim 2011). It influences the way we experience topographic gestalts such as landscapes or architectural space, as well as works of fine art such as music, drawings, paintings, or sculptures. One is usually able to tell, for instance, whether a given statue or pictorial composition is well-balanced or not, regardless of its being highly referential or highly abstract. What is decisive here is a perceived (un)equal distribution of physical forces and weight (Johnson 1987). In ancient cultures, too, balance and proportion belong to the universal organizing principles of aesthetic composition (Conkey and Hastorf 1990). Recent neuroscience studies examining the role of edges, contrasts, lines, and contours in human object recognition indicate that balance, for example symmetry, in visual stimuli evokes neural activation in higher visual processing areas, leading to *what* and *where* paths in the brain (van der Helm and Treder 2009). In light of these observations, the goal of this paper is to offer multimodal evidence for the idea that the embodied image schema *BALANCE*, as originally proposed by cognitive linguists (e.g. Johnson 1987; Lakoff 1987; Lakoff and Johnson 1999; Talmy 1988), can be assumed to constitute, together with other basic schemas, the bodily and conceptual basis for the broad range of experiential domains and their metaphorical elaborations, in which balance is of central significance.<sup>1</sup>

Exploring the structuring functions of image schemas, it will be argued that depictions in both paintings and 'descriptive gestures, those forerunners of line drawing' (Arnheim 1969: 117), compel their interpreters to relate to the bodily postures and actions performed in front of them in ways that seem to be pre-structured by internalized patterns of cognitive, physical and cultural experience. In the moment of contemplation, one's own sense of balance may align and resonate, or not, with a pictorial composition due to sensorial responses feeding into embodied processes of association and meaning-making (Friedberg and Gallese 2007; Gibbs 2006). Movement and its significance for our understanding of ourselves, others, and cultural artifacts take center stage here (De Preester 2013; Foolen et al. 2012; Johnson 2007). Drawing on Krois' (2011: 273ff.) insights into the connection between embodiment and enactivism in the visual arts, the intent is to demonstrate how pragmatic links between physical action, social interaction and communicative behavior may create strong embodied correlations, which in turn have the capacity to dissolve the distinction between active movement and still images (Varela, Thompson and Rosch 1991). Among the art histo-

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<sup>1</sup> See Johnson (1987: 75; italics in the original): '... the *meaning* of balance begins to emerge through our *acts* of balancing and through our *experience* of systemic processes and states within our bodies. I shall argue that the meaning of balance is tied to such experiences and, in particular, to the image-schematic structures that make those experiences and activities coherent and significant for us'.

rians and philosophers who, as Krois, integrate embodied cognition into their theory of the image, Bredekamp's (2010) conception of 'picture acts' succinctly captures the practical, cognitive and affective dimensions of what pictures do and what onlookers do with pictures (see also Brandt 2006). The participants of the present study do something with pictures in that they carefully observe and describe them multimodally, employing words, gestures, and their entire body, often fully reenacting the postures and actions of the figures portrayed in the pictures.

Due to limits of space, this paper cannot provide a comprehensive overview of the current discussions in the various scholarly fields that interlace here. Nor can the analyses offered below do justice to the noteworthy historical and theoretical aspects of the fine artworks at hand. Focusing on the idea of balance and related schemas, it will be suggested that by analyzing corporeal descriptions of visual art we may find further support for Krois' (2011: 218) thesis that images are not simply visual, but transmodal phenomena. The paper evolves as follows: after laying out the theoretical foundation, image-schema analyses of three artworks by Paul Klee are provided and related to video and motion data recordings of participants describing the same artworks inside a motion capture lab. Among the strategies used in the multimodal descriptions, aspects of balance, full-body enactments, and viewpoint are of particular interest. Overall, this paper aims to offer glimpses at 'felt qualities' of meaning (Johnson 2005: 31), hoping to shed light on people's cross-modal understanding of artworks, that is, 'exemplary cases of embodied, immanent meaning' (Johnson 2007: 234).<sup>2</sup>

## **2 Image Schemas and Force Dynamics in Gesture and Art**

The guiding assumption of this paper is that image-schematic and force-dynamic structures may motivate not only the compositional structure of artworks, but also underpin cognitive, physical, emotional and communicative responses on the side of the beholder. Before delving into the analyses, a brief overview of previous work on images schemas and force gestalts in multimodal communication is provided.

### **2.1 Cross-modal Conceptualization through Image and Force Schemas**

Embodied image and force schemas are central to experiential accounts of meaning. In light of Johnson's (1987: xiv) definition of image schemas as 'recurring, dynamic patterns of our perceptual interactions and motor programs that give coherence and structure to our experience', we can expect

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<sup>2</sup> For cognitive approaches to visual art see also Brandt (2006); Bundgaard (2009); Krois et al. (2007); Lakoff (2006); Sonesson (2007); and Turner (2006).

gestures and artworks to provide additional evidence for their 'semiotic reality' (Danaher 1998: 190). The PATH schema is an example of a pervasive image schema, consisting of a beginning (SOURCE), a vector constituting a PATH, and an end point (GOAL). It gets instantiated, for instance, by traveling from A to B, walking up a winding staircase, a bridge connecting two river shores, or by the timeline of a project (Johnson 2007: 136).

In addition to recent work on image schemas in language (e.g. Hampe 2005), there is a growing literature on the functions such patterns perform in other semiotic systems and multimodal communication (e.g. Forceville and Jeulink 2011; Turner 2006). Gesture research, for instance, could show that communicative body posture and movements may indeed reflect a range of basic schemas such as PATH, OBJECT, CONTAINER, LINK, BALANCE, CYCLE, STRAIGHT, CENTER-PERIPHERY, and FORCE (e.g. Cienki 1998a/b, 2005, 2012; Ladewig 2011; Mittelberg 2006, 2010b; Zlatev 2005). Given the visuo-spatial mediality of gestures, spatial-relations schemas (Lakoff and Johnson 1999) are of particular interest for our purposes. Providing means to project conceptual structure into gesture space, they may underpin systematic, often metaphoric, uses of its different segments to reify discourse items or highlight relations between ideas, locations, or moments in time (e.g. LEFT/RIGHT; CENTER/PERIPHERY; FRONT/BACK UP/DOWN; e.g. Calbris 2003; Evola 2010; Mittelberg 2010b; Núñez and Sweetser 2006; Sweetser 1998).

Regardless of the medium in which they materialize, image schemas are assumed to be dynamic, multimodal conceptual gestalts that drive conceptualizations and construal operations, but do not necessarily get fully instantiated. In gesture, salient qualities of a posture, hand configuration or an ephemeral line drawing sketched in the air also tend to lend only minimal support to the evocation of the entire schemas. However, due to their own embodied experience with physical actions, tactile explorations of the world, and a broad range of semiotic processes, interlocutors are able to infer sensorimotor, haptic, pragmatic, as well as cognitive entailments.<sup>3</sup> These may trigger multimodal associations guided by, for instance, frames (Fillmore 1982), metonymy (Mittelberg 2006, 2013), and/or metaphor (e.g. Cienki and Müller 2008; Mittelberg and Waugh 2009; Müller 2008; Parrill and Sweetser 2004).

Force-dynamics also play an important role in structuring our physical and cognitive experience (Talmy 1988, 2000). Though we are not necessarily consciously aware that 'our bodies are clusters of forces and that *every* event of which we are a part consists, minimally, of forces in interaction'

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<sup>3</sup> These observations align with Popova's (2005) suggestion to examine in more depth the cross-modal nature of image schemas; see also Johnson (2007: 136ff.).

(Johnson 1987: 42; italics in the original). Basic experiences include exerting force on objects or people, e.g. by pulling or pushing, and forces felt on one's own body such as GRAVITY, BLOCKAGE, or REPULSION. Through imitating actions using manual gestures or their entire bodies, speakers can easily (re)enact physical activities such as walking against the wind, carrying heavy items, or, as we will see below, staying balanced on a tightrope (Mittelberg 2010, 2013). Metaphorical extensions of force gestalts may not only mediate the feeling of social pressure and emotional burden, but also guide, as the present study exemplifies, our perception and interpretation of visual art (Johnson 1987, 2005).

## 2.2 The BALANCE Schema in Acts of Perception and Expression

The BALANCE schema situates itself at the juncture of image schemas and force dynamics. It belongs, as pointed out in the introduction to this paper, to the elementary structures that 'operate in our bodily movements, perceptual acts and orientational awareness' (Johnson 1987: 75). In its most basic sense, balancing is a bodily activity 'that requires an ordering of forces and weights relative to some point, axis or plane' (*ibid.*, 98–9). In order to stand and walk without falling, humans need to learn how to balance themselves around their vertical axis and to sustain an upright posture. Anchored in the speaker's body, gestures are intimately linked to body balance and the related metaphorical projections, for example using both hands as though one were weighing ideas (McNeill 1992).

As for visual perception, Arnheim (1954) revealed a 'structural skeleton' (Figure 1 below) underlying the dynamic forces that allow us to sense (im)balance in arrangements of abstract figures and other elements in visual configurations. This hidden structure is assumed to support our grasp of the distribution of weight and force vectors within an image.

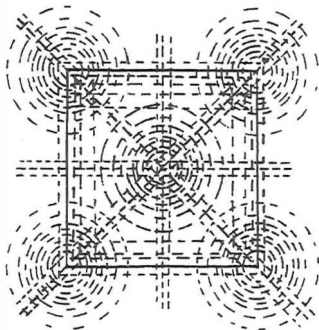


FIGURE 1. Balance pattern  
(Arnheim 1954: 13)

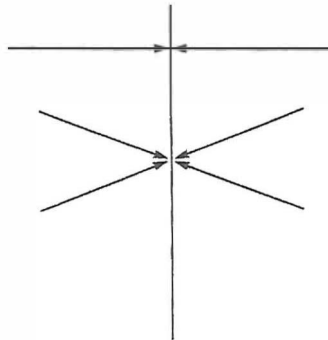


FIGURE 2. Axis balance  
(Johnson 1987: 86)

Based on analyses of masks, statues and paintings, Johnson concluded that the prototypical axis BALANCE schema (see Figure 2) functions as the primary schema, that is, the structural core of all its variants and elaborations. Crucial for our purposes is the insight that '[b]alance in visual perception already involves a metaphorical projection of schematic structure from the realm of *physical* and gravitational forces and weights to a domain of *visual* forces and weight in "visual space"' (99; italics in the original). By the same token, art appreciation involves active perception; balance or imbalance is something we may sense and not something residing within the picture itself (e.g. differences in weight emanating from particular colors).

According to Lakoff (2006: 154), 'image schemas [...] give form to art': our embodied, enacting mind imposes image schemas onto a visual scene or other kinds of multimodal streams of sensory information. In this way, orientational and spatial relations, as well as motor control schemas are assumed to link perceptual to conceptual structure, and form to meaning. As Krois (2011: 222f.) pointed out, image schemas can be considered as a specific kind of logic of visual images, contributing to their transmodal functions (see also Krois et al. 2007). These theoretical aspects will now be explored through analyzing specific instances of visual artworks and bodily performances.

### 3 Enacting Embodied Structure: BALANCE in Three Klee Pictures and their Multimodal Descriptions

At first sight, the visuo-spatial modalities of interest here appear quite different: carefully composed, static and silent two-dimensional paintings are related to spontaneously performed, ephemeral three-dimensional coverbal gestures. However, from a performance point of view, paintbrush strokes and line drawings are, just like gestural movements, manual practices of meaningful expression (Arnheim 1969; Taylor et al. 2012). Accordingly, they share a number of properties, especially regarding techniques of sign creation (Müller 1998) and the cognitively and culturally prestructured nature of picture and gesture spaces. Since semiotic representation tends to be partial, abstracting salient elements from a witnessed or imagined scene, or some other complex sensorial experience, is central to expression in both media. For bodily semiotics, metonymy has been shown to be a key principle in indexically anchored *ad hoc* expressions of both content and felt qualities of meaning (Johnson 2005; Mittelberg 2006, 2010a, 2013; Mittelberg and Waugh 2009). Abstraction and metonymy are intimately linked to viewpoint, a focus of the analyses presented in this section: subjective (selective) portrayals can be done from several different perspectives such as

character or observer viewpoint (McNeill 1992). Speakers have been observed to shift viewpoints on a given scene or to signal several of them with different articulators simultaneously (e.g. hands, eye-gaze, torso; Stec 2013; Sweetser 2012).<sup>4</sup> According to the present view, the different modes and degrees of abstraction and iconicity in both gesture and visual art necessarily draw on (parts of) image schemas and force gestalts. These internalized structures may serve as schematic blueprints and trigger visceral impulses and imaginative elaborations when we construe, verbalize and physically (re)enact essential qualities of experience.<sup>5</sup>

For the present purpose, the focus will be on descriptive gestures, which may evoke not only concrete objects (such as pictures), but also mental imagery and conceptual structures. Importantly, the three Klee pictures were selected such as to allow a high degree of alignment between image and beholder: In all three pictures, human-like figures take center stage, trying to stay balanced in one way or another, while seemingly moving and/or being exposed to different kinds of physical forces. Likewise, the study participants occupy the center of their personal gesture spaces and engage their full bodies when describing and elaborating their perceptual experience of the artworks.

To closely study communicative performances involving natural, bodily media (e.g. spoken or signed discourse, gesture, head movements, body posture, dance, etc.) the use of technical media like audio and video recordings is a necessary prerequisite (see also Müller, this volume). In order to see to what extent co-speech gestures produced in mid-air are comparable to drawings captured on paper or canvas, the multimodal descriptions elicited for this study were not only filmed, but the speakers' hand motions were also tracked with a full-body optical motion capture system. Through visualizing otherwise invisible movement traces, this technology allows us to not only create three-dimensional images of gestural excursions through space, but to also map how they evolve through time.

Three American English native speakers (two females, one male) participated in the study. For 60 seconds at a time, each painting was projected on a screen in front of them, without disclosing the title. Afterwards, the participants were asked to describe each painting from memory to the interviewer, first focusing on formal aspects (such as composition, colors, figures,

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<sup>4</sup> For recent work on viewpoint in sign, gesture, speech and written texts, see Dancygier and Sweetser (2012). For a comparative study of abstraction, metonymy and viewpoint in gesture and Cubist paintings, see Mittelberg (2006, 2011).

<sup>5</sup> In his account of a mental architecture for perception, Brandt (2006) proposes a neuro-semantic economy of art perception combining aesthetic and pragmatic registers.

objects, etc.), then on semantic, emotional and aesthetic qualities. Each of the subsections below is dedicated to one of the pictures and will proceed from a brief description of the image to an analysis of the principal underlying image-schematic and force-schematic structures. Then, examples from the video and motion-capture data will highlight some of the most interesting multimodal strategies employed by the participants. As stated earlier, comprehensive interpretations of the pictures cannot be provided here. For the moment, we will focus on iconic and structural aspects; deeper strata of meaning will have to await ensuing work.

### 3.1 Angelus Novus (1920)

Among Paul Klee's (1879-1940) numerous portrayals of angels, the *Angelus Novus* (Figure 3) is probably the best known (Zentrum Paul Klee 2012). Also referred to as the *Angel of history*, the picture was in the possession of Walter Benjamin for several years. In the center of the pictorial space we see a figure combining features of a human being, a bird, an angel, and perhaps other creatures. The background does not show any particular elements, except that the beige color behind the figure turns into shades of orange and brown closer to the edges of the image. The transparent looking creature, identified by the title as an angel, is holding up its upper forelimbs vertically on both sides of the body. Its wings, which resemble human arms and hands, seem to help him stay in place, as if to counteract wind or resist some other physical forces seemingly acting on it. Its wide-open, sideward looking eyes seem to be attending to something with worry. While its eye-gaze appears to be directed to its left, neither the figure's head nor its body is turned that way. The feet do not seem to be set on the ground with equal stability: most of the body's weight is resting on the stronger looking left leg, while the right foot is placed slightly forward and outward.

An image-schema and force-dynamic analysis reveals the following underpinning structures. The figure situated in the CENTER of the image space is clearly the focus, with some shading applied in the PERIPHERY. By holding up both wings (RIGHT-LEFT), the body is kept in a state of BALANCE. Through holding its right foot steadily down on the ground and shifting most of its weight onto it (GRAVITY), the angel appears prepared to fend off something with its raised left wing (UP; BLOCKAGE) which appears bigger, stronger and thus more salient than its right counterpart. Its entire posture signals readiness to block anything that might come towards it (BLOCKAGE; TOWARDS/AWAY FROM). This could also metaphorically signal some sort of inner REPULSION. Its focused eye-gaze directed to the left further could also express ATTRACTION towards something out there, thus creating a vector or a HORIZONTAL axis leading into the off (SOURCE-PATH-GOAL). If we as-

sumed that something was moving towards the angel, we could imagine a PATH, along which a moving person or entity was approaching the figure from a location outside the picture (SOURCE-PATH-GOAL). It could also be the case that the angel itself tries not to move along some other hidden axis or path. If the unevenly distributed darker shades represent smoke or flames, the immediate environment would make movement into any direction impossible.



FIGURE 3. P. Klee,  
*Angelus Novus* (1920)



FIGURE 4. Full-body enactment

One cannot help but wonder what the angel might be looking at. Benjamin's (1987) own reading of the image suggests that the angel is facing the past: the ruins of the First World War. This interpretation resonates with recent advances in cognitive science and gesture studies suggesting that in most Western cultures the past tends to be conceptualized as being located to the left of or behind the speaker (Calbris 1990).<sup>6</sup>

Overall, the gestural descriptions of this picture show a strong tendency for full-body enactments (see also Müller, this volume). Assuming character viewpoint (McNeill 1992; Sweetser 2012), the participant shown in Figure 4 (who cannot see the picture while describing it) mirrors the angel in an astonishingly close fashion by mimicking its posture, arm position, leg placement, and eye-gaze. For a moment, the speaker becomes the angel. When verbalizing her impression that the figure seemed to be in mid-

<sup>6</sup> But see Núñez and Sweetser's (2006) work on spatial metaphors for time in the Aymara culture; see also Kress and van Leeuwen (2006) for related observations regarding a spatial grammar of pictures.



movement, she actually adds movement to the scene by rotating her arms. Figure 5 shows a motion-capture data plot of these repeated circular hand and arm motions representing the angel's imagined wing movements.<sup>7</sup>

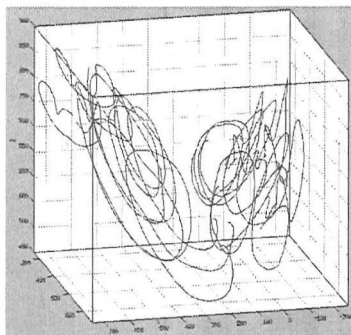


FIGURE 5. Motion-capture data plot of enacted wing movements (see Figures 3 and 4)

To summarize, not only the posture of the angel, but also the sensed movement of its body and limbs are physically enacted by the speaker. This active portrayal thus supports Krois' (2011: 218) understanding of pictures as transmodal phenomena (see introduction). In light of the prototypical balance schema put forth by Johnson (1987: 86; Figure 2, Section 2.2), it seems safe to say that this schema can be detected as underpinning the image of the angel, with a focus on the vertical axis running down through its upright head and body. Around this axis, weight and forces are quite equally distributed (e.g., the stronger left wing is balanced out by the right wing plus the right leg). Emanating from the angel's relatively large head, its eye-gaze maps onto the horizontally oriented vectors meeting at eye-level (Figure 2). At the same time, the upper and lower limbs as well as the lower body map onto the diagonal vectors shown in the same Figure. Arnheim's (1954) hidden skeleton of balance patterns (Figure 1) can also be made out in the image as so far as all lines and weights seem to coincide more or less with a feature of the structural skeleton. As a result, the angel's balancing act evokes in the viewer a sense of dynamic symmetry that can be readily

<sup>7</sup> Transcript of speech accompanying the gestural enactment shown in Figure 5: 'Oh, uh, it looks like it's kind of in mid-movement just cause it's... the one leg is a little... moved and the... feathers are sort of swept to one side... does it look like it's in the middle of... doing something.'

enacted. Through her corporeal posture and actions the perceptual experience becomes physical and real for the speaker.

### 3.2 Tightrope Walker (1923)

A tightrope walker's chief task is to stay balanced while gradually moving forward on a high wire suspended up in the air. While the *Tightrope Walker* (Figure 6) is not Klee's only work showing such acrobatic performances, it is one of the most intricate compositions of this nature.

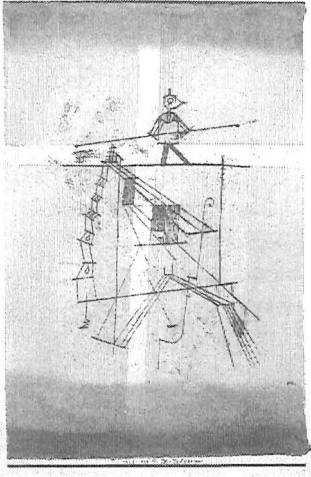


FIGURE 6. P. Klee,  
*Tightrope Walker* (1923)



FIGURE 7. Video still:  
'it looks stable'

This image of the *Tightrope Walker* combines a number of compatible underlying structures and relations. In this prototypical instance of a balancing act, set against the backdrop of a luminous cross structure, the tightrope runs parallel to the lower edge of the horizontal structure of the cross (HORIZONTAL; STRAIGHT), but it seems to be only virtually supported by it. The rope, however, clearly supports the figurine (SUPPORT). As such, the high wire represents the borderline between above and below (UP/DOWN). Almost at the center of the image (CENTER/PERIPHERY), the cross's vertical pole cuts the pictorial space into two panels (VERTICAL; SPLITTING), of which the right one is, especially in the image's lower regions, a little wider than the left one (RIGHT/LEFT). Holding on to a balancing pole with both hands held more than shoulder-width apart, the tightrope walker manages to BALANCE out the weight and physical forces pulling on his body and on the two ends of the pole (GRAVITY; SCALE). In the moment captured here, the

figurine, traversing the image from left to right, has just passed the intersection of the cross-like structure. His walking PATH probably started at the small platform on the left-hand side (SOURCE) and is about to end only a few steps further down to the right (GOAL). From there, he would be able to leave the high wire by sliding down a rope leading towards the ground which is only hinted at by darker shades of brown. The platform on the left (SURFACE; SUPPORT), from which a rope ladder is hanging, also builds the entry/exit point of a network structure below the tightrope, consisting of vertical and diagonal lines and planes. Upon closer scrutiny, these lines and planes seem to be passing through a schematic head with a mouth, chin, nose and eyes. While these facial elements are slightly displaced, the head appears to contain (CONTAINMENT), despite its high degree of abstraction, (mental) SUBSTANCE and structures.

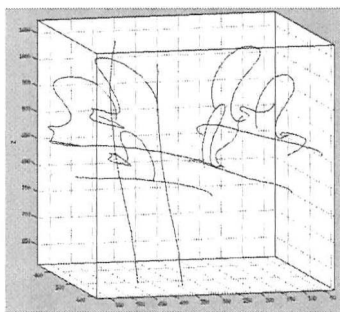


FIGURE 8. Motion-capture data plot: cross

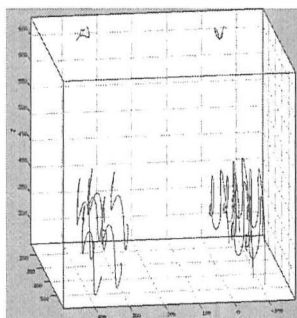


FIGURE 9. Motion-capture data plot: balancing

Regarding the descriptions of the *Tightrope Walker*, several multimodal portrayal strategies deserve particular attention. All three participants enacted the figure's posture and actions with their gestures or entire bodies. They also performed viewpoint shifts (Stec 2013) several times during their performances. We further see a tendency to describe the pictorial composition from an observer point of view, thus laying out the background as well as the distribution and relation of structures, elements, and colors. One participant adopted observer viewpoint when sketching the cross with thumb and index finger into the air and placing an imaginative figure on top of the rope, here functioning as a sort of virtual reference structure (Mittelberg 2008). Figure 8 above shows the movement traces of this gestural description (the figurine is the small loop-like shape on the left). In mid-sentence, the speaker shifts from observer to character viewpoint, from where she then imitates the figure's posture, leg position and the action of holding the balancing pole. Finally, her face serves as a projection surface when she

imitates the figure's pointed face by seemingly extending her own nose.<sup>8</sup> The insight we can draw from this is that the adopted viewpoint has an influence not only on the construal of a scene, but also on what kind of metonymic modes are operationalized and what semiotic practices are chosen to deliver an effective multimodal performance (Mittelberg 2013).

Another participant directly commented on issues of balance, saying that the structures and objects hanging down from the rope would probably serve to keep everything in balance. In the moment captured in Figure 7, he pretends to be the figure up on the tightrope (character viewpoint), moving his hands up and down as though he were testing the stability of the situation (Figure 9 shows captured movement traces of his hands). Although it seems rather unlikely, the figure on the rope looks quite stable to him.<sup>9</sup> Through this mini-performance the original scenario is elaborated. By drawing on his own experience with (im)balance, the speaker instills movement and force dynamics into a static image. Hence, the image becomes alive.

What is crucial here is that, given the overall distribution of weight and forces, both the image and the tightrope walker seem perfectly balanced. A look at the following two schemas provided by Johnson (1987: 86) backs up this impression. The twin-pan balance schema (Figure 10) represents the situation of the tightrope walker up on the rope, with the balancing pole he



FIGURE 10. Twin-pan balance  
(Johnson 1987:86)

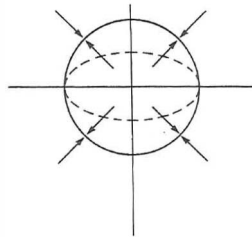


FIGURE 11. Equilibrium  
(Johnson 1987:86)

<sup>8</sup> Transcript of the verbal description (Fig. 8): 'Uhm, in the... background of the picture there is like a white cross... uhm, which is very different from the rest of the picture which is also... uhm, like tan except for the bottom where it could (...). It almost looks like it could be green. Uhm, and then, on top of that, it looks like... uhm... like a man or some sort of figurine is standing on it, and he's holding something and he... is looking to the side, so it almost looks like he's going like this. cause one leg looks, uhm... more stretched out than the other... and... his uhm, head is drawn and the face are like a teardrop, so... it's very... pointed... uhm...'

<sup>9</sup> Transcript for Figs. 7 and 9: 'It was walking on maybe some triangles and some more square objects and uhm, odd shapes drawn together until it kind gave you the idea that it was balancing somehow to... to form a kinda like teeter-tottering the line on the... uhm, objects building it up with the... the little person. It looks stable but realistically ... uhm no, I doubt it.'

is holding in his hands mapping onto the horizontal line. The equilibrium schema (Figure 11) can further be said to represent the entire scenario, including the cross in the background, the high wire, and the structures hanging down from it. These mappings are of course not exact, but allow us to understand variations on the theme BALANCE.

### 3.3 Dance of a Mourning Child (1922)

This last picture contrasts with the previous ones in several respects. As the title indicates, it features a child absorbed in a dance (Figure 12). What immediately catches the viewer's eye is the oversized head tilted to the side. Contrary to the figures studied so far, this one is positioned off-center, i.e. to the left side (CENTER/PERIPHERY; LEFT-RIGHT) and does not hold its head up straight (STRAIGHT; VERTICAL; UP/DOWN). The girl does not try to stay in control of its upright posture, as the *Angelus Novus* and the *Tightrope Walker*, but gives in to the head's tendency to draw sideward (GRAVITY). The CENTER of the image is left unoccupied except for a light color spot. At first sight, the distribution of weight might seem uneven in the overall pictorial composition as well as within the figure's body. The small body does not seem substantial enough to counterweigh the large head. However, with her fully extended arms pointing to her right side, and by holding some sort of line or balancing rope with both hands, the girl manages to create a BALANCED composure carried by the flow of the dance movement.

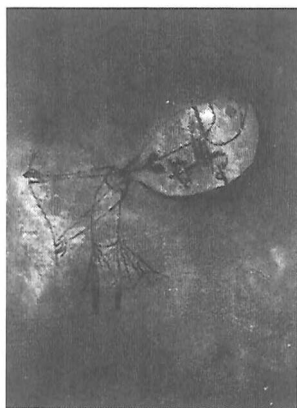


FIGURE 12. P. Klee, *Dance of a Mourning Child* (1922)



FIGURE 13. Enactment of child's posture

Due to the flowing skirt and the different shades of light and dark red, one can feel the different forces and the bodily movement captured in the picture. Several sets of parallel VERTICAL and DIAGONAL lines further create a

sense of balanced geometry. The girl's head remains salient due to its size, lighter coloring, and clearly articulated lines, some of which are straight and parallel, the heart-shaped mouth, and the small umbrella hanging down from one eye. The heart functions as the anchor point of figure and image.

In their multimodal descriptions from memory, the participants referred to many of these pictorial details. Again, they showed a strong tendency to mirror the figure's full-body posture as well as the particular distribution of weight along the vertical axis. For example, the participant shown in Figure 13 enacts the figure's tilted head and extended arms, as well as its position of the legs and the eye-gaze directed downward. Keeping character view-point all through the sequence, she draws an icon of the heart-shaped mouth onto her own lips and two lines imitating the figure's eye slits onto her own eyes.<sup>10</sup> She then evokes the flowing skirt around her hips and upper legs by repeated manual up-and down movements. The motion-capture data plot provided in Figure 14 visualizes the semiotic practices employed: we can detect the set of traces evoking the flowing skirt in the lower regions of gesture space, the traces of outward going hands a little higher up in space, and the iconic forms depicting the mouth and eye slits in the upper segment. Crucially, each of these bimanually produced pairs of signs shows features of an internal symmetry; they are balanced in their own way.

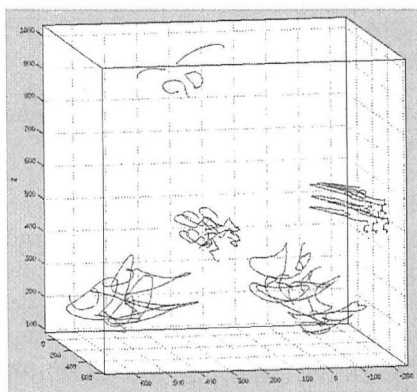


FIGURE 14. Motion-capture data plot: skirt, extended arms, mouth, eyes (see Fig. 12 and 13)

<sup>10</sup> Transcript of verbal description (Fig. 13): 'I thought it was a girl, because, uhm she looked like she was wearing some sort of short flowing skirt uhm, and... uh her head was turned to this side if I were mirroring what she was doing and her arms were like this. Uhm, and... uh.. her mouth was almost in the shape of a heart and... uhm, I kept trying to see if her eyes were open or closed, and it looked like they were just slits.'

When trying to match this picture with the various balance schemas proposed by Arnheim (1974) and Johnson (1987; see Sections 2.2, 3.1 and 3.2 above), it is not as obvious which one would be the most suitable. The balancing mechanisms at work here are not as straightforward as in the previous images, probably due to the imaginatively distorted proportions of the body parts. The axis balance schema (Figure 2) seems the most fitting, with the heart-shaped mouth at the intersection of the two straight lines. It is the movement of the body around its own axis that seems to contribute a decisive dimension to this particular balancing act.

This observation leads us to a core aspect of the recurrent patterns of the related experiences that make up the tissue of the BALANCE schema. According to Johnson (1987: 97), 'The balance schema (...) has three important properties: symmetry, transitivity, and reflexivity.' The latter property, reflexivity (A balances A), seems to be pertinent in connection to the pictures and corporeal enactments seen in this paper. Whereas Johnson (*ibid.*) points out that reflexivity is not experienced directly, since 'we are, after all, never in a position to balance something with itself', it seems justified to say that a body's equilibrium depends on a state of balance within itself, even if this internal structure consists of different body parts which can be said to build a bodily diagram with metonymic relations holding between the individual parts (Mittelberg 2008, 2013). Balancing oneself (e.g. when standing, walking, or dancing) seems an important facet of the experiential essence of human existence.

## 4 Synthesis and Concluding Remarks

Given the centrality of physical, emotional and aesthetic balance in people's lives, it perhaps does not come as a surprise that comparable patterns of experience could be detected in both Klee's pictures and their gestural descriptions and enactments. In his observations on 'The Body as Expression, and Speech', Merleau-Ponty (1962) puts into relief the deep interconnection of bodily perception, gestural expression and human understanding. He rightly points out that gestures may actually *create* meaningful semiotic material, instead of simply *referring* to something other than themselves; in certain moments, they basically *are* the world:

It is through my body that I understand other people, just as it is through my body that I perceive 'things'. The meaning of a gesture thus 'understood' is not behind it, it is intermingled with the structure of the world outlined by the gesture.

(Merleau-Ponty 1962: 216)

In this paper, the world to be perceived and understood presented itself in the form of artworks by Paul Klee. The iconic structures found in the

pictures and their gestural descriptions have been assumed to be motivated, at least to some degree, by embodied image schemas, force dynamics, metonymy (e.g. abstraction), and metaphor. More specifically, clusters of image and force schemas played an important role regarding the images' composition, but also in how the participants portrayed the scenarios inside their gesture spaces. Besides sketching the compositional features and proportions from an observer's point of view, the participants' preferred multimodal story-telling technique proved to be full-body enactments adopting character viewpoint. With a very fine sense of the distribution of weights and physical forces in the pictures, the participants repeatedly turned themselves into living image icons (Peirce 1960) of Klee's human-like figures and their actions. In the process, they virtually transposed themselves in the position of these figures to enact, and at times elaborate, the depicted scenes from image-internal vantage points.

So when engaged in art perception, our bodily senses seem to be in touch with our creative and imaginative capacities, which allows us to see and feel balance in spaces and contexts we are not part of, but attentively observe. The focus of analysis was on gestures describing formal properties of the images and not (yet) on the metaphoric construal of mental states and emotions evoked in the viewers. Generally, our access and recall of pictorial compositions is assumed to rely on creative metaphorical elaboration:

And it is by virtue of this metaphorically imposed structure that we can understand and reason about the relevant abstract entities. It is the projection of such structure that I am identifying as the 'creative' function of metaphor, for it is one of the chief ways we generate structure in our experience in a way that we can comprehend. The key to seeing how such creativity is possible is the recognition of a dimension of metaphorical projection based on image schemata, such as those of balance.

(Johnson 1987: 98)

For creative expressions in visuo-spatial modalities, two metaphorical concepts seem to be fundamental: FORM IS MOTION and MOTION IS FORM (Lakoff and Turner 1989; Mittelberg 2010b). These metaphors, as well as the other embodied structures and forces laid out in this paper, seem to not only guide our experiences and comprehension of the world, but also gestural instances of *embodiment* of inner images and inclinations (Mittelberg 2013). The present observations confirm that embodied schemas and action patterns play a central role in art appreciation; they also bring to light some of the ways in which subjective dimensions factor into the alignment of images, seen as 'transmodal phenomena' (Krois 2011: 218), and the body/mind of the beholder (Bredekamp 2010; see Taylor et al. 2012 for experimental work supporting this claim). Future research shall explore in more depth the relation of formal and emotional/aesthetic dimensions of



full-body art appreciation and description. For now, let us turn to Paul Klee, whose remarks resonate well with the views brought together here:

In the past we represented things we had seen on earth, things we liked seeing or might have liked to see. Today we reveal the relativity of visible things; thus expressing the belief that the visible is merely an isolated aspect in relation to the universe as a whole, and that other, invisible truths are the overriding factors. There is a striving to express the essential character of the accidental.

(Klee 1968: 185)

It seems that embodied image schemas and action patterns help us see, feel and express ‘the essential character of the accidental’ in various connected ways. As the research strands discussed in this paper suggest, these patterns underpin both the creation and interpretation of expressions in different semiotic systems. For instance, tilting one’s head over sideways may evoke a sudden loss of balance. Such metonymic moments may profile a specific facet of the experiential gestalts that feed into how we understand a particular scenario through drawing on connected physical and semiotic experiences that cut across several modes of perception and expression.

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# Where Do Cognitive Biases Fit Into Cognitive Linguistics? An Example from the ‘Curse of Knowledge’

VERA TOBIN

## 1 Introduction

It is a truth widely acknowledged (e.g. Piaget 1932; Fillmore 1975; Baron-Cohen 1995) that human beings have a remarkable ability to think about and adopt the perspectives of others. However, despite these spectacular performances of perspective taking, our abilities in this arena are both limited and riddled with biases. These biases are studied extensively in cognitive psychology, social psychology, economics, and cognitive approaches to decision making. Cognitive linguistics, however, despite its longstanding interest in viewpoint and perspective, has given them much less direct or explicit attention. This paper suggests that some models of meaning construction in cognitive linguistics are in fact very well suited to addressing the contributions of cognitive bias, and presents one illustrative integrated account.

The ‘curse of knowledge’ is a pervasive cognitive bias that makes it very difficult for us to imagine, once we know something, what it is like not to know it (Camerer, Loewenstein, and Weber 1989; Birch and Bloom 2003). Here, I will argue that the curse of knowledge is an artifact of a more general cognitive shortcut that is implicated in features of ‘correct’ sentence interpretation such as presupposition projection, as well as in the phenomena that are traditionally described as curse-of-knowledge errors.

*Language and the Creative Mind.*

Mike Borkent, Barbara Dancygier, and Jennifer Hinnell (eds).

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