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Affective affordances

Direct perception meets affectivity

Eros Moreira de Carvalho[*]

Abstract: In this paper, I explore and examine different ways in which affectivity is related to perception within ecological psychology. I assess whether some of those ways compromise the realist and direct aspects of traditional ecological perception. I sustain that they don't. Affectivity, at least in some cases, turns the perception of fine-grained affordances possible. For an engaged perceiver, affectivity is not optional.

Keywords: Ecological psychology, emotions, affectivity, affective affordances, direct perception.

Introduction

James J. Gibson provided us with a radical new way to conceptualize and theorize about perception. According to the ecological approach, perceivers are not passive observers. They learn to perceive and need to actively explore their environment to pick up information necessary for perception. Because of that, perception cannot be studied in isolation from the perceiver's environment. The minimal unit of analysis is the organism-environment system. Perception is also direct in the sense that it is not mediated by representations or inferences. Perceivers do not infer how the world is based on a supposedly meager sensory input. On the contrary, the environment has rich information that specifies affordances. Perceivers become aware of affordances by picking up such environmental information. Thus, perception is of affordances.

[**] Associate Professor at the Federal University of Rio Grande do Sul and CNPq Research Productivity Fellow. *e-mail*: eros.carvalho@ufrgs.br. Acknowledgments: research for this paper was funded by CNPq, project Number 306795/2021-3. I am also very grateful to Marta Caravà and Felipe Carvalho for comments to a first version of this paper.

Affordances are possibilities for action, and they shape how the world shows up to the perceiver. From the ecological point of view, the function of perception is to guide action, so it is better if the world is already perceived in terms of what the perceiver can do with it. Finally, affordances are relational, they cut across the dichotomy of subjective-objective. This provides a minimal realist stance, for affordances, which are environmental resources and the objects of perception, do not need to be perceived to exist, although they relationally depend on the abilities of the perceiver.

There are also strong reasons to think that Gibson did not conceive the perceptual systems as modular. He claims that different perceptual modalities cooperate in a variety of ways. The haptic, visual, auditory, taste and smell systems depend on the basic orienting system, but they also work together with the latter to anchor new systems. For instance, the cooperation between the haptic and the basic orienting system provides the awareness of the direction of the bones of the body relative to the ground (GIBSON, 1968a, p. 71). Similarly, the visual system provides relevant information for the kinesthetic awareness of the movement of the parts of the body. In fact, all the perceptual systems are propriosensitive and exterosensitive (GIBSON, 2015, p. 108), which means that the perception of the environment is always accompanied by the perception of oneself and vice versa (2015, p. 118). Thus, there is multiple information about the bodily self coming from different systems. Proprioception then is not a sense based on specialized proprioceptors but a system functionally individuated whose main task is to detect the movements and postures of the body relative to the permanent environment (GIBSON, 1968b). Different organs of perception, not only those pertaining to the basic orienting system, can be involved in the proprioceptive function. As to the neural basis of such function or of any perceptual system, it is not expected to be specific to any brain location or part. As Gibson points

out in a non-modular tone, “the nervous system is part and parcel of any perceptual system, and the centers of the nervous system, from lower to higher, participate in its activity.” (GIBSON, 1968a, p. 283)[1]

If one has a non-modular view of perception, then the possibility that non-perceptual phenomena can interact or contribute to the perceptual systems should be taken seriously.[2] Thus, one can ask what are the possible relations between perception and emotion/affectivity in the ecological approach to perception. However, it is remarkable that Gibson himself remained almost silent about this issue. In his first book, Gibson is already committed to the idea that the world we perceive goes beyond surfaces, edges, shapes, texture, colors, etc., it also involves its utilities, which he called “meaningful perception”. One of those utilities is the emotional value of things “which make the shape of the world attractive or repulsive in a vast variety of ways” (1974, p. 199). However, he does not elaborate on what makes the world show up to us with an emotional charge. In his second book, Gibson emphasizes how postural, facial, and vocal movements specify emotional states and therefore can be the basis for the perception of others’ emotions. The sounds of weeping or laughing, for instance, are unmistakable (1968a, p. 90). This insight paved the way for the current accounts of social cognition based on direct perception (GALLAGHER, 2008; GALLAGHER; VARGA, 2014). In his last book, Gibson does not advance in relation to these two points: things in the world might have emotional value and some emotions are specified by movements (2015, p. 129). The first point is now articulated in terms of the value of affordances, they are good or ill, attractive or repulsive (2015, p. 119). But again,

[1] For a more detailed account of what Gibsonian neuroscience looks like, see de Wit et al. (2017).

[2] See, for instance, Borghi (2021) for a discussion about the modulation of perception by social and cultural factors, such as object ownership.

there is no further discussion or elaboration about the possible relations between perception and emotion.

Of course, Gibson's few words about the subject have not been a barrier for others to try to fulfill this gap. In line with a trend that has already been dubbed "the affective turn" in the cognitive science and the humanities (CLOUGH, 2007) in the last decades, there has been an increasing number of works exploring the emotional or affective aspects of perception within the ecological approach (JENSEN; PEDERSEN, 2016; KIVERSTEIN, 2015; STEFANUCCI, 2010). The term "affective affordances" has recently received some traction, although there seems to be no theoretical unity behind its usages (CARAVÀ; SCOROLLI, 2020; FUCHS, 2017; HUFENDIEK, 2017; KRUEGER; COLOMBETTI, 2018; SIQUEIROS-GARCÍA; MOJICA; RAMÍREZ-VIZCAYA, 2018).[3] This is because perception and emotion can be related in many different ways, and each of these approaches emphasizes and explores one or another relation. It is not the aim of this paper to survey all possible relations between perception and emotion or affectivity in general. Thus, I will focus on a few case studies to explore three possible relations: (1) perception affects some emotions; (2) emotion affects some perceptions indirectly, and (3) emotions affects some perceptions directly.[4] In each case, I will be concerned whether the direct and realist aspects of ecological perception are compromised.

[3] The same happens with the term "social affordance", although, as I've proposed, its different usages in the literature might be narrowed down to only two senses: "Social affordances are possibilities for social interaction or possibilities for action that are shaped by social practices and norms." (CARVALHO, 2020). Even so, Edward Baggs argues in a recent paper that we should stop using this term due to the theoretical confusion it brings up. Instead, we should concentrate on describing more fruitfully the social environment that shapes affordances. Besides, in his view all affordances are social in the sense that they are public, so it is trivial to qualify an affordance as social (2021, p. 265). Although I agree with this claim, I think that a taxonomy of affordances can be useful and that the term "social affordance" can do a good descriptive job if precisely articulated. There is a peculiar kind of interaction between animate beings who are attuned to each other as such that deserves our theoretical attention.

[4] A further relation about which there is a rich literature but that I will not explore is that perception constitutes in part emotions. An idea introduced by Thomas Fuchs (2017) and further developed by Rebekka Hufendiek (2016, 2017) is that affordances are the intentional objects of emotions. This idea raises interesting questions about the nature of emotions, but as far as I can see, it does not threaten the direct and realist aspects of ecological perception.

Perception affects emotions

If we consider that perception is for the control of action, then we may be interested in perceptions that are helpful for the control of a specific kind of action, such as actions that regulate our emotions. In line with this, Krueger and Colombetti define *affective affordances* as those opportunities to control our affective states. As they point out, "we perceive people, places, and things as affording regulative opportunities to amplify, suppress, extend, enrich, and explore the phenomenal and temporal character of our affective experiences." (2018, p. 224) For instance, if I am upset with a situation at work, I may see my partner as offering the opportunity to unburden myself of the upsetting emotions by talking to her and finding in her attention and response someone who understands and shows empathy for my situation.

In this particular context, my partner shows up in my perceptual experience as offering a certain type of relief. This is not against the ecological adage that we perceive the world in terms of what we can do with it. However, the possibilities for action we perceive are not limited to actions that serve our pragmatic interests. The regulation of our emotional life, which is a prudential and, in some circumstances, even a moral interest, can also be an aim that enhances certain action possibilities in our environment. Accordingly, we engage in the construction of what Krueger and Colombetti call "affective affordance spaces" (2018, p. 224). We organize and modify our environment to facilitate the regulation of affective states and foster moods that are more appropriate for our endeavors.[5] The decorations in our houses and arrangements in our offices are not only for the efficiency of chores and office tasks but also for eliciting the feelings of comfort, safeness, calmness, and others. Of course, the construction of an affordance space

[5] This process can be understood as a process of niche construction. The idea is not only that one will learn to use affordances that are already present in her environment but mainly that she will create or destroy affective affordances by modifying the relationship between herself, her affective states, and her environment. For a detailed discussion about affordances within the process of niche construction, see Withagen and van Wermeskerken (2010).

depends on cycles of try and error and is, to a certain degree, individualized (KRUEGER; COLOMBETTI, 2018, p. 226).

As it happens in the discussion about social affordances (CARVALHO, 2020, pp. 2–3), one may wonder whether there is ecological information that specifies[6] affective affordances as defined by Krueger and Colombetti. The social affordance of letter-mailing that a postbox affords is not, it may be claimed, visible or tangible. On this view, no pattern of optical or mechanical energy in the environment specifies the affordance of letter-mailing. Similarly, that my partner affords relief, and that my office affords moderate and calm moods are affective affordances that are not directly available to perception. They are inferred, not perceived, one could claim. This would threaten the direct aspect of ecological perception.

To circumvent this difficulty, it is important to keep in mind that ecological information can be relative to niches. For instance, a bioelectric field that is "partially modulated in the rhythm of the living thing's respiratory movements" (TURVEY et al., 1981, p. 276) specifies an edible thing in the environment where sharks live. Outside this niche, the relation of specification does not hold. Add to this that energy patterns that specify features of the environment can be of high-order complexity. For instance, the rate of optical expansion of an object is a high-order pattern that specifies the time of contact (LEE, 1976). In principle, there are no limits regarding what an energy pattern can specify. As Gibson points out while talking about the tangibility of cultural features, "there have to be modes of stimulation, or ways of conveying information, for any individual to perceive anything, however abstract" (GIBSON, 1968a, p. 26). Given the variety of high-order energy patterns in the environment, there is much more ecological information available than might seem at first sight. Thus, as the construction of affective

[6] For Gibson, ecological information is based on the relation of specification. One thing specifies another if the former is univocally related to the latter by virtue of physical laws (GIBSON, 1968a, p. 187).

affordance spaces yields an affective niche — a habitat within which a person is able to regulate her affective experience at multiple timescales (KRUEGER; COLOMBETTI, 2018, p. 230) —, there are going to be complex energy patterns in this niche that specify affective affordances. Some of these patterns provide ecological information only in this niche. For instance, a chair similar to mine in an unfamiliar environment might not afford relaxation as my chair does in my office. But as I have arranged this space and am attuned to its features, I am prepared to be affected in very particular ways by my chair and other stuff in my office, so that I can directly perceive the affective affordances available in my affective niche in the right moments and circumstances.[7]

Because agents dwell in the affective niches constructed by themselves, their experiences are transformed. Through regular practice and continuous adjustment between the agent and the features of the environment, the former progressively incorporates parts of the latter in her body schema. This is a general phenomenon. It happens with instruments that, in virtue of the process of incorporation, become extensions of our bodies. For instance, the sense of touch of a blind person is extended by the cane once it is incorporated. In phenomenological terms, instead of attending to the cane or the pressure inflicted by the cane on her skin, the blind person perceives *through* the cane the object or surface in contact with the tip of the cane. The cane becomes transparent to her after the process of incorporation. According to Polanyi, by attending *from* the pressure on the skin *to* the object at the tip of the cane, the person has tacit awareness or knowledge of that object (2009, p. 10). It is as if her focal attention moved from the body to things outside the body. Similarly, one can talk about affective incorporation (KRUEGER; COLOMBETTI, 2018, p. 229). Objects that participate regularly in our affect-regulatory

[7] Alternatively, one could say that the chair-in-my-office bears expressive properties that can be directly perceived. This property could be construed as a relational property that emerges through niche construction to regulate affective states. I'm grateful to Marta Caravà for calling my attention to this possibility.

practices become transparent to us. Thereafter, we tacitly rely on them to regulate our affective states. Imagine someone who, like the fictional character Linus, keeps the state of anxiety away by constantly holding an object — such as Linus' blanket — that, due to one's particular history of affective regulation, elicits a state of safeness and calmness. In that case, the object in question is incorporated into the person's affective body schema and is transparent to her at least while she is engaged in affect-regulatory practices. Krueger and Colombetti also point out that because we arrange our affective niche to affect our emotions in reliable ways, this also transforms our attitude towards the niche. We start to trust our niche and, while within its boundaries, act with confidence (2018, p. 227).[8]

To sum up, affective affordances are opportunities to control our affective states. Thus, perception can affect some emotions. Ecological psychology has resources to rule out the concern that we cannot directly perceive affective affordances because there is no information specifying them. Information can be relative to niches and brought forth by the construction and organization of niches. An affective niche is constructed and organized in a way that some objects get the function of reliably regulating affective states. In such a niche, there are going to be enough information for affective affordances.[9]

[8] In line with this, Caravà and Scorolli (2020, p. 2) suggest that we should restrict the concept of affective affordance to objects that are already integrated into our affect-regulatory practices and therefore reliably elicit the proper affective regulation. Otherwise, we run the risk of trivializing the concept, since any object in the environment might have a causal contribution, even small, to the regulation of emotions. I agree with that and would like to add that this restriction also helps to answer the worry about ecological information for affective affordances. Only in the context of a constructed and organized affective affordance space do certain energy patterns acquire the function of specifying affective affordances.

[9] Assuming, as I think it is reasonable to do, that we perceive affective affordances, then "for environmental properties that are successfully perceived, there must be information specific to them — if only we scientists are clever enough and dogged enough to find it." (WARREN, 2021, p. 3). Additionally, the perceiver acquires affective capabilities attuned to certain affective affordance due to her engagement in niche construction to regulate these affordances (CARAVÀ; SCOROLLI, 2020, p. 3).

Emotion affects perceptions indirectly

I will start with a phenomenon that involves an indirect influence of emotion over perception. It is indirect because what affects perception is not an emotion but the perception of emotion. I am referring to the social referencing phenomenon. The phenomenon itself is more general and does not need to be perceptual, but I will consider a case in which perception is involved. Social referencing occurs when someone, especially a child, is dealing with ambiguous information. The infant then looks to the face of another, especially an adult, to search for emotional information to help to appraise or evaluate the ambiguity (SORCE et al., 1985, p. 196). The case I will consider is one in which the emotional information is used to disambiguate the environmental information available for perception.

The case in question is an experiment involving a modified visual cliff. The visual cliff is an apparatus designed by Eleanor Gibson and Richard Walk (1960) to study depth perception in infants and animals. Its basis is a platform. A thick glass that extends well off the platform is put on top of it. At the edge of the platform, it will look as if there were a cliff. Because of the thick glass that extends well of the platform, the cliff is only visual. The edge of the platform divides the apparatus into shallow and deep sides. An infant is put in the shallow side of the apparatus. Then, someone on the other side of the platform calls the attention of the infant. The aim is to test whether the infant will venture into the deep side of the apparatus. Normally, the infant picks up the information for the affordance of falling-off and does not go to the deep side. In the modified visual cliff, as designed by Sorce et al. (1985), it is possible to vary the depth of the cliff so that one can produce a situation of ambiguous information in which is not clear whether the cliff affords falling off. In this experiment, the aim is to test whether the infant will look at the face of the caregiver to look for emotional information that helps to disambiguate her

perceptual situation. Caregivers were trained to make typical facial expressions of fear and happiness. Then, they were positioned at the other side of the apparatus and, in different trials, signaled a fearful or a happy expression. As the results of the experiment show, infants look at the face of the caregiver to disambiguate their perceptual situation. In the happy condition, from 19 infants, 14 ventured across the deep side, whereas in the fear conditions, from 17 infants, none ventured across the deep side. In a controlled trial, where the information is not ambiguous, the depth of the cliff is big enough for the infant to perceive it, from 17 infants, none looked at the caregiver at all.

A possible interpretation of the experiment is that the infant relies on the caregiver's expression to disambiguate the visual information about whether the cliff affords falling off or crawling forward. The perception of one of these two affordances would then be modulated by the perception of the caregiver's emotion. This could even be seen as a case in which the infant's perceptual process is socially extended (CARVALHO, 2019). This is a bold interpretation. One could argue that the perception of the caregiver's expression modulates the infant's behavior directly without affecting her perception of the cliff. However, in the controlled trial, the caregivers continued to express the fear or the happy face and none of the infants looked at their face. The infants controlled their behavior by what the non-ambiguous situation afforded, the affordance of falling or crawling forward, even if the caregiver's expression indicated otherwise. The infants' behavior in the non-ambiguous situation was not directly controlled by the perception of the caregiver's expression. This in itself does not imply that in the ambiguous situation the perception of the caregiver's expression modulates the infant's perception instead of directly modulating her behavior. Besides, which reason could be offered to think that the perception of the caregiver's expression changes the phenomenology of the infant's perception

of the cliff? However, if we consider that in the ecological approach a perceptual act is a matter of picking up ecological information — amodal perception is not only a possibility but also a reality for Gibson (2015, p. 198) —, then the perception of the caregiver's expression can be seen as providing information that in conjunction with the ambiguous visual information available to the infant allows the perception of the affordance of falling-off or crawling-forward. Although more empirical work needs to be done to confirm this possibility, I submit that it is a plausible hypothesis within the ecological approach to perception.[10]

The real problem with the above interpretation is that it seems to threaten the realist aspect of ecological perception. False perceptions are ruled out by the ecological approach (GIBSON, 1968a, p. 287; HERAS-ESCRIBANO; DE PINEDO, 2016, p. 581). As perception is the pick-up of ecological information that specifies affordances, then there cannot be a case of affordance perception without the very presence of the corresponding affordance. A false perception as a false representation of the environment, which is allowed by representational theories of perception, is not a possibility within the ecological approach. This doesn't mean that perceptual error is impossible. But this would not be a case of picking up information that fails to point to its source but a case of failing to pick up information. The problem then is that if the caregiver can deceive an infant by making facial expressions that are inadequate to the situation, such as signaling a fearful face when the "cliff" is sufficiently shallow for the infant to cross, then the infant could "perceive" the affordance of falling-off when there is no such affordance in the environment. This would be an undesirable result.

Although in principle a caregiver could deceive the infant, what matters is whether the caregiver deceives the infant in the infant's niche. Besides, if in some way the infant tells a

[10] This hypothesis is not without precedents. In recent work, Pell et al. (2022) provide evidence for the hypothesis that the perception of emotional voice can affect the subsequent perception of facial expressions.

reliable caregiver from unreliable ones, then actual cases of deceptions would be very low. In other words, if only the perception of a trustworthy and reliable caregiver's emotions affects subsequent perceptions, then is reasonable to assume that in these cases the emotion perceived conveys the information that disambiguates the visual information available to the infant. False perception would then continue to be ruled out at least in the infant's niche. Sorce and Emde (SORCE; EMDE, 1981) provided evidence that goes in this direction. They arranged an experiment to test whether the presence of the mother is sufficient for a child to engage in exploratory behavior in an unfamiliar environment. The setting resembles a library reading situation. The room is divided into the stranger area, where an unfamiliar female adult is seated, the toy area, where there are toys for the child to play with, and the mother area, where the child's mother will be seated. In half of the trials, the mother places her child at the center of the room, the toy area, and says to the child: "Now Mommy's going to read," then she goes to the mother area and stays reading without paying attention to the child, although she is visible to her. In the second half of the trials, the mother does the same, she goes to the mother area but instead of starting to read, she constantly engages with the child and shows that she is paying attention and is available. The authors call this condition "emotional availability" (1981, p. 738). According to the results, the presence of the mother is not sufficient for the child to fully explore the toy area and venture into the stranger area. However, in the condition of emotional availability, the child engages in exploratory behavior.

The crucial point here is that the child needs to feel comfortable and safe to explore new places, the mother must be felt as reachable, and these feelings are brought forth only by the continuous engagement of the mother and her manifestation of attention and care (SORCE; EMDE, 1981, p. 743). In the light of the discussion in the previous Section, we could say that the

mother's engagement provides affective affordances that help the child to stay in a non-worried and open-minded state. Without this affective state, the child cannot perceive joyful affordances that are available to her in an unfamiliar environment. I submit the conjecture that something similar applies to the infant engaging in social referencing: the perception of the caregiver's emotion affords to disambiguate visual information only in the condition in which the infant also feels and perceives the caregiver as trustworthy and reliable. And that a caregiver affords trust to an infant is something that emerges and strengthens from a history of continuous close and successful interactions. Within this niche of mutual trust and only there the caregiver's emotions can be perceived by the infant as affording to disambiguate. With this constraint, the worry that we would have to give shelter to false perceptions within ecological psychology does not seem to be so pressing.

Emotion affects perceptions directly

There is a growing body of evidence that bodily features, moods, and emotions can directly influence perception (PROFFITT, 2006; RIENER et al., 2003; STEFANUCCI, 2010; STEFANUCCI et al., 2008). For instance, fatigue or fear can modify how we perceive the world. I will start with a caveat. I am not so much concerned with assessing whether this evidence is strong enough or even whether it could be interpreted as not implying this conclusion at all. I am more interested in discussing whether this conclusion, under the assumption that it is justified, can jeopardize the direct and realist aspects of ecological perception. In sum, my concern is more theoretical than empirical. But let us start with the empirical stuff.

Dennis Proffitt, who describes his work as a development of or in continuity with Gibson's work (PROFFITT, 2006, p. 120), has been running experiments for testing how factors

such as physiological potential, emotions, fatigue, and others can change the perceived surface layout. In classical studies of slant perception, participants at the base of a hill are invited to assess its slant by three different procedures. First, they are asked to make a verbal assessment, the participants estimate the slant of the hill in degrees. Then, they are invited to make a visual assessment by using a disk with a dark green section whose angle is adjustable. The participants should adjust the green section until it matches the slant of the hill. Finally, they are invited to make a haptic assessment. By using a palmboard that swivels, the participants, looking only at the hill, adjust the board orientation by feeling, with a hand on it, until its inclination matches the slant of the hill. According to Proffitt's findings, in the verbal and visual assessments, participants overestimated significantly the slant of the hill. For instance, 5° hills were judged to be about 20°. However, haptic assessments were accurate. What accounts for this difference? According to Proffitt, the three assessments are serving different tasks and therefore track different variables. The first two, the verbal and visual assessments, are serving the task of climbing the hill, they relate "the distal inclination of hills to the perceiver's physiological potential to ascend them" (PROFFITT, 2006, p. 114). The idea is that if the perception of slants guides the action of climbing the hill, which is an action that spreads over time and space, requiring a sort of planning, then the energy cost of climbing must also be considered. Thus, hills appear steeper in virtue of both the increased slant and increases in the energy expected to be necessary for climbing the hill, which explains the overestimation in the visual and verbal assessments. As to the haptic assessment, it serves the task of immediate and proximal locomotion, so the slant perceived must correspond to the slant the perceiver is about to face (2006, p. 115). For that reason, no overestimation is to be expected in the haptic assessment.

Proffitt's explanation for the overestimation in the verbal and visual assessments has further consequences. If energy cost affects perception, then the state of fatigue should also impact how we perceive slants and distances. In another experiment, participants were asked to assess the slant of a hill before and after running for about an hour (2006, p. 114). As expected, participants judged the hill steeper after the exercise. Similarly, participants wearing a heavy backpack judged a hill to be steeper and a certain distance to be greater than those who did not wear a backpack. Differences in estimation while wearing a backpack were also found between older and younger participants (STEFANUCCI, 2010, p. 281).

Now let us move to fear. As an extension of the experiments above, Stefanucci et al. (2008) designed an experiment to test whether fear could affect the perception of the slant of a hill. In this case, participants were asked to estimate the slant of the hill from above. At the top of a 7° hill, half of the participants stood on a skateboard and the second half on a wooden box of the same height. The participants were then asked to assess the slant of the hill by the three procedures mentioned above. Again, those who stood on the skateboard, the fearful condition, estimated the slant as greater than those on the wooden box, the control condition. As before, overestimation occurred only in the verbal and visual assessments of the slant. In another study, participants estimated height viewed from the top as greater than when viewed from below (STEFANUCCI, 2010, p. 279). A possible explanation is that viewing height from the top elicits fear, which then affects the perception of height. In these cases, overestimation cannot be explained by energy cost. It is the cost of falling and therefore the cost of bodily injury or even death that makes someone see a hill steeper and a height greater when viewed from above (PROFFITT, 2006, p. 118).

These findings suggest, as Proffitt and Stefanucci sustain, that physiological potential — the energy and disposition current available to perform a task — and affective states may modulate perception in a strong way: "people who are in a different state may *see* the world through a 'distorted lens'" (STEFANUCCI, 2010, p. 275, emphasis is mine), that is, the apparent geometry of the environment is "distorted" (PROFFITT, 2006, p. 121) in the sense that slants and heights *appear* respectively steeper and greater than would if the subject were not in those physiological and affective states. The authors are making a claim about how the world shows up or looks to the perceiver. There are many criticisms that can be raised against the experiments and to the conclusion. One could argue that the experiments do not rule out the possibility that the participants' estimations are biased by what they thought the experimenters were testing, or one could argue that the verbal and visual assessments track participants' judgments, not their perception (DE CARVALHO, 2021).[11] These methodological and interpretative concerns are valid and deserve attention. However, in the rest of this Section, assuming the experiments are valid and the conclusion drawn from them is correct, I will discuss whether these findings could jeopardize in any way the direct and realist aspects of ecological perception.

At first sight, it might seem that they do. If perception is distorted by physiological and affective states, then one could argue that we are not, at least on these occasions, perceiving how the world is. If a slant is perceived as steeper than it is, and a height is perceived as greater than it is, then it seems we have false perceptions. How these findings can be reconciled with the direct and realist aspects of ecological perception? The first thing to emphasize is that, according to the ecological approach, the function of perception is not to represent the world but to guide action. From this, it follows that perception fulfills better its function by delivering percepts in terms of

[11] For a discussion about the evidence for the claim that affective states affect percepton, not post-perceptual processes, see (ZADRA; CLORE, 2011, pp. 681–682).

possibilities for action, not in terms of categorical properties such as geometrical size and form. A perceiver sees a step as climbable, not as having 20 centimeters. Thus, we should be cautious when we talk about perceptual distortion. It is for no other reason that in the quoted passage from Stefanucci the expression "distorted lens" is under scare quotes. So, when a participant of the experiments says that she sees the slant of a hill as steeper, we should not assume that the term of comparison is a reality as described by physics and geometry. The perceived slant in "normal" conditions of observation is not one that, let's say, has 5° degree, whereas in a state of fatigue it appears to have 20°. The slant of a hill is perceived as climbable or not, as requiring much effort or little effort, as taking a long or a short time to be climbed. The world we inhabit and live in is given to us on an ecological scale. It is against the slant of the hill as seen in these ways that now a perceiver may say that it looks steeper, meaning by that that it might not be climbable now or that it will require much more effort and time to be climbed.

The relational nature of affordances turns even clearer that it may not be appropriate to talk about distortion in these cases. An affordance is both a fact of the environment and a fact of the perceiver. Changes in the environment will of course make a difference in what is perceived. A step that now is twice higher might not anymore be perceived as climbable. By the same token, changes in the organism might make a difference in what is perceived. As the child grows, steps that appeared unclimbable are now, with bigger legs and better climbing abilities, perceived as climbable. These changes have nothing to do with an alleged distortion of the perceived world. Given that affordances are relations between the environment and the perceiver, we will perceive the world differently when those relations change for the simple reason that we will perceive different affordances.[12]

[12] Someone could insist that the participants in these experiments are voicing their judgments or impressions about the perceived situation, not describing how the situation looks perceptually. After all, there is no reason to suppose that the subjects that see differently the same situation, e.g. the slant of a hill, are having very different visual

Now, the cases of body changes or changes in bodily abilities are the easy ones. The question is whether we want to count variations in physiological potentials, moods, and affective states as variations that give rise to new perceivable affordances. From the fact that affordances are constituted in part by features of the organism, it does not follow that any feature of the organism can participate in the constitution of an affordance. I submit that any organismic feature that contributes directly and significantly to ability performance is a reasonable candidate for the constitution of affordances. This is what we should expect if, as said before, the function of perception is to guide action. The more fine-grained the affordances one can perceive, the better perception can fulfill its function. Thus, affordances that rest upon physiological potential are possibilities for action that if acted upon will have a high chance of success. Imagine a person wearing a backpack that perceives the slant of a hill as steeper. She then responds by not trying to climb the hill, saving time and energy that otherwise she would have wasted, assuming that she would not be able to reach the top of the hill. Of course, even if there were no differences in her perception, she could have thought about her situation and decided not to climb the hill. But this would require more thought than the situation in which she directly perceives how tough would be to climb that hill. As Proffitt points out, "simplified action planning is an adaptive consequence of seeing the world in terms of costs and benefits" (2006, p. 119).

If we take Chemero's definition of affordance as "relations between the abilities of an animal and some feature of a situation" (2009, p. 191), then, without considering other factors that might affect the exercise and the performance of the abilities of the animal, what we get is a very general view of what that animal can do, not what that animal can do here and now. For

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sensations. But, besides the point already made about the relational nature of affordances, we need to remind that Gibson's approach to perception is not sensory-based. His approach to perception is based on stimulus information. As he points out, "the information is what counts; the sensations are incidental." (1968a, p. 142). Perceptual phenomenology is not exhausted by sensory states, especially when we take seriously that an act of perception is an act of picking up information, and that some of these acts can even be amodal.

successful situated actions, however, fine-grained affordances are required. Thus, it matters whether the perceiver is tired, well-disposed, or feeling anxious. One more time: if the function of perception is to guide action, and successful action here and now requires fine-grained adjustments and attunement to the agent's current conditions and situation, then sensitivity to fine-grained affordances, in addition to sensitivity to more general affordances, fulfills better the function of perception. This doesn't mean that all perceptions should be expected to be the most fine-grained possible. Absolutely not, general affordances have their place. It all depends on the features and the timescale of the action the agent is engaged in. For instance, my both hands might be unavailable right now because I'm holding a book with one and a cup with the other, but this does not preclude me from perceiving the door handle as offering to open the door, what I am about to do as soon as I leave the book on the table. Thus, although I cannot open the door here and now, the ability to open the door continues to shape my perception, and the general affordance of opening the door shows up in my perceptual experience.

This leads us to trick questions within ecological psychology: among the affordances available in the environment, which ones are perceived? Among those that are perceived, which one is acted upon? As it is well known, Gibson did not provide a theory of agency and action (WITHAGEN et al., 2012, p. 252), although he was against mechanistic views of animals and acknowledged a place for the agency at the core of his theory of perception.[13] As he points out, "locomotion and manipulation are neither triggered nor commanded but controlled" (GIBSON, 2015, p. 215), and they are controlled not by the brain but by the agent as a whole seeing oneself in the world. A theory of agency and action is required to specify precisely which affordances

[13] This acknowledgment is also implicit in Gibson's hypothesis that the perception of the environment is always accompanied by the perception of oneself or, as Eleanor Gibson put it, "whenever an infant learns about an affordance of the environment for itself, it must perceive (learn to perceive) its dimensions and capacities." (GIBSON, 1995, p. 7) A sense of one's abilities, and therefore agency, is a requirement for perception.

are perceived and which one is acted upon. We perceive possibilities for action, not possible physical movements that are not the outcome of any ability, and we act upon a possibility for action that invites us to act and fit better with our endeavors. It's not the aim of this paper to provide such a theory,[14] I just would like to emphasize that the ecological approach to perception requires a theory of agency and that even together they will not fully explain our perception-action cycles without taking into consideration physiological potentials, moods and affective states. All these factors affect directly and significantly the abilities that shape our perception and therefore must be taken into account.

Remarks similar to those made about physiological potentials could also be made about affective states and emotions. To see a height as greater when viewed from above than when viewed from below is an adaptive advantage. The fear that follows when seeing a height from above elicits avoidance or careful behavior. A bench that could in a flat terrain afford jumping over to a person in a joyful mood will not afford jumping over, laterally, at the edge of a cliff to a person afraid of falling off. Fear helps to select those affordances that are less risky for the agent in the current situation. Also, it is not as if fear were a blind reaction to height irrespective of the actual features of the organism-environment system. On the contrary, the greater the height, the stronger the fear; and the more skillful the agent, the fainter the fear. A fearful state tracks the gap between the organism's abilities and the environment, the quality of its couplings. One could start to train to walk, run and even jump over a bench at the edge of a cliff. Insofar as one becomes more skillful in performing these actions, the objective risk of injury oneself will decrease, and the feeling of fear will be less intense. A possible prediction is that non-experts and experts perceive differently in risky conditions. In general, affective states are crucial for the

[14] For the articulation of a theory of agency and action that backs up the ecological approach to perception, see Reed (1982) and more recently the Skilled Intentionality Framework articulated by Rietveld et al. (2018).

selection of affordances, which will show up in our experience as more attractive or more aversive depending on how our affects evaluate our coupling to the environment. According to Kiverstein and Rietveld, affect "signals which possibilities for action in a situation matter to us in sense of being relevant to us given our interests and needs." (2012, p. 1) I would add that they also provide an ongoing evaluation of our couplings to the environment. We feel through affective states the quality of the attunement of our lived bodies to the environment.[15]

Since "the continuous act of perceiving involves the coperceiving of the self," (GIBSON, 2015, p. 229) affective states are not optional for the proper work of perception. The world shows up to us not only in terms of general possibilities for action, as if we were disengaged beings, but mainly in terms of attractive and aversive affordances. We perceive the world as an engaged being, that is, as a being that feels one's potentialities in relation to the world. In this sense, almost every affordance is affective, especially those that are selected and invite us to act. Affectivity, as we saw, does not compromise the direct and realist aspects of ecological perception. On the contrary, affectivity brings forth very situated affordances.

Conclusion

"Affective affordance" might mean: (1) an affordance that helps to regulate affective states or (2) an affordance with an affective quality. The first is a case of the influence of perception over emotions, discussed in Section 2, whereas the second is a case of the influence of affectivity over perception, discussed in Section 4. I examined these cases with the following question in mind: could these relations between perception and affectivity jeopardize the realist and direct aspects of ecological perception? I also examined, in Section 3, a case in which the

[15] A hypothesis to explore is that the affective system is integrated into the proprioceptive system through which one perceives oneself at the same time one perceives the world. Affective states would then be embodied in the perceptual systems. I am grateful to Felipe Carvalho for calling my attention to this point.

perception of emotion affects perception. This case does not involve a third distinctive sense of "affective affordance," but it is an interesting case of indirect influence of emotion over perception. The first case makes us wonder whether there is ecological information for affective affordances of type (1). The second case raises the concern that affectivity "distorts" perception and, thereby, opens the door for false perceptions. Finally, the third case, for allowing unreliable perceived emotions to contribute to the process of information pick-up, also opens the door for false perceptions. I provided reasons to dismiss all these concerns: (a) there is information for affective affordances of type (1) if we consider that information can be relative to niches; (b) affectivity does not distort perception, on the contrary, it is what makes situated affective affordances of type (2) possible, and (c) plausibly only reliable perceived emotions contributes to the process of information pick-up. Thus, I conclude that affectivity does not jeopardize the direct and realist aspects of ecological perception. Affectivity and direct perception are made for each other.[16]

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[16] As non-modularist, Gibsonians might consider avoiding construing perception and emotion as separated capacities or faculties and join efforts with network perspectives on brain functions to sustain that our brain architecture is composed of flexible functional systems instead of modular systems, instantiated in delimited regions (PESSOA; MEDINA; DESFILIS, 2022). Given the function of keeping and "getting in closer touch with the environment" (GIBSON; GIBSON, 1955), affective factors are no less crucial, as I tried to argue, to the process of picking up information and the constitution of fine-grained situated affordances.

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