*Language and Cognition* **9** (2017), 637–647. doi:10.1017/langcog.2016.33


# Power in time: The influence of power posing on metaphoric perspectives on time

SARAH E. DUFFY*
*Northumbria University, UK*

AND

MICHELE I. FEIST
*University of Louisiana at Lafayette, USA*

(*Received* 21 *June* 2016 – *Revised* 12 *October* 2016 – *Accepted* 12 *October* 2016 – *First published online* 03 *November* 2016)

ABSTRACT

In English, the Moving Ego metaphor conceptualizes the ego as moving forward through time and the Moving Time metaphor construes time as moving forward toward the ego. Recent research has provided evidence that people's metaphorical perspectives on deictic time may be influenced by experiences—both spatial and non-spatial—that are connected to approach motivations (Moving Ego) and avoidance motivations (Moving Time). We extend this research further, asking whether there are differences in preferred temporal perspective between those who exhibit higher and lower degrees of power, as high power has been connected to approach motivations and low power, to avoidance motivations. Across two temporal tasks, participants in our study who adopted high-power poses demonstrated a greater preference for the Moving Ego perspective, compared to those adopting low-power poses. These results suggest an embodied connection between approach and avoidance motivations and the Moving Ego and Moving Time metaphors, respectively.

KEYWORDS: Moving Time, Moving Ego, Metaphor, Embodiment, Power posing, Approach motivations, Avoidance motivations.

## 1. Introduction

Across languages, spatial terms are used to talk about time. The reason for this, conceptual metaphor theorists propose, is that our embodied experiences in

[*] Address for correspondence: Sarah Duffy, Northumbria University, Department of Humanities, Newcastle-upon-Tyne, UK. e-mail: sarah.duffy@northumbria.ac.uk

the physical world provide a natural and logical foundation for the comprehension of more abstract domains (Gibbs, 1994; Kövecses, 2000; Lakoff & Johnson, 1980, 1999). In the domain of time, for instance, metaphors exhibit an experiential basis that is grounded in the experience of moving through and observing motion in space.

Many ways of spatialising time are evident both within English and across languages: 'deictic' metaphors situate events in relation to the ego (Clark, 1973; Lakoff & Johnson, 1999), 'sequential' metaphors position events in relation to one another, as part of a sequence (Moore, 2006; Núñez, Motz & Teuscher, 2006), and 'extrinsic' metaphors fix events in relation to the forward-moving flow of time (Kranjec, 2006). Of these, particular attention has been paid to two deictic space-time metaphors: in the Moving Ego metaphor, time is construed as a stationary landscape, across which the active ego moves (e.g. *We're coming up to the deadline*; *We're approaching New Year's Eve*) and in the Moving Time metaphor, time is conceived as a series of events that move relative to a stationary ego (e.g. *The deadline's coming up*; *New Year's Eve is approaching*) (Clark, 1973). In research investigating the psychological reality of these two metaphors, Boroditsky and colleagues (2000; Boroditsky & Ramscar, 2002; see also Gentner, Imai & Boroditsky, 2002) conducted a series of experiments to examine whether engaging in thought about spatial motion might influence how people reason about time. For instance, by using an ambiguous temporal probe, namely *Next Wednesday's meeting has been moved forward two days. What day is the meeting now that it has been rescheduled?* (cf. McGlone & Harding, 1998), Boroditsky and Ramscar (2002) found that participants who were instructed to imagine themselves moving through space towards a stationary object (analogous to the Moving Ego perspective) were more likely to re-use this perspective for time and answer *Friday*, whereas participants who were instructed to imagine a moving object travelling through space towards them (analogous to the Moving Time perspective) were more likely to respond *Monday*. In discussing the implications of their findings, Boroditsky and Ramscar (2002) concluded that people's thinking about time is closely linked to their spatial experiences, such that engaging in thought about motion in space can dramatically affect how people reason about time.

Extending beyond testing the effects of spatial experiences on temporal reasoning, recent lines of research have provided initial evidence that personality differences, lifestyle, and emotional experiences may also influence how people think about the movement of events in time (Duffy & Feist, 2014; Duffy, Feist & McCarthy, 2014; Hauser, Carter & Meier, 2009; Richmond, Wilson & Zinken, 2012). For example, Hauser et al. (2009) observed a connection between anger and temporal perspective, whereby participants who scored higher on measures of trait anger (Study 1) or read an anger-producing



https://doi.org/10.1017/langcog.2016.33 Published online by Cambridge University Press

story (Study 2) were more likely to adopt the Moving Ego perspective. Building on insights from these findings, Richmond et al. (2012) sought to investigate a connection between emotional state (e.g., happy, sad, anxious), personal agency, and temporal perspective. Their findings suggest that individuals experiencing positive emotions and high personal agency were more likely to adopt the Moving Ego perspective, while those experiencing negative emotions and low personal agency were more likely to adopt the Moving Time perspective. In another line of research, Duffy and Feist (2014) observed a connection between extroversion and temporal perspective, whereby participants adopting the Moving Ego perspective averaged higher extroversion scores than did participants adopting the Moving Time perspective.

Uniting these findings is a shared grounding of the factors in approach and avoidance motivations. Anger, happiness, and extroversion all correlated with the Moving Ego perspective; these three factors are likewise grounded in approach motivations (Elliot & Thrash, 2002; Harmon-Jones, 2003; Richmond et al., 2012). Like the deictic Moving Ego metaphor, approach motivations, with their activation of goal-directed behaviours, make salient motion in the direction defined by the perceiver's forward-facing stance (Elliot, 2008). In contrast, anxiety and depression, which correlated with the Moving Time perspective (Richmond et al., 2012), are grounded in avoidance motivations (Margolies & Crawford, 2008; Richmond et al., 2012). Avoidance motivations, with their activation of inhibited behaviours, make salient both stasis and backward motion (Elliot, 2008) and, hence, the motion implicated is in the direction consistent with the Moving Time metaphor. Underscoring these connections, other lines of research in this area have demonstrated that the valence of the event (positive or negative) may also contribute to people's perspectives on the movement of events in time. In line with the assumption that positive affect tends to be spatially represented by approach motivations and negative affect, by avoidance motivations (e.g. Chen & Bargh, 1999; Elliot, 2008; Elliot & Thrash, 2002; Seibt, Neumann, Nussinson & Strack, 2008),[1] Margolies and Crawford (2008) found that people were more likely to describe themselves as approaching a positively valenced event and more likely to describe a negatively valenced event as approaching them.

Combined with earlier research on spatial motivations for metaphors, the reviewed research thus provides an important foundation for the understanding of the deictic metaphoric representation of time, illustrating that people's conceptualisations of time may be shaped, in part, by a complex of experiences—both spatial and non-spatial—that are grounded in the

[1] An exception to this being anger which, as discussed, is characterised by approach-related motivations (Harmon-Jones, 2003; cf. Hauser et al., 2009).



https://doi.org/10.1017/langcog.2016.33 Published online by Cambridge University Press

experience of moving forward (Moving Ego) and the experience of moving backward (Moving Time), with these experiences providing an embodied cognitive link to a host of personality dimensions via approach and avoidance motivations. Because approach and avoidance are grounded in physical experience, the connection would be strengthened by evidence drawing upon a physically manifested motivational factor that is likewise connected to approach and avoidance motivations. One such factor is power in interpersonal relations. Elevated power has been associated with increased rewards and positive affect, which activates approach-related tendencies, while reduced power has been coupled with inhibited social behaviour, increased threat and negative affect, which triggers inhibition-related tendencies (Keltner, Gruenfeld & Anderson, 2003). Like approach motivation, high power is associated with directed behaviour towards particular goals (Cuddy, Wilmuth, Yap & Carney, 2015), aligning well with the Moving Ego perspective. By contrast, avoidance motivation, which facilitates passive or inhibited behaviours (Higgins, 1997), concords with the Moving Time perspective.

Humans and other animals display high levels of power spatially through expansive and open postures, such as widespread limbs and the enlargement of occupied space by spreading out, whereas low levels of power are displayed through contractive and closed postures, such as limbs touching the torso and the minimization of occupied space by caving the body inward (Carney, Hall & Smith LeBeau, 2005; Darwin, 1872; de Waal, 1998). Recent research has shown that enacting high-power and low-power poses may not only reflect feelings of power, but also produce them (Carney et al. 2005; Carney, Cuddy & Yap, 2010; Cuddy et al. 2015). Specifically, in one study, Carney et al. (2010) found that when participants engaged in a simple two-minute power-pose manipulation, it was sufficient to alter their physiological and mental states: participants adopting high-power poses experienced elevated levels of the dominance hormone testosterone, decreased levels of the stress hormone cortisol, increased feelings of power, and higher tolerance for risk, while those adopting low-power poses exhibited the opposite pattern. Carney et al. (2010) concluded that the effects of embodiment extend beyond simply thinking and feeling, to physiology and concomitant behavioural choices (but see Ranehill, Dreber, Johannesson, Leiberg, Sul & Weber [2015] for a contrasting view). In the current study, we ask whether the effects on mental states might extend to reasoning as motivated by the embodied cognitive link connecting power to metaphoric representations via the shared intersections with approach and avoidance motivation.

To this end, the current study examines directly whether the two-minute adoption of a particular power pose (high-power or low-power) (cf. Carney et al., 2010) may influence how people think about time and their preferred



https://doi.org/10.1017/langcog.2016.33 Published online by Cambridge University Press

temporal perspective (Moving Ego or Moving Time). Participants adopted either high-power or low-power poses immediately before answering a series of questions designed to assess their preferred temporal perspective. If there is a connection between approach and avoidance motivations and the Moving Ego and Moving Time perspectives, respectively, we expect that participants adopting high-power poses will be more likely to envisage themselves moving through time, demonstrating a preference for the Moving Ego perspective, whereas those adopting low-power poses will be more likely to imagine time moving towards them, demonstrating a preference for the Moving Time perspective.

## 2. Method

80 undergraduates (55 females and 25 males), all native speakers of English, participated in the study in exchange for a small reward. The study took place on a Wednesday. Participants were randomly assigned to adopt one of two power poses (as used in Cuddy et al., 2015, and Yap, Wazlawek, Lucas, Cuddy & Carney, 2013): a high-power pose (i.e. expansive; open; $N = 40$, 28 female) or a low-power pose (i.e. contractive; closed; $N = 40$, 27 female). In past research, holding these poses for as little as two minutes resulted in high-power posers feeling more "powerful" and "in charge" than did low-power posers (Carney et al., 2010). In the current study, participants maintained their poses for two minutes while undertaking a filler task that consisted of viewing a series of gestalts projected onto a screen (cf. Carney et al., 2010). Participants were told that their task was to remember the gestalts, with a memory test to be administered after a filler task about time.

Next, participants completed two tasks that were included for measuring preferred temporal perspective (Moving Ego or Moving Time). Firstly, participants provided a response to the ambiguous temporal question: *Next Wednesday's meeting has been moved forward two days. What day has the meeting been rescheduled to?* (cf. McGlone & Harding, 1998). Secondly, participants completed an acceptability judgment task which consisted of evaluating 9 pairs of temporal expressions, such as *We're approaching Christmas* (Moving Ego) and *Christmas is approaching* (Moving Time) (cf. Duffy & Feist, 2014). Participants were presented with a 5-point Likert scale for each pair of expressions, with each expression anchoring one end of the scale and "equally preferable" anchoring the centre.[2]

[2] Prior research revealed no preference for either temporal perspective for this set of unambiguous statements in the absence of spatial priming (Duffy & Feist, 2014).



https://doi.org/10.1017/langcog.2016.33 Published online by Cambridge University Press

## 3. Results

As evidenced by responses on both measures, participants in the high-power pose condition were more likely to envisage themselves moving through time, adopting the Moving Ego perspective, than participants in the low-power pose condition. Concretely, for the Wednesday's meeting question, 80% of participants responded *Friday* in the high-power pose condition, in comparison to 53% of participants in the low-power pose condition ($\chi^2_{1,80}$ = 6.765, p = .009, Cramer's V = .291). In order to better understand the effect of the power pose manipulation, we performed a chi-square goodness of fit to test whether the proportions of *Monday* and *Friday* responses differed reliably from chance (i.e. 50% of each). The results showed that the proportions of *Monday* and *Friday* responses differed from chance among high-power posers ($\chi^2$ (1) = 13.22; p = .0003), but not among low-power posers ($\chi^2$ (1) = .02; p = .888).

A similar asymmetry in temporal perspective is evident in participants' preferences for either the syntactic framing associated with the Moving Ego perspective or that associated with the Moving Time perspective in the absence of ambiguity. To examine these preferences, we assigned numerical values to the Likert scales used in the acceptability judgment task, with -2 corresponding to the Moving Time end of the scale, 0 corresponding to the centre of the scale (i.e. both statements equally preferable), and +2 corresponding to the Moving Ego end of the scale (cf. Duffy & Feist, 2014). Mean scores for each participant were then calculated by adding the scores for each statement and dividing by the total number of statements, i.e. 9. Thus, a mean score below 0 indicates a preference for the Moving Time perspective, whereas a mean score above 0 indicates a preference for the Moving Ego perspective. As predicted, in comparison to participants in the low-power pose condition ($M$ = -.366; $SD$ = .797), participants in the high-power pose condition demonstrated a preference for the syntactic framing associated with the Moving Ego perspective ($M$ = .519; $SD$ = .823), judging sentences such as *We're approaching Christmas* as more preferable than *Christmas is approaching* ($t(78) = 4.883$, $p < .001$, $d = 1.092$).

## 4. Discussion

The ubiquity of spatial language in metaphoric expressions for time has generated substantial attention in recent years, with findings suggesting that spatial experiences influence people's interpretations of temporal metaphor (e.g. Boroditsky, 2000; Boroditsky & Ramscar, 2002; Gentner et al., 2002; Kranjec, 2006; Núñez et al., 2006). In order to understand spatial influences on temporal understanding, however, it has become increasingly clear that we must look beyond concrete spatial situations to take into account the influences



https://doi.org/10.1017/langcog.2016.33 Published online by Cambridge University Press

of spatially-grounded aspects of speakers' situations and personalities. To wit, recent research has suggested that approach-motivated traits such as anger and personal agency may be connected to speakers' preference for either the Moving Ego or the Moving Time perspective. In this study, we expand along these lines to consider effects of personal feelings of power.

Like other approach-motivated traits, feelings of power have been argued to trigger disinhibited behaviour and a sense of control over the environment, while powerlessness triggers "those features of the self relevant to others' goals" (Keltner et al., 2003, p. 265), aligning well with the Moving Ego and Moving Time perspectives, respectively. However, unlike other approach-motivated traits, feelings of power may be experimentally induced in the lab (Carney et al., 2010), allowing an examination of the connection between power and temporal perspective independent of other personality factors inherent to the participants. In addition, feelings of power can arise from physical experiences (Carney et al., 2010), allowing us to expand our investigation to include embodied reflexes of motivating factors. Our findings suggest a connection between induced feelings of power and temporal perspective, with participants who maintained a high-power pose evidencing a greater preference for the Moving Ego perspective than that shown by their low-power pose peers.

While there was a reliable difference in response between the groups on both measures of temporal perspective, the effects of the manipulation seem to be stronger among participants in the high-power pose condition, particularly for the Wednesday's meeting question. Thus, *Friday* responses were more prominent than *Monday* responses among high-power posers, while low-power posers evidenced no preference for either perspective. Turning to the syntactic preference task, while we observed a preference for constructions consistent with the Moving Ego perspective among high-power posers and for constructions consistent with the Moving Time perspective among low-power posers, high-power posers' average ratings differed from "equally preferable" (i.e. 0) to a greater extent in comparison to those of low-power posers (0.519 and -0.366, respectively).

A closer consideration of the details of approach and avoidance motivations suggests two possible reasons for this asymmetry. The first is rooted in the directional differences between approach and avoidance motivations and the effects they may have on temporal reasoning. To wit, approach motivation tends to be construed in terms of forward movement and avoidance motivation, in terms of backward movement (e.g. Carver & Scheier, 1998; Elliot, 2006). In a series of studies investigating the effects of thinking about abstract motion on temporal reasoning, Matlock, Holmes, Srinivasan and Ramscar (2011) asked whether engaging in thought about forward and backward movement would influence people's preferred temporal perspectives.



https://doi.org/10.1017/langcog.2016.33 Published online by Cambridge University Press

They found that when participants were primed with sequences that involved forward abstract motion (e.g. *5* to *17* or *G* to *P*), they were more likely to adopt the Moving Ego perspective and respond *Friday* to the Wednesday's meeting question, whereas when participants were primed with sequences that involved backward abstract motion (e.g. *17* to *5* or *P* to *G*), there was no reliable difference between the proportion of *Friday* and *Monday* responses. Matlock and colleagues argued that this pattern arises from an asymmetry between forward and backward movement, as forward motion is deeply entrenched in everyday locomotion, whereas people are far less familiar with backward motion. In the current study, we observed a stronger effect amongst participants in whom we induced elevated feelings of power, which activate approach-related motivations (*ergo*, forward motion), than among those in whom we induced reduced feelings of power, which involves avoidance-related motions (*ergo*, backward motion).

The second reason is rooted in an asymmetry in the strength of the connections between approach and avoidance motivations and forward and backward motion, respectively. Whereas approach motivations are always associated with active, forward motion, avoidance motivations are connected to passive behaviours and absence of motion (cf. Richmond et al., 2012), in addition to backward motion. The consistency of association between approach motivations and forward motions may thus lead to a deeply entrenched connection, allowing activation of approach motivations (resulting from the increased feelings of power induced in high-power posers) to likewise increase preference for the similarly motivated Moving Ego perspective. In contrast, the association between avoidance motivations and motion is far less consistent, limiting the possibility for avoidance motivations to affect motion-grounded temporal perspectives.

These asymmetries in spatial motivation provide a window into the complexity of the source domain, suggesting that the simple contrast between different conceptualizations of which entity is in motion (i.e. Ego or Time, and their associated directional possibilities) may be but part of the story of spatial influences on temporal thinking. Moving beyond the approach-motivated traits reviewed above, Duffy and her colleagues (Duffy & Feist, 2014; Duffy et al., 2014) have recently observed influences of personality traits connected to deixis, both when measured in the lab and when inferred based upon real-world behaviours. For example, reasoning that procrastination involves the habitual movement of events into the future, akin to the Moving Ego perspective, Duffy and her colleagues examined responses to the Wednesday's meeting question among participants who had either responded to questionnaires regarding procrastination and conscientiousness (Duffy & Feist, 2014) or been stopped while going about their everyday activities in which they were either running late, on time, or running early (Duffy et al., 2014).



https://doi.org/10.1017/langcog.2016.33 Published online by Cambridge University Press

In both cases, participants who adopted the Moving Ego perspective (responding *Friday*) evidenced higher rates of procrastination than participants who adopted the Moving Time perspective. However, in addition to movement towards the future, procrastination represents the movement of events away from a speaker's position in time, while conscientiousness involves the movement of events towards their current position in time; hence, these traits may be connected to deictic motion. Additional evidence regarding the role of deixis comes from another study, in which Feist and Duffy (2015) varied the verb in the Wednesday's meeting question: participants asked about the date after the meeting was "brought forward" (suggesting motion toward the observer) adopted the Moving Time perspective (responding *Monday*) more frequently than participants asked about the date after the meeting was "taken forward" (suggesting motion away from the observer).

Connecting these two lines of research, we observe that the expansive poses associated with high power involve movement of the limbs away from the body, while inhibition and low power involve the movement of limbs inward toward the body. Thus, in addition to being grounded in approach and avoidance motivations, power may draw upon an embodied cognitive link with spatial deixis, much like the personality traits studied by Duffy and her colleagues. Thus, direction of motion relative to an observer's position may provide an additional spatial motivation for the two temporal perspectives, complementing the directionality associated with the different metaphorical movers. By uniting and expanding upon recent experimental findings, the current study more clearly draws out connections between the abstract domain of time and the embodied spatial reality of human experience: our embodied understanding of motion in space and the ways in which we carry it over to other domains may be more intricate than meets the eye.

## REFERENCES

Boroditsky, L. (2000). Metaphoric structuring: Understanding time through spatial metaphors. *Cognition*, **75**(1), 1–28.

Boroditsky, L. & Ramscar, M. (2002). The roles of body and mind in abstract thought. *Psychological Science*, **13**(2), 185–188.

Carney, D., Hall, J., & Smith LeBeau, L. (2005). Beliefs about the nonverbal expression of social power. *Journal of Nonverbal Behavior*, **29**, 105–123.

Carney, D., Cuddy, A., & Yap, A. (2010). Power posing brief nonverbal displays affect neuroendocrine levels and risk tolerance. *Psychological Science*, **21**, 1363–1368.

Carver, C. & Scheier, M. (1998). *On the self-regulation of behavior*. New York: Cambridge University Press.

Chen, M. & Bargh, J. (1999). Consequences of automatic evaluation: Immediate behavioural predispositions to approach or avoid the stimulus. *Personality and Social Psychology Bulletin*, **25**, 215–224.

Clark, H. (1973). Space, time, semantics, and the child. In T. Moore (ed.), *Cognitive Development and the Acquisition of Language*, 27–63. New York: Academic Press.

Cuddy, A., Wilmuth, C., Yap, A. & Carney, D. (2015). Preparatory power posing affects nonverbal presence and job interview performance. *Journal of Applied Psychology*, **100**(4), 1286–1295.
Darwin, C. (2009) [1872]. *The expression of the emotions in man and animals*. New York: Oxford.
de Waal, F. (1998). *Chimpanzee politics: Power and sex among apes*. Baltimore: Johns Hopkins University Press.
Duffy, S. & Feist, M. (2014). Individual differences in the interpretation of ambiguous statements about time. *Cognitive Linguistics*, **25**(1), 29–54.
Duffy, S., Feist, M. & McCarthy, S. (2014). Moving through time: The role of personality in three real life contexts. *Cognitive Science*, **38**(8), 1662–1674.
Elliot, A. (2006). The hierarchical model of approach-avoidance motivation. *Motivation and Emotion*, **30**(2), 111–116.
Elliot, A. (2008). Approach and avoidance motivation. In A. Elliot (ed.), *Handbook of Approach and Avoidance Motivation*, 3–14. New York: Psychology Press.
Elliot, A. & Thrash, T. (2002). Approach-avoidance motivation in personality: Approach and avoidance temperaments and goals. *Journal of Personality and Social Psychology*, **82**(5), 804–818.
Feist, M. & Duffy, S. (2015). Moving beyond next Wednesday: The interplay of lexical semantics and constructional meaning in an ambiguous metaphoric statement. *Cognitive Linguistics*, **26**(4), 633–656.
Gentner, D., Imai, M. & Boroditsky, L. (2002). As time goes by: Evidence for two systems in processing space time metaphors. *Language and Cognitive Processes*, **17**(5), 537–65.
Gibbs, R. (1994). *The Poetics of Mind: Figurative Thought, Language and Understanding*. Cambridge: Cambridge University Press.
Harmon-Jones, E. (2003). Anger and the behavioral approach system. *Personality and Individual Differences*, **35**(5), 995–1005.
Hauser, D., Carter, M. & Meier, B. (2009). Mellow Monday and furious Friday: The approach-related link between anger and time representation. *Cognition and Emotion*, **23**(6), 1166–1180.
Higgins, E. (1997). Beyond pleasure and pain. *American Psychologist*, **52**, 1280–1300.
Keltner, D., Gruenfeld, D. & Anderson, C. (2003). Power, approach, and inhibition. *Psychological Review*, **110**, 265–284.
Kövecses, Z. (2000). *Metaphor and Emotion: Language, Culture, and Body in Human Feeling*. New York: Cambridge University Press.
Kranjec, A. (2006). Extending spatial frames of reference to temporal concepts. In K. Forbus, D. Gentner, & T. Regier (Eds.), *Proceedings of the 28th Annual Conference of the Cognitive Science Society*, 447–452. Mahwah: Lawrence Erlbaum Associates.
Lakoff, G. & Johnson, M. (1980). *Metaphors We Live By*. Chicago: University of Chicago Press.
Lakoff, G. & Johnson, M. (1999). *Philosophy in the Flesh: The Embodied Mind and its Challenge to Western Thought*. New York: Basic Books.
Margolies, S. & Crawford, L. (2008). Event valence and spatial metaphors of time. *Cognition and Emotion*, **22**(7), 1401–1414.
Matlock, T., Holmes, K., Srinivasan, M., & Ramscar, M. (2011). Even abstract motion influences the understanding of time. *Metaphor and Symbol*, **26**, 260–271.
McGlone, M. & Harding, J. (1998). Back (or forward?) to the future: The role of perspective in temporal language comprehension. *Journal of Experimental Psychology: Learning, Memory and Cognition*, **24**, 1211–1223.
Moore, K. (2006). Space to time mappings and temporal concepts. *Cognitive Linguistics*, **17**, 199–244.
Núñez, R., Motz, B. & Teuscher, U. (2006). Time after time: The psychological reality of the Ego- and Time-Reference-Point distinction in metaphorical construals of time. *Metaphor and Symbol*, **21**, 133–146.
Ranehill, E., Dreber, A., Johannesson, M., Leiberg, S., Sul, S., & Weber, R. (2015). Assessing the robustness of power posing: No effect on hormones and risk tolerance in a large sample of men and women. *Psychological Science*, **26**, 653–656.

Richmond, J., Wilson, J. & Zinken, J. (2012). A feeling for the future: How does agency in time metaphors relate to feelings? *European Journal of Social Psychology*, **42**(7), 813–823.
Seibt, B., Neumann, R., Nussinson, R. & Strack, F. (2008). Movement direction or change in distance? Self-and object-related approach-avoidance motions. *Journal of Experimental Social Psychology*, **44**(3), 713–720.
Yap, A., Wazlawek, A., Lucas, B., Cuddy, A. & Carney, D. (2013). The ergonomics of dishonesty: The effect of incidental posture on stealing, cheating, and traffic violations. *Psychological Science*, **24**(11), 2281–2289.



https://doi.org/10.1017/langcog.2016.33 Published online by Cambridge University Press