LUND UNIVERSITY

Persons and affordances

Lo Presti, Patrizio

Published in:
Ecological Psychology

DOI:
10.1080/10407413.2019.1689821

2020

Document Version:
Publisher's PDF, also known as Version of record

Link to publication

Citation for published version (APA):
Lo Presti, P. (2020). Persons and affordances. *Ecological Psychology*, *32*(1), 25-40. https://doi.org/10.1080/10407413.2019.1689821

Total number of authors:
1

Creative Commons License:
CC BY

General rights
Unless other specific re-use rights are stated the following general rights apply:
Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.
• Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
• You may not further distribute the material or use it for any profit-making activity or commercial gain
• You may freely distribute the URL identifying the publication in the public portal

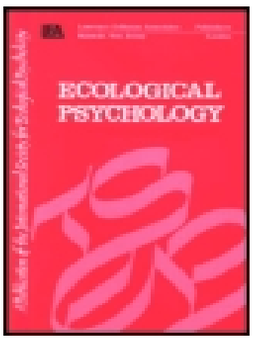
Read more about Creative commons licenses: https://creativecommons.org/licenses/

Take down policy
If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

LUND UNIVERSITY

PO Box 117
221 00 Lund
+46 46-222 00 00

Download date: 13. Sep. 2026



Ecological Psychology

ISSN: 1040-7413 (Print) 1532-6969 (Online) Journal homepage: https://www.tandfonline.com/loi/heco20

Persons and Affordances

Patrizio Lo Presti

To cite this article: Patrizio Lo Presti (2019): Persons and Affordances, Ecological Psychology

To link to this article: https://doi.org/10.1080/10407413.2019.1689821

© 2019 The Author(s). Published with license by Taylor and Francis Group, LLC

Published online: 18 Nov 2019.

Submit your article to this journal

View related articles

View Crossmark data

Full Terms & Conditions of access and use can be found at https://www.tandfonline.com/action/journalInformation?journalCode=heco20

ECOLOGICAL PSYCHOLOGY
https://doi.org/10.1080/10407413.2019.1689821

Routledge
Taylor & Francis Group

REPORT

OPEN ACCESS Check for updates

Persons and Affordances

Patrizio Lo Presti

Department of Philosophy, Lund University, Lund, Sweden

ABSTRACT

Interdisciplinary interest in affordances is increasing. This paper is a philosophical contribution. The question is: Do persons offer affordances? Analysis of the concepts 'person' and 'affordance' supports an affirmative answer. On a widely accepted understanding of what persons are, persons exhibit many of the features typical of socionormative affordances. However, to understand persons as offering affordances requires, on the face of it, stretching traditional understandings of the concept of affordance: persons, in contrast to the organisms that partially constitute persons, do not seem to be available to perception. This and similar worries are responded to.

> The environment for an individual is filled with animate features, and prominent among them are *persons*. That being the case, a full accounting of environmental perception would by necessity include consideration of the information and the processes underlying *person perception*.
>
> – Heft, 2007, p. 86 (emphases added).

Two great theorists of the mid 20th century help us think of persons as offering affordances for socionormative interaction. They are James J. Gibson and Wilfrid Sellars. To my knowledge, few have considered the possibility that two theorist, as opposed in interests as these, have a common lesson to tell.

J. J. Gibson is a de-mentalizer of intelligence and perceptuomotor capacities. On his approach to capacities for intelligent environmental engagements, mediating inferences are taken out of the picture (e.g., 1979, p. 127; Lobo et al., 2018, p. 2).

Sellars, in contrast, is a denier of direct perceptual (or empirical) givenness. Knowing and agency is for him necessarily inferential. Indeed, he spent large parts of his opus classicus (1956) to bury the "Myth of the Given." The myth as he conceived it is the possibility of direct non-inferential knowledge. Thus it seems that Gibsonian ecological psychology cannot account for knowledge or agency from Sellars's inferentialist point of view. Whether this is an apparent or real opposition is discussed in the concluding section (see also footnote 1).

Adverse as J. J. Gibson and Sellars seem – the first, a radical empiricist (1967), advocating non-inferential direct perception and agency, the latter attacking radical

CONTACT Patrizio Lo Presti Patrizio.Lo_Presti@fil.lu.se Lund University, Department of Philosophy, Helgonavägen 3, Lund, 221 00 Sweden.

© 2019 The Author(s). Published with license by Taylor and Francis Group, LLC
This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

empiricism – this paper takes them to jointly have at least one important lesson to teach us: how to think of persons as offering affordances. An introductory note on that lesson is that J. J. Gibson and Sellars shared two theoretical commitments.

The first is methodological behaviorism (Lobo et al., 2018, pp. 2–3; Sellars, 1956, §§53–56). According to it, the existence or relevance of the mental for understanding experience and agency is not denied. But the mental is taken to be a way of acting, not a Cartesian inner thing.

That Sellars is opposed to mentality being 'inner' may surprise readers who know him mainly through secondary literature, associated as he with justice is with inferentialism. Must not mindedness, if inferential, be something 'inner,' mediating between perception and action? Not according to Sellars. For him, inferring is an activity like perceiving and acting, which beings capable to reason can master. It is exclusive to beings at a stage of evolution where they can engage the world mediately and not only in a stimulus-response driven way. The Myth of the Given is the idea that knowing and agency involves no inference. Sellars's inferentialism has it that all knowing and agency involves a capacity to infer, a capacity to participate in that social game, not that agents and knowers always do so.

Though it is not the argument of this paper, it is a mistake to take inferring, or other aspects of our so-called mental lives, to be inner processes. They are *ways of doings* (for overview, see Brandom, 2000; 2004; Steiner, 2014; cf. Schmid, 2018, p. 242).

Inferring and other mental capacities are, in a punchline implicit throughout this paper, activities of beings with those capacities to *immediately* respond intelligently in their environments *mediately*. For instance, the capacity of scientists to *directly perceive* a muon in a cloud chamber rather than inferring it from seeing a hooked vapor trail is a capacity for immediate inferential knowledge. Similarly, the capacity of most of us to *directly perceive* persons, affording interactions different from those afforded by, say, featherless bipeds, is also a capacity for immediate inferential knowledge. That some perception and knowledge is inferential does not contradict that it is direct.

The second commitment shared by J. J. Gibson and Sellars is that human social interaction is *normative*. For Sellars, inferring is a social an normative practice of justifying and being able to justify what one says or otherwise does (1956, §36). Doings count as perception, action, and knowledge, for him, only against a background of abilities to participate in socionormative practices of justification. On the side of J. J. Gibson, a distinctive mark of human behavior is its sensitivity to what is proper and improper (to morality), in contrast to sensitivity only to what is expedient or inexpedient (to biological needs) (cf. 1950; cf. Reed, 1996, pp. 176, 183).

In what follows these two commitments – to mindedness or intelligence as *activity*, and to the *normativity* of the human way of life – overshadow the epistemological tension between direct perceptual knowledge, on the one hand, and the necessity of capacities to infer, on the other.[1] The paper closes with a discussion of the importance of seeing commonalities between theorists as apparently opposed as Sellars and J. J. Gibson in our endeavors to better understand the workings of mind and cognition.

[1]It might be disputed that there is a tension here. J. J. Gibson recognized the importance of indirect experience and "mediated perception" in the context of, e.g., language (1966, pp. 234, 280–282), for intersubjective transmission of awareness of the non-immediate environment (cf. Heft, 2007, p. 89). The tension is re-considered and a promissory note how to resolve it given in the concluding section.

With that introduction, the main theme of this contribution is staked out. It begins with a discussion of affordances (sect. "Affordances"), followed by a discussion on what persons are (sect. "Persons"). It is then argued that persons offer socionormative affordances (sect. "Persons offer affordances").

Affordances

The debate on what affordances are is extensive (see, e.g., Chemero, 2003; 2009; Costall, 1995, 2012; Heft, 2007, 2013a/b; Shaw et al., 2019; Stoffregen, 2004; Zipoli Caiani, 2013; for overview, see Lobo et al., 2018, pp. 7–8).

Our question is if persons offer affordances and, if so, what kind of affordances. This section asks: If persons offer affordances, what are *affordances*? The next section asks: If affordances are offered by persons, what are *persons*? The approach to affordances offered in this section is that they are relational. The approach to persons offered in the next section is that persons are partially constituted by organisms, but organisms with socionormative statuses.

In general, affordances are expressed in attaching the adjective forming suffix -able to a verb. Thus medium sized stones are throw-able – afford throwing – and some trees are climb-able – afford climbing. Affordances are possibilities for action offered animals in an environment relative to bodily capacities (Heft, 1989, pp. 14–15). They are relations. Stones do not afford throwing for ants, but do so for most human beings, and trees do not afford climbing for elephants, but do so for suitably developed monkeys.

The relativity of affordances to capacities of organisms-in-environment suggests a sense of the term, along J. J. Gibson's, when he first introduced it:

> *affordances* of the environment are what it *offers* the animal, what it *provides* or *furnishes*, either for good or ill. The verb to *afford* is found in the dictionary, but the noun *affordance* is not. I have made it up. I mean by it something that refers to both the environment and the animal in a way that no existing term does. It implies the complementarity of the animal and the environment. (1979, p. 127),

and the

> natural environment offers many ways of life, and different animals have different ways of life. The niche implies a kind of animal, and the animal implies a kind of niche. Note the complementary of the two. (ibid, p. 128)

Active organisms and their environment of affordances constitute ecological systems, or eco-niches (J. J. Gibson, 1979, pp. 128–130; Reed, 1996, p. 43). As organisms interact socially and with the environment they can alter the environment and thereby enact possibilities for further action (Odling-Smee et al., 2003; Laland et al., 2016). Activity is constrained and enabled by how organismic embodiment and the eco-niche co-imply possibilities for action (J. J. Gibson, 1979, p. 129; Heras-Escribano & de Pinedo-García, 2018a). An eco-niche is not merely a physical environment, but refers to *how* a kind of animal lives. So, first, affordances are relations.

Second, J. J. Gibson found that affordances can be *social* (1966, p. 23; 1979, p. 129). Several authors in the field have found the social, cultural, and normative nature of affordances especially important (e.g., Chemero, 2009, pp. 119–122, 147–148; Heft,

2001, p. 134; Heras-Escribano & de Pinedo-García, 2018a; Lo Presti, 2016a; Rietveld, 2012a, pp. 22, 28; 2012 b; Rietveld & Kiverstein, 2014).

Many kinds of organisms are social in the sense that they live and act together, e.g., in construing nests and modifying their eco-niche. But not all social species act *to create common significance*. For instance, an anthill is socially constructed, but it is a physical structure. Social species can alter their shared physical environment, but not all alter the common significance of their shared environment. Thus, while affordances can be social, we may provisionally distinguish among social affordances those that are and those that are not cultural. The distinction may be understood relative to Gibson's observation that though social others are sources of stimuli like other inanimate beings, social others nevertheless provide stimuli "of an entirely different order" (1966, p. 22; for overview, see Heft, 2017). Together, social beings can engage in the co-creation of meaningful environments, which continuously affect their further engagement in shared sociomaterial practice (J. J. Gibson, 1979, p. 130; Rietveld & Kiverstein, 2014, p. 329). In enacting such environments, individuals simultaneously constrain themselves to norms in their context. Studies on behavior settings and place perception (Heft et al., 2014) suggest that experience of participation in sociomaterial practice in specific environments allows individuals to perceive what kind of sociomaterial context others act in although the only accessible perceptual stimuli are behavior patterns.[2] One interpretation of this is that norms that have been enacted to constrain behavior in the context of a setting help people determine what setting others act in even if they only perceive behavior patterns.

The realm of affordances covers the whole field of sociocultural interaction relative to institutional and normative contexts (cf. Rietveld & Kiverstein, 2014, p. 326). The social becomes constitutive of our eco-niche (Heft, 2007; 2013a; cf. Costall, 1995; van Dijk & Rietveld, 2017). This helps interpret Gibson's not entirely perspicuous notion of stimulus "of an entirely different order" as a sociocultural and normative order materially realized as beings engage in the co-creation of meaning. This reminds of what van Dijk & Rietveld (2017) call "sociomaterial practice" and it will turn out, in the next section, that Sellars suggests a differentiation of "orders," similar to J. J. Gibson's, when he speaks of persons as different from their partially constituting organisms.

An interpretation of John Searle's (1995; 2010) philosophy of social reality, which ties it to the notion of affordances and sociomateriality in a way he himself does not, is interesting here (cf. Lo Presti, 2013, 2016b). According to Searle, social reality is a complex of so-called status functions, encoded in the formula "X counts as Y in C." Objects X (pieces of paper, say) serve some social function Y (10$bills) in the context of community C (the US), by way of people recognizing X to count as Y in C. This opens a realm of novel actions specified by the Y-term. Once Xs acquire function Y in context C people can use Xs in ways proper (or not) for Ys in C.

Searle comes close to saying that, in such cases, X *affords* Y in C – X become treatable as Ys in C (e.g., 1995, p. 20). And once Xs are treated as Ys novel possibilities for

[2]Subjects were able to detect "family-resemblances" by extracting "structure from motion," perceiving the setting others act in as more familiar to, e.g., a waiting hall than to a shop, while the perceptual stimuli were restricted to behavior patterns. Presumably, this is because subjects were able to detect what norms the behavior was constrained by as associated with the sociomaterial practices in the context of a family of settings.

action become available. He contrast such status functions with brute functions of, e.g., a screwdriver for driving screws, or a bench for sitting, courtesy their physical properties. The distinction can be compared with that between nonsocial affordances of, e.g., surfaces and stones offering support, on the one hand, and sociocultural affordances of, e.g., ceremonial objects offering religious contemplation, on the other, quite independently of their physical properties.

Concerning the ability of people to engage in cooperative behavior (or collective agency), Searle (1990, pp. 415–416) says that this is an ability to have a "sense of community" with others as candidates for cooperative behavior. This is not far from an echo of J. J. Gibson when he says that "what the other animal affords the observer is not only behavior but also 'social interaction'" (1979, p. 42; cf. Lo Presti, 2016b, p. 423; Reed, 1996, Chapter 8). Arguably, though, cooperation requires more than social interaction, which may be non-cooperative. From an ecological psychologist's point of view, Searle can be interpreted as saying that objects afford sociomaterial practice and that others afford cooperation.

It is then possible to understand the nature of social and institutional reality as a complex of social affordances we construe to ratchet ourselves to a level of novel sociomaterial practice unseen among known non-human animals (cf. Tomasello et al., 2005). Thus stone buildings afford treatment as churches, which afford marriage, baptism and a massive range of sociocultural practice; individuals afford treatment as priests, which afford interaction in ways relative to sociocultural practices; and some ceramic objects afford treatment as urinals, which may afford being exhibited at an art gallery. The social, material, and cultural becomes entangled in sociomaterial practices affording normative action (Costall, 2012; van Dijk & Rietveld, 2017).

The suggested sociomaterial and cultural nature of affordances has two important consequences. The first may be objectionable, while the second, implied by the first, is welcomed by many (cf. Heras-Escribano & de Pinedo-García, 2016).

The first is that if sociocultural affordances are enabled by collective intentionality, the way Searle suggests, they seem to presuppose intentional states: e.g., believing or recognizing *that X is Y in C*, whereby Y comes to afford novel practices. This seems to violate the original idea that affordances are specifiable independently of mental states. We must then ask whether affordances are, as it were, in the intentionality of participants to sociocultural practices. If so, they are not affordances in the traditional non-mentalistic sense.

The worry is not as grave as it seems. For if we think of mind and intentionality as an adverbial feature of being – as a way of *acting* that some species develop – then the fact, e.g., that a stone affords worshiping, is a fact about what can be *done* in the relevant sociocultural niche and sociomaterial practices of community. In fact, it can be argued that all there is to mindedness is ways of acting.

Many philosophers, long before the concept of affordance was introduced, perhaps Kant most notably, emphasized precisely that mind is not some special kind of Cartesian inner stuff but rather a way of acting (cf. Ryle 1949/2009; Brandom, 2004; 2006; Schmid, 2018, p. 242; Steiner, 2014). Arguably, a reason why it is worrying that (some) affordances may presuppose intentionality is a dated concept of mind as *inner beingness* whereas, instead, mindedness can be conceived as ranges of afforded *activities*.

Thus worship is not as intentional state curled up 'in' mind but is a possible act, i.e., worship-*ing*, in the sociomaterial practices of community. We may also argue that though some species have developed capacities to respond not only to physical features, such as surfaces and trees, relative to bodily capabilities, but also to sociocultural features, such as sentences and social significances of objects, relative to shared intentionality, it does not follow that the affordances of surfaces and trees are relative to shared intentionality. What follows is that some animals' capacities to *think* enable them to perceive and respond to sociocultural affordances.

The idea of intentionality-dependent affordances does not, then, imply that such affordances are constituted by and responded to by something 'in' minds, if mindedness is construed as a range of afforded activities. Nor, and independently, do species-specific capacities to perceive and respond to intentionality-dependent affordances mean that all affordances are intentionality-dependent. Instead, if some species reach the evolutionary stage of being able to think, *thinking* is an act afforded by features of the environment and thinking in turn *affords* the constitution of a novel realm of action. This is a new way of acting which does not upset the nature of affordances antecedent to that evolutionary stage.

The second consequence of conceiving (some) affordances as sociocultural is that affordances play a *normative* role (Gibson 1950; Heras-Escribano & de Pinedo-García, 2018b; Lo Presti, 2016a; Rietveld & Kiverstein, 2014). If a stone, say, affords worshiping by kissing it in the context of sociomaterial practices of some religious culture, then it is *correct* to kiss it and, perhaps, *incorrect* to urinate on it, in the context of that culture (cf. Heft, 2013c). *Abuse* and *violation* become issues in the context of social practice as a consequence of how actions and interactions are treated in community. A police officer can abuse the power to use the force his status affords. Money can be forged, whereby monetary regulations of a community are violated. In that sense, sociocultural affordances are normative and materially realized.

> All these affordances are situated, but concretely available aspects of the sociomaterial environment to coordinate to. (van Dijk & Rietveld, 2017, p. 6)

That is, standards for assessing actions as correct or incorrect, appropriate or not, in a sociocultural niche become part of the social practices of the community (cf. Rietveld, 2008, 2012b).

Perhaps some would interpose that the original idea of affordances as possibilities to act relative to kinds of animals in their niche is already a normative idea in the sense that it is correct for, say, a pigeon to perceive an earthworm as edible, responding to it by (trying) to eat it, and incorrect for it to perceive a dolphin as edible, responding to it by (trying …) to eat it. Thus (non-sociocultural) affordances are implicitly normative in the sense of furnishing success-conditions for behavior. That seems right, but we nevertheless need to acknowledge, as J. J. Gibson did (1950), a difference between an *instrumental* or *success-conducive* sense of normativity, on the one hand, from normativity in the sense of *oughts*, or *deontology*, on the other. The latter can be thought of as rights, duties and standards for assessment of the correctness of action (Searle 2010, Chapter 7), as opposed to whether some action is instrumental for desire-satisfaction. According to J. J. Gibson, human behavior is normative precisely in the sense of meriting

assessment relative to proprieties, whereas known non-human animal behavior is normative in the instrumental sense of being more or less expedient (1950, pp. 153–155).

To illustrate the difference, if a stone is treated as a holy object in the context of some community, we should say that members of that community *ought* to respond to it as is considered proper, not only that it is *instrumental* to do so. To acknowledge this difference is to appreciate the difference between the instrumental desire-satisfaction, or success-normativity implicit in, say, a pigeon's responses in its niche for digestion and survival, on the one hand, and the normativity of, say, a preschool teacher in his or her attempts to differentiate proper from improper treatment of children, quite irrespective of its effects on his or her digestion and survival, on the other (cf. Heras-Escrinao & de Pinedo-García, 2018b). The preschool teacher's desire, e.g., for food, might on a specific occasion be more successfully satisfied by leaving the children and go to the lunchroom, even if it would be improper. What is correct in a sociomaterial practice often has nothing to do with instrumental norms, but rather with the deontological system of obligations, entitlements, commitments (as felt by the individual or as is explicit in rules regulating the practice).

So, sociocultural affordances are normative. They open a realm of normativity different from the instrumental normativity implicit in affordances relative to bodily capabilities and nonsocial physical features of the environment. This is again reminiscent of Searle's notion that status functions relative to collective recognition, in contrast to functions relative to brute physical features alone, imply a deontology or, as he puts it, power relations (2010, Chapter 7). We can say that owning a piece of paper treated as a 10$bill *affords* (pun intended) certain powers in the context of sociomaterial practices of a community treating certain pieces of paper as a medium of exchange. One can buy things with it. Owning a $10bill affords a novel range of proper (and improper) actions (cf. Lo Presti, 2016a, pp. 7–8).

The claim advanced here is that if we understand affordances as relational, sociocultural and normative then it will not be far-fetched to claim that persons offer affordances. What that means is the topic of the next section.

Persons

If socionormative affordances are offered by persons, what are *persons*? Answering that is the aim in this section.

We may consider persons as something animals afford treatment as. To approach the issue, philosophy teachers are fond of asking students: What is it to be human, apart from being a featherless biped? One response is that humans treat each other in normative ways – as persons. In this connection, Sellars gives a clue:

> To think of a featherless biped as a person is to think of it as a being with which one is bound up in a network of rights and duties. From this point of view, the irreducibility of the personal is the irreducibility of the 'ought' to the 'is'. But even more basic than this […] is the fact that to think of a featherless biped as a person is to construe its behaviour in terms of actual or potential membership in an embracing group each member of which thinks of itself as a member of the group. (1962, p. 76)

From this we may extract the following insight. For something to be a person is for it to be treated as "normatively involved." We treat something as normatively involved

when we take it to be *entitled to proper* or *responsible* treatment, accordingly as we take it to have claims (whether it knows it or not) on our so treating it. This, it seems, is not an entitlement exclusive to featherless bipeds but, as Sellars also recognized (ibid., p. 77), includes also dolphins, Martians, etc., too. Thus we can, as it were, *personify* any X in the transitive verb-sense; X is person-able insofar we take X to merit responsible interactions (even if X cannot do so, in which case X is not, in Sellars's terms, part of our community, but nevertheless treatable as a person by us). X could be substituted for all kinds of animals, as well as corporations, committees, political parties and groups, which can be assessed as responsible (de Prado Salas & Zamora-Bonilla, 2015; In press). We personify them in taking them to entitle us to treat them as responsible and as entitled to us treating them responsibly. In this sense, a community can be *a person* – not because it is a special kind of *thing* but because we treat it as normatively involved.

To put a Gibsonian gloss on Sellarsian persons and a Sellarsian gloss on the Gibsonian notion of stimuli of a different order: treating an organism as a person is entering a relation which offers stimuli affording responsible interactions according to rights and entitlements and not only physical responsiveness according to what is expedient. If the treatment is mutual we have a community each member of which treats each other as no mere 'it' but as affording interactions assessable in light of 'oughts.'

One problem with conceiving of persons as offering socionormative affordances is that affordances are to be directly perceptually available. This raises the question whether *persons* rather than, say, featherless bipeds, are directly perceived. If persons are not directly perceived, how can they offer affordances? Do we *see* another as a candidate for cooperative behavior and as someone entitled to proper treatments, with commitments and entitlements, rather than as another physical being from which we *infer* the former? Two tentative responses will be considered.

First, elsewhere I have argued that we can directly perceive "communally shared states of mind of recognition or acceptance of statuses of persons" (2016 b, p. 426). If we share social environments, affording shared ranges of normatively sanctioned practices accordingly as they are recognized in community, then we *see* community intentions expressed in individual behavioral responsiveness to sociocultural affordances in the context of shared social environments. For present purposes, the claim is that to take others to be normatively involved, i.e., to merit being treated responsibly according to social norms, is to take them to be persons. Beings who merit normative involvement *afford* being responded to as persons. Thus we may indeed see *persons* (rather than featherless bipeds) insofar we *see* others involved with us in normative relations in shared sociomaterial practices.

A second response to the problem how persons, as socionormative beings, can be perceived is given by Rietveld and Kiverstein. They emphasize that to think of affordances as providing a "spectrum of social significance" is not really an unorthodox extension of the concept (2014, p. 327). It is, in fact, a quote from J. J. Gibson (1979, p. 128). J. J. Gibson already spoke of affordances as social in saying, "what the other animal affords the observer is not only behavior but social interaction" (ibid, p. 42). In this respect, understanding others can indeed consist in perceiving them to afford social interaction. As Gallagher (2011, p. 68) puts it, perception can be "*for inter-action*". In

addition, I have argued that if perception for interaction in shared sociocultural niches implies ways of normatively correct interaction, then perception, in the context of such niches, can be *for normative inter-action* (Lo Presti, 2016a, p. 10). This reminds also of Heft's claim that individuals, when sharing social environments, "must agree, usually tacitly, to adhere to a set of socially normative practices" (2013 b, p. 165). In the context of sociomaterial practices of community, a basic sense of normativity "is revealed when we distinguish … correct from incorrect … in the context of a specific situation" (Rietveld, 2008, p. 974; cf. Hera-Escribano & de Pinedo-García, 2018b). Thus norms, and norms associated with *persons* in a shared sociocultural niche, may indeed be perceptually available. The norms that qualify an organism as a person, then, can be perceptually available if a sociomaterial practice of treating organisms as persons is in place.

Hence we persons can be seen and directly responded to normatively as persons rather than as physical others inferred to be persons. To paraphrase van Dijk and Rietveld,

> doors [or persons] are not only hinging vertical surfaces [or featherless bipeds] but are *doors* [*persons*] that can solicit opening or keeping closed [proper or improper treatment …] All these affordances are situated, but concretely available aspects of the sociomaterial environment. (2017, pp. 5–6)

We do not first see physical bodies and then infer that they are persons. Organisms treated to be involved in normative relations are persons and are as such not abstract social statuses but participants to sociomaterial practices (cf. ibid., p. 3). Similar to how a door can be directly responded to by a skilled craftsman in the context of her sociomaterial practice in such a way that she sees it to require correcting (Rietveld, 2008, pp. 6–8), others can be directly responded to as persons in the context of sociomaterial and normative practices of a community in such a way that individuals see each other as entitled and committed to proper, responsible, treatment. (A difference being that doors are not perceived as things with rights and duties, whereas persons are.) So, the idea that affordances are directly perceived does not make the idea that persons offer affordances problematic. Persons can be directly responded to as affording normative treatment. To merit normative treatment is exactly what it means to be a person, on the present account.

Thus a strong case can be made that persons offer normative affordances in sociomaterial practices. Participants are mutually responsive primarily to *proprieties of actions* rather than to *properties of things* (Reed, 1996, p. 176; Rietveld & Kiverstein, 2014, p. 344). An individual capable to reliably differentiate among affordances those that are relevant for interacting with persons from those relevant for interacting with others as mere organisms is a skilled participant to the sociomaterial practices of community (cf. Rietveld, 2008; van Dijk & Rietveld, 2017, p. 8).

There is a second, independent, response to the worry that if persons are not directly perceived then they, as opposed to the organisms that partly constitute them, do not offer affordances. The second response is that seeing one and the same kind of thing affording different actions can be taught, without any changes in the kind of thing seen (E. J. Gibson, 1969). Members of species at a stage of evolution where they can treat, say, a stone as a holy object can learn to see some stones to be holy objects rather than

mere stones (cf. Gallagher, 2008a/b; Heft, 2013c). Being taught to see, e.g., traffic lights, make us directly aware of what to do, in the sense of directly responding to their affordances. We learn to see traffic lights rather than mass and shape, and thereby learn to respond to the affordances of traffic lights rather than the object's mass and shape. This does not mean that the mass or shape changes, but that our *way of seeing* changes. It is a process of change in seeing analogous to how cosmologists became able to *see* Neptune. Before they had the proper technology and teaching they could only infer its existence and position. With the right technology and teaching, they could see it, without any changes in the planetary body. Similarly, without the proper upbringing we may be unable to *see* persons, and their associated affordances. Seeing each other as persons is a change in our social relations, not in our organismic nature. Being brought up in community teaches us to do see persons (cf., e.g., Szokolszky & Read, 2018, pp. 25–26; cf. Heft, 2018).

To summarize, persons are social and normative statuses afforded some beings. Persons are part of social ontology (Baker, 2005, 2015). That is as expected, given that understanding others as persons rather than as featherless bipeds is a socionormative understanding – the capacity to understand and interact with others as is proper in the context of social practice. Treating others as persons, then, opens for socionormative interaction. Organisms with the capacities to do so can see others to afford special treatment, and respond appropriately (or not).

Before proceeding, let me explain how the idea that persons are social and normative is not incompatible with persons being natural organisms. What is claimed is that organisms afford treatment as persons while, ontologically, persons are partially constituted by organism. The person-status is not eliminable or reducible to descriptions of the physical properties of constituting organism (Baker, 2017; cf. Heft, 2007, p. 90). Persons exist only if a deontology is in place in community – a set of social proprieties. These proprieties do not reduce to properties of constituting organisms. So, for there to be affordances of persons requires, to be sure, *some things* to be persons. But it is not sufficient. Since affordances of persons are social and normative, it is necessary that the things that partially constitute persons be taken to merit normative treatments. Otherwise there are no persons.

Persons, then, are partially constituted by organisms, but their physical nature does not exhaust their nature all things considered. They are also partially constituted by proprieties; that is, by the ways it is proper to interact in community. Baker puts it thus: one can "take the nature of a human organism to be whatever biologists tell us it is," be "a Darwinian about human animals [and] not believe that our animal nature exhausts our nature all things considered" (2005, p. 26). Exclusive focus on our animal nature leaves out of the picture our socionormative being as persons; our being agents, rather than mere organisms as a pure descriptivist account would have it (Heras-Escribano & de Pinedo-García, 2018b, pp. 83, 87; cf. Brandom 2000; 2009; Sellars, 1962; Steiner, 2012; 2014).

That said, further analysis and properly interpreted empirical studies are necessary to settle whether the claim that persons offer socionormative affordances has practical significance for psychology. One way to proceed is to try to pinpoint a developmental stage or period at which children begin to respond to others in ways indicative of a

sense of responsibility, where previously they did not. This would be the development not of capabilities for mere *responsiveness* to others' behaviors, to routines, or to expediency,[3] but the development of capacities to respond *responsibly* and to perceive others to be blame-able, laud-able, sanction-able, or in other ways affording normative assessment (e.g., Rakoczy et al., 2008; Rakoczy et al., 2009; Rakoczy & Schmidt, 2013). If, at some developmental stage, increased responsiveness of that type is exhibited, that would, provisionally, be indicative of (a developmental pre-cursor to) a capacity to *see persons*.

Developmental psychologists, e.g., Rakoczy and colleagues, have studied the developmental origin of an understanding of rules in game contexts in an attempt to study the development of an understanding of normativity. But, as is pointed out by Brinck (2014; 2015), those studies do not warrant conclusions concerning the developmental origin of an understanding of social norms. The reason is that behaviors may be appropriate or not, i.e., normative, quite independently of rules *stating that* they are appropriate or not (Lo Presti, In press). Similarly, that persons are normative statuses of organisms does not mean that it is necessary to know rules in order to respond to others as persons. Hence, a cautionary note for studies on the development of a responsiveness to others as persons is to not confuse the fact that that status can be codified by rules in a community, on the one hand, with the normativity presupposed by such codification, on the other. Children may learn how properly to respond to and treat others as persons without knowing rules or principles used to codify such proprieties.

Next, I conclude with a discussion whether persons can indeed to be taken to offer socionormative affordances in the way proposed, and what the consequences are.

Persons offer affordances

The proposal is that it is not outrageous to say that persons offer affordances. The concepts 'person' and 'affordance' invite us to consider the possibility. The capacity to see persons is a capacity to respond differentially to others as affording normative interaction in the context of sociomaterial practice.

Persons are not merely physical and environmental analogous to support-able surfaces or (non-)edible things. They are sociomaterial – constituted by organisms taken to be entitled to responsible treatment according to norms. Persons afford normative interaction as trust-able, respect-able, sanction-able, and so on, in ways stones, surfaces, urinals, etc., do not. J. J. Gibson (1966; 1979) already noted the special way in which others not only afford behavior but social and normative interaction. And Sellars noted the irreducible normativity of persons.

What might be troubling is that persons do not seem to be available in the ambient optic array the way their partially constituting organisms are. The trouble then is how we may be directly perceptually aware of the affordances persons offer, as opposed to those offered by their partially constituting organisms. The response to that worry, submitted above, is that others can be *seen* to be socially and normatively involved,

[3]Reading Reed's (1996, Chapter 9) discussion on "becoming a person" it is easy to be dissatisfied that responsiveness to norms or proprieties involved in being a person is mentioned only once, and then in the context of how being responsive in that sense is expedient to elicit interaction (pp. 133–134, 137–138).

affording and enabling proper, responsible, interaction. Sellars's idea that, e.g., muons, though inferentially known, can be directly seen is an example of such an account. J. J. Gibson's idea that others provide sources of stimulation "of an entirely different order," interpreted as a socionormative order, is another example.

Both the Gibsons did important work in the context of perceptual learning: James on affordances of cultural communities and educated attention (1950, p. 155; 1979, pp. 138–139; cf. Heras-Escribano & de Pinedo-García, 2018a, pp. 10–11), and Eleanor on perceptual learning in development (1969; E. J. Gibson & Pick 2001; see also Heft, 2007, pp. 96–98; 2013 b; Lobo et al., 2018, p. 8). Keeping in mind Sellars's notion of community standards, the embedding in which makes the difference between persons and organism (1962, pp. 76–77), it is interesting to read Heft's clarification of J. J. Gibson's thoughts on how individuals can be aware of collective and social practices and structures. Commenting on Gibson's postbox-example (1979, p. 139), Heft writes:

> Without a general awareness of the relevant background *collective processes*, the various actions involved in posting a letter are nonsensical from the standpoint of the individual engaging in them or anyone else observing these actions. In this sense, the postbox is a "live possibility" for action – an affordance relative to an individual socialized in a community with a postal system. (Heft, 2017, p. 137; emphasis added)

This way of situating awareness of sociocultural affordances in the context of "collective processes" is reminiscent of Sellars's situating the nature of persons in the context of community standards. It supports the argument submitted here, that persons offer affordances in the context of community standards, and that socialization in community educates attention to others as persons (Heft, 2001, pp. 134–135; 2017, pp. 138, 140; cf. Heft et al., 2014; Shaw et al., 2019, p. 56).

The socionormative interactions persons afford seem, though, to be exclusive to beings capable of normative attitudes. To treat something as a person is to treat it normatively – to think of it in terms of proprieties, quite independently of its physical properties (Heras-Escribano & de Pinedo-García, 2018 b, pp. 90–91). This implies that perhaps some affordances are *for thought*, for *thinking*. For instance, might the capacity to perceive persons be, among other things, a capacity to be responsive to affordances *for inferring* how to properly treat others? I have argued that even if this were the case it is not thereby shown that persons cannot be taken to offer socionormative affordances, because inferring can be a direct response to the perceived. Inferring is social and normative activity.[4]

To close, recall the introductory discussion on the differences between J. J. Gibson and Sellars. Knowledge by direct perception of affordances, advocated Gibson, and knowledge as inferential, advocated by Sellars, are archetypes of opposed pairs in epistemology. I promised a tentative easing to this tension, and here it is.

The opposition is real *if* one works with a concept of inference familiar from, e.g., predictive coding accounts, on which inferring is a skull-bound, internal cognitive and world-secluded process (Hohwy, 2016, p. 259). But that is not Sellars's concept.

Inferring, for Sellars, is not an internal manipulation of representations. It is a social practice of offering and demanding reasons. Robert Brandom, Sellars's perhaps most

[4]In fact, according to Brandom (2008, p. 115; 2015, p. 115), Sellars's construal of 'inference' is one on which we can *directly perceive norms*, if we master the right reliable responsive dispositions.

vocal interpreter and colleague late in Sellars's career, is explicitly anti-cognitivist, non-internalist, non-representationalist and non-individualist in his advocating inferentialism (e.g., 2004). On Brandom's development of Sellars, inferential practice is dialectic, normative and often sociomaterial. It involves skillful engagement within a field of affordances (which is not a terminology Sellars or Brandom would use). Inferring does not require capacities for explicit, formal reasoning. The inferring involved in, e.g., taking another person to be sad or happy can be a matter of further sociomaterial and normative engagement – e.g., by comforting or enthusing. It is exploratory engagement and need not, but can, involve explicit deliberation.

A reexamination of the concept of inference has been initiated (e.g., Clark, 2016; Gallagher & Allen, 2018; Steiner, 2014). The endeavor is important, considering how 'direct perception' and 'inference' are routinely (ab-)used to draw lines of opposition in philosophy, cognitive science, and perhaps most notably between approaches to social cognition. If there is a perspective from which such oppositions can be exposed as spurious, it may fruitfully be sought where typically unassociated lines of though approach contested concepts from opposite – not thereby opposed – points of departure.

Attempts to so reconcile seemingly unassociated perspectives help turn the wheels of conceptual systems into positions that make a previously unseen whole appear. One example is J. J. Gibson's reaction to the radical empiricism he inherited and the behaviorism of his day, helping him to arrive at an ecological conception of psychology. Another example is Sellars's criticism of the radical empiricism of his day, the pragmatism and behaviorism he inherited, which together helped him arrive at what might be called a pragmatist inferentialism in the philosophy of mind.

On that note, submitted is a Sellarsian approach to persons which, keyed to an ecological approach to perception, takes persons to offer socionormative affordances.

Acknowledgements

I want to thank Harry Heft, Manuel Heras-Escribano, Ingvar Johansson, Erik Rietveld and Jesús Zamora-Bonilla for constructive criticism and comments.

Funding

Vetenskapsrådet (Swedish research council).

References

Baker, L. (2005). When does a human person begin?. *Social Philosophy and Policy*, *22*(2), 25–48. doi:10.1017/S0265052505052027

Baker, L. (2015). Human persons as social entities. *Journal of Social Ontology*, *1*(1), 77–87. doi:10.1515/jso-2014-0037

Baker, L. (2017). Naturalism and the idea of nature. *Philosophy*, *92*(3), 333–349. doi:10.1017/S0031819117000092

Brandom, R. (2000). *Articulating reasons*. Cambridge, MA: Harvard University Press.

Brandom, R. (2004). From a critique of cognitive internalism to a conception of objective spirit: Reflections on Descombes' Anthropological Holism. *Inquiry*, *47*(3), 236–253. doi:10.1080/00201740410006357

Brandom, R. (2006). Kantian lessons about mind, meaning, and rationality. *The Southern Journal of Philosophy*, *44*(S1), 49–71. doi:10.1111/j.2041-6962.2006.tb00030.x

Brandom, R. (2008). *Between saying and doing*. Oxford: Oxford University Press.

Brandom, R. (2009). *Reason in philosophy*. Cambridge, MA: Harvard University Press.

Brandom, R. (2015). *From empiricism to expressivism*. Cambridge, MA: Harvard University Press.

Brinck, I. (2014). Developing an understanding of social norms and games: Emotional engagement, nonverbal agreement, and conversation. *Theory & Psychology*, *24*(6), 737–754. doi:10.1177/0959354314555792

Brinck, I. (2015). Understanding social norms and constitutive rules: Perspectives from developmental psychology and philosophy. *Phenomenology and the Cognitive Sciences*, *14*(4), 699–718. doi:10.1007/s11097-015-9426-y

Chemero, A. (2003). An outline of a theory of affordances. *Ecological Psychology*, *15*(2), 181–195. doi:10.1207/S15326969ECO1502_5

Chemero, A. (2009). *Radical embodied cognitive science*. Cambridge, MA: MIT Press.

Costall, A. (1995). Socializing affordances. *Theory & Psychology*, *5*(4), 467–481. doi:10.1177/0959354395054001

Costall, A. (2012). Canonical affordances in context. *Avant*, *3*(2), 85–93.

de Prado Salas, J. G., & Zamora-Bonilla, J, (In press). Rational golems: Collective agents as players in the reasoning game. In P. Stowall (Ed.), *Inferentialism and collective intentionality*. Germany: Springer.

de Prado Salas, J. G., & Zamora-Bonilla, J. (2015). Collective actors without collective minds: An inferentialist approach. *Philosophy of the Social Sciences*, *45*(1), 3–25. doi:10.1177/0048393113520397

Gallagher, S. (2008a). Direct perception in the intersubjective context. *Consciousness and Cognition*, *17*(2), 535–543. doi:10.1016/j.concog.2008.03.003

Gallagher, S. (2008b). Inference or interaction: Social cognition without precursors. *Philosophical Explorations*, *11*(3), 163–174. doi:10.1080/13869790802239227

Gallagher, S. (2011). Interpreting embodied cognition. In W. Tschacher, & C. Bergomi (Eds.), *The implications of embodiment: Cognition and communication* (pp. 59–70). Exeter: Imprint Academic.

Gallagher, S., & Allen, M. (2018). Active inference, enactivism and the hermeneutics of social cognition. *Synthese*, *195*(6), 2627–2648. doi:10.1007/s11229-016-1269-8

Gibson, E. J. (1969). *Principles of perceptual learning and development*. East Norwalk, CT: Appleton-Century-Crofts.

Gibson, E. J., & Pick, A. D. (2001). *Perceptual learning and development: An ecological approach.* New York, NY: Oxford University Press. doi:10.1093/mts.2001.23.2.264

Gibson, J. J. (1950). The implications of learning theory for social psychology. In J. G. Miller (Ed.), *Experiments in social process: A symposium on social psychology* (pp. 149–167). New York, NY: McGraw-Hill.

Gibson, J. J. (1966). *The senses considered as perceptual systems*. Boston, MA: Houghton Mifflin.

Gibson, J. J. (1967). James J. Gibson and the psychology of perception. In E. G. Boring, & G. Lindzey (Eds.), *The century psychology series. A history of psychology in autobiography, vol.* 5 (pp. 127–143). East Norwalk, CT: Appleton-Century-Crofts.

Gibson, J. J. (1979). *The ecological approach to visual perception*. New York, NY: Psychology Press.

Heft, H. (1989). Affordances and the body: An intentional analysis of Gibson's ecological approach to visual perception. *Journal for the Theory of Social Behaviour*, *19*(1), 1–30. doi:10.1111/j.1468-5914.1989.tb00133.x

Heft, H. (2001). *Ecological psychology in context: James Gibson, Roger Barker, and the legacy of William James's Radical Empiricism*. Mahwah, NJ: Lawrence Erlbaum.

Heft, H. (2007). The social constitution of perceiver-environment reciprocity. *Ecological Psychology*, *19*(2), 85–105.
Heft, H. (2013a). An ecological approach to psychology. *Review of General Psychology*, *17*(2), 162–167. doi:10.1037/a0032928
Heft, H. (2013b). Environment, cognition, and culture: Reconsidering the cognitive map. *Journal of Environmental Psychology*, *33*, 14–25. doi:10.1016/j.jenvp.2012.09.002
Heft, H. (2013c). Ecological psychology and religious meaning: Strange bedfellows?. *Religion, Brain & Behavior*, *4*(2), 152–154. doi:10.1080/2153599X.2013.816341
Heft, H. (2017). Perceptual information of "an entirely different order": The "cultural environment" in *The Senses Considered as Perceptual Systems*. *Ecological Psychology*, *29*(2), 122–145. doi:10.1080/10407413.2017.1297187
Heft, H. (2018). Places: Widening the scope of an ecological approach to perception-action with an emphasis on child development. *Ecological Psychology*, *30*(1), 99–123. doi:10.1080/10407413.2018.1410045
Heft, H., Hoch, J., Edmunds, T., & Weeks, J. (2014). Can the identity of a behavior setting be perceived through patterns of joint action? An investigation of place perception. *Behavioral Sciences*, *4*(4), 371–393. doi:10.3390/bs4040371
Heras-Escribano, M., & de Pinedo-García, M. (2016). Are affordances normative?. *Phenomenology and the Cognitive Sciences*, *15*(4), 565–589. doi:10.1007/s11097-015-9440-0
Heras-Escribano, M., & de Pinedo-García, M. (2018a). Affordances and landscapes: Overcoming the nature-culture dichotomy through Niche Construction Theory. *Frontiers in Psychology*, *8*, 1–15. doi:10.3389/fpsyg.2017.02294
Heras-Escribano, M., & de Pinedo-García, M. (2018b). Naturalism, non-factualism, and normative situated behaviour. *South African Journal of Philosophy*, *37*(1), 80–98. doi:10.1080/02580136.2017.1422633
Hohwy, J. (2016). The self-evidencing brain. *Noûs*, *50*(2), 259–285. doi:10.1111/nous.12062
Laland, K., Matthews, B., & Feldman, M. W. (2016). An introduction to niche-construction theory. *Evolutionary Ecology*, *30*(2), 191–202. doi:10.1007/s10682-016-9821-z
Lo Presti, P. (2013). Social ontology and social cognition. *Abstracta*, *7*(1), 5–17.
Lo Presti, P. (2016a). An ecological approach to normativity. *Adaptive Behavior*, *24*(1), 3–17. doi:10.1177/1059712315622976
Lo Presti, P. (2016b). Whose mind? Two interpretations of what it is to directly perceive other minds. *Theory & Psychology*, *26*(4), 419–437. doi:10.1177/0959354316650943
Lo Presti, P. (In press). Conceptual confusions and causal dynamics. *Phenomenology and Mind*.
Lobo, L., Heras-Escribano, M., & Travieso, D. (2018). The history and philosophy of ecological psychology. *Frontiers in Psychology*, *9*, 1–15. doi:10.3389/fpsyg.2018.02228
Odling-Smee, J., Laland, K. N., & Feldman, M. W. (2003). *Niche construction: The neglected process in evolution*. Princeton, NJ: Princeton University Press.
Rakoczy, H., & Schmidt, F. H. (2013). The early ontogeny of social norms. *Child Development Perspectives*, *7*(1), 17–21. doi:10.1111/cdep.12010
Rakoczy, H., Brosche, N., Warneken, F., & Tomasello, M. (2009). Young children's understanding of the context relativity of normative rules in conventional games. *British Journal of Developmental Psychology*, *27*(2), 445–456. doi:10.1348/026151008X337752
Rakoczy, H., Warneken, F., & Tomasello, M. (2008). The sources of normativity: Young children's awareness of the normative structure of games. *Developmental Psychology*, *44*(3), 875–881. doi:10.1037/0012-1649.44.3.875
Reed, E. (1996). *Encountering the world: Towards an ecological psychology*. New York, NY: Oxford University Press.
Rietveld, E. (2008). Situated normativity: The normative aspect of embodied cognition in unreflective action. *Mind*, *117*(468), 973–1001. doi:10.1093/mind/fzn050
Rietveld, E. (2012a). Context-switching and responsiveness to real relevance. In J. Kiverstein, & M. Wheeler (Eds.), *Heidegger and Cognitive Science* (pp. 105–135). Basingstoke: Palgrave Macmillan.

Rietveld, E. (2012b). Bodily intentionality and social affordances in context. In F. Paglieri (Ed.), *Consciousness in Interaction: The Role of the Natural and Social Context in Shaping Consciousness* (pp. 207–226). Amsterdam: John Benjamins.

Rietveld, E., & Kiverstein, K. (2014). A rich landscape of affordances. *Ecological Psychology*, *26*(4), 325–352. doi:10.1080/10407413.2014.958035

Ryle, G. (1949). / (2009). *The concept of mind*. New York, NY: Routledge.

Schmid, H. B. (2018). The subject of "We intend. *Phenomenology and the Cognitive Sciences*, *17*(2), 231–243. doi:10.1007/s11097-017-9501-7

Searle, J. (1990). Collective intention and action. In S. Pollack. (Eds.), *Intention in communication* (pp. 404–415). Cambridge, MA: MIT Press.

Searle, J. (1995). *The construction of social reality*. New York, NY: The Free Press.

Searle, J. (2010). *Making the social world*. New York, NY: Oxford University Press.

Sellars, W. (1956). Empiricism and the philosophy of mind. In H. Feigl, & M. Scriven (Eds.), *Minnesota studies in the philosophy of science 1* (pp. 253–329). Minneapolis, MN: University of Minnesota Press.

Sellars, W. (1962). Philosophy and the scientific image of man. In R. Colodny (Ed.), *Frontiers of science and philosophy* (pp. 35–78). Pittsburgh, PA: University of Pittsburgh Press.

Shaw, R. E., Kinsella-Shaw, J. M., & Mace, W. M. (2019). Affordance types and affordance tokens: Are Gibson's affordances trustworthy?. *Ecological Psychology*, *31*(1), 49–75. doi:10.1080/10407413.2018.1508353

Steiner, P. (2012). Boundless thought. The case of conceptual mental episodes. *Manuscrito*, *35*(2), 269–309. doi:10.1590/S0100-60452012000200004

Steiner, P. (2014). The de-localized mind. Judgements, vehicles, and persons. *Phenomenology and the Cognitive Sciences*, *13*(3), 437–460. doi:10.1007/s11097-013-9309-z

Stoffregen, T. (2004). Breadth and limits to the affordance concept. *Ecological Psychology*, *16*(1), 79–85. doi:10.1207/s15326969eco1601_11

Szokolszky, A., & Read, C. (2018). Developmental ecological psychology and a coalition of ecological-rational developmental approaches. *Ecological Psychology*, *30*(1), 6–38.

Tomasello, M., Carpenter, M., Call, J., Behne, T., & Moll, H. (2005). Understanding and sharing intentions. The origins of cultural cognition. *Behavioral and Brain Sciences*, *28*(5), 675–735.

van Dijk, L., & Rietveld, E. (2017). Foregrounding sociomaterial practice in our understanding of affordances: The Skilled Intentionality Framework. *Frontiers in Psychology*, *7*, 1–12. doi:10.3389/fpsyg.2016.01969

Zipoli Caiani, S. (2013). Extending the notion of affordance. *Phenomenology and the Cognitive Sciences*, *13*(2), 257–293. doi:10.1007/s11097-013-9295-1