Language & Communication 54 (2017) 82–90

Contents lists available at ScienceDirect

Language & Communication

journal homepage: www.elsevier.com/locate/langcom

Self-regulators – A hidden dimension of interaction: Movement similarity and temporal proximity increase the perception of interpersonal coordination in third party observers

Przemysław Żywiczyński [a], Sylwester Orzechowski [b], Sławomir Wacewicz [a,*]

[a] Center for Language Evolution Studies, Nicolaus Copernicus University, Bojarskiego 1 (Room C.3.32), 87-100 Toruń, Poland
[b] Institute of Psychology, Maria Curie-Sklodowska University, Pl. Litewski 5 (Room 71), 20-080 Lublin, Poland

ARTICLE INFO

Article history:
Available online 17 November 2016

Keywords:
Adaptors
Mimicry
Coordination
Perception of causality
Conversational interaction
Language evolution

ABSTRACT

In everyday circumstances, humans use a variety of cues to draw rich inferences about the nature of interaction. Among these, we focus on sequences of self-regulatory movements, such as touching behaviours and postural changes, that have long been related to interpersonal coordination understood both in terms of mimicry and synchrony. So far, there has been a severe lack of studies on the third party perception of interactional phenomena, including self-regulators. Here, we investigate which elements of the interactional dynamics induce the perception of interactants' behaviours (represented by self-regulators) as causally related, and show that the most important factor responsible for such attribution is the similarity of observed movements. On a more general plane, we hope to make a step towards uncovering perceptual biases that evolved for interpersonal coordination, thus shedding some light on the human interactional potential and its evolution.

1. Introduction

How do people make sense of interaction? In everyday circumstances, humans use a variety of cues to draw rich inferences about the nature of observed interaction between other individuals, such as their relation, affiliation, or relative status. Drawing accurate inferences about the relations between other individuals is key to creating the course of one's interpersonal politics, which has particular significance when considered from an evolutionary perspective. In line with the social brain hypothesis (Dunbar, 1995, 1998; cf. Byrne and Whiten, 1988), diagnosing and navigating one's social environment has been among the major adaptive skills in the ultra-social niche occupied by the members of the genus *Homo* – present as well as past. This ultrasociality, and the social "platform of trust", are the foundations of and phylogenetic prerequisites to large-scale cooperation between non-kin, which in turn enables the unique type of cooperative signalling characteristic of human language (cf. Tomasello, 2008; Dor et al., 2014).

* Corresponding author.
E-mail addresses: przemek@umk.pl (P. Żywiczyński), sylwesto@umcs.pl (S. Orzechowski), wacewicz@umk.pl (S. Wacewicz).

http://dx.doi.org/10.1016/j.langcom.2016.10.008
0271-5309/

Extant research on interaction has focused on identifying and describing specific manifestations of interpersonal synchrony between interactants[1] themselves. But how is this phenomenon perceived by others in the social group? There has been a severe lack of studies on the *perception* of interactional phenomena, perhaps with the notable exception of the research using the eye tracking technology (e.g. Augusti et al., 2010; Keitel et al., 2013; Holler and Kendrick, 2015).

Our starting point is the evolutionarily grounded reflection on perception. The standard position, appealing to the Universal Darwinism position (Dawkins, 1976; Dennett, 1995; Blackmore, 1999), is that natural selection favours veridical perception, i.e. such that is 'consistent with the actual state of affairs in the environment' (Palmer, 1999; for a discussion see Hoffman and Prakash, 2014). However, a competing branch of research using game-theoretic models and genetic algorithms (Mark et al., 2010; Hoffman et al., 2013; Marion, 2013; Mark, 2013) points to the fact that evolution does not favour perceptions that are accurate reports of the environment but rather perceptions that increase *fitness*, i.e. evolution promotes perceptual systems that are simple to grow ontogenetically and robust, use few calories, work fast and are selective in picking up only these elements of the environment that have fitness-related consequences (for a discussion see Hoffman and Prakash, 2014). In terms of this new approach, sometimes referred to as the Interface Perception Theory (Hoffman, 2009; Koenderink, 2011; Hoffman and Prakash, 2014), the perception of interactional phenomena should likewise be geared towards increasing fitness of interacting individuals. We should then expect perceptually salient characteristics of interaction to be of particular fitness-related value to interacting agents.

Specifically, we are interested in how people make sense of interaction – the question that in our research is operationalised in terms of attributing causality between interactional events (cf. the interpretation of social signals in Poggi and D'Errico, 2012): our goal is to determine which elements of the interactional dynamics, understood as both interactants' behaviours and their conversational/discursive roles, induce the perception of these behaviours as causally related (cf. Mehu et al., 2012; Żywiczyński, 2010). We focus on sequences of self-regulatory movements (described below), such as touching behaviours and postural changes, that have long been related to interpersonal coordination understood both in terms of mimicry (LaFrance, 1979; Bernieri, 1988; Chartrand and Bargh, 1999; Butzen et al., 2005) and synchrony (Condon and Ogston, 1967; Kendon, 1970). In doing so, we hope to make a step towards uncovering perceptual biases that evolved for interpersonal coordination, thus shedding some light on the human interactional potential and its evolution.

1.1. Self-regulatory movements

Self-regulatory movements comprise self-touches, object manipulators, and body position changes, and are largely coextensive with Ekman and Friesen's (1969) *adaptors*, and specifically, self-, object- and alter-adaptors. Adaptors are usually performed with no communicative intention (*sensu* Sperber and Wilson, 1986) and with little awareness; however, they are potentially informative in that observers may be able to ascribe meanings, e.g. interpreting them as emotional cues (Ekman and Friesen, 1969). Where we depart from those authors is in the focus on their current role rather than origin. To Ekman and Friesen, adaptors are mostly defined through their ontogeny: they are usually learned early in life, maintained by habit and executed during social interaction (often in reduced form). In contrast, we account for *self-regulatory movements* not in terms of how interactants have come to acquire these behaviours but in terms of their function, which we take to be primarily emotional and cognitive self-regulation.

1.2. Self-touching

We define self-touching as an action in which '[the] hand comes in contact with any part of the body' (Goldberg and Rosenthal, 1986, p. 69). Research on self-touching behaviours (also labelled as self-manipulators [Rosenfeld, 1966], body-focused movements [Freedman, 1972] and self-adaptors or self-manipulators [Ekman and Friesen, 1969; Friesen et al., 1979]) indicates that this type of motor activity may play a role in regulating psychological processes. Initially, self-touching was viewed as regulating negative emotions and arousal (e.g. Dittman, 1962; Ekman and Friesen, 1969; Freedman et al., 1973; Waxer, 1977). Later, these motor actions began to be interpreted in the cognitive context as manifestations of disruption in attentional processes and efforts to overcome such distractions (e.g. Barroso et al., 1978, 1980; Barroso and Feld, 1986). Furthermore, there are studies which examine self-touching along interactional lines. For example, Butzen et al. (2005) determined that self-touches may be motivated by external factors and modelled by self-touching performed by another person. A similar conclusion was drawn by Chartrand and Bargh (1999), who argue that people are more likely to engage in face-rubbing and foot-shaking (i.e. actions that these authors describe as mannerisms) if their co-interactants frequently execute similar actions.

1.3. Object manipulators

Object manipulators comprise such actions as rubbing against, playing with or manipulating a non-animate object, e.g. one's seat, clothing, glasses, pen or pencil, etc. In the psychological literature, they have also been designated as

[1] We follow the Goffmanian usage: 'interactants' refers to parties engaged in an interaction and 'conversants' to parties engaged in a conversation (Goffman, 1969).