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Righting language: a view from ecological psychology



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ABSTRACT

Scientific models of language have tended to focus on forms deprived of their ecological context: Speaking and listening have been viewed as disembodied and unaddressed. An ecological approach works to return language to its rightful place, as a socially embedded, morally accountable set of activities that are fundamentally dialogical. Language is viewed as a distributed set of meaning-seeking activities that are primarily physical and pragmatic, the function of which is to realize values, including caring for others and self, and the places they inhabit. Psychologically, language is focused in dialogical arrays, which can function as distributed cognitive systems for perceiving, acting, and reasoning. This more distributed, embodied view of linguistic activity draws attention to its systematic, multi-scalar complexity; to its ability to tie its participants to a place, a history, and a way of life; to the frustration and responsibility entailed in speaking and listening; and to the possibility that it is a form of direct acting and perceiving that extends human capabilities by orders of magnitude.

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1. Introduction

One of the things that physicists have long understood is the importance of choosing the right level of analysis to set up and describe a problem. More recently they have come to an appreciation that when they are examining complex systems it is often best to move to a larger, “more phenomenological and aggregated description, aimed specifically at the higher level” (Goldenfeld and Kadanoff, 1999). I will try to follow that advice in framing the problem of how we should talk about language. I begin with an exercise.

2. An exercise in frustration and an ecological approach

Consider the following sentences.

I should not be writing about language. How can I begin? Why are you reading this journal article when you could be taking a pleasant stroll or watching an exciting soccer match? Muttering to myself, moaning to others, and trying to put together sequences that will disguise my ignorance and make readers want to laugh in surprise, or nod in agreement, I look for what I cannot properly say. I could go on, but it would be pointless, because you, the reader, has already gotten the point (or, perhaps, not). The patterns arrayed before your moving eyes have guided you to this point—this point—by virtue of even larger arrays of layouts and practices in which you have been a willing participant for decades. You are in search of something. Yet the funny, familiar signs scatter onward, delaying the reward sought. What is it that is sought? Is there a point? Or was the point passed several seconds ago—in fact, *this point* showed up twice a few lines back? Please, you are now begging—say something!

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Something. That is what we are looking for when we read, or listen, even when we speak and gesture. Reading, listening, speaking, and gesturing are all activities that are seeking something. The traditional name for that something is meaning. However, meaning cannot be reduced to semantics and syntax, as the just completed exercise in frustration illustrates. There can be plenty of sensible references, properly ordered, pointing in pragmatically appropriate ways to the reader, the writer, and the topic (i.e., my wondering what to write, and the reader wondering what I am writing about), yet without yielding what is sought. What is being sought is something larger than mere meaning. My proposal is that this “something larger” is values; meanings are signs directing us toward values. The claim that our actions are directed toward values emerges from ecological psychology, which claims to be a values-realizing psychology (Hodges and Baron, 1992; Kadar and Effken, 1994), or the study of meanings and values (Reed, 1988, 1996). If actions are directed toward values, then what you and I are doing now (i.e., reading and writing)—activities that we commonly name as *language*—are values-realizing activities. But what does that mean? Toward what does that point us?

There are several approaches to psychological research that can properly be described as ecological (Heft, 2001), but the one that has been most influential and that frames my discussion is based on the work of James Gibson (1904–1979), one of the preeminent students of perception in the history of psychology. Almost single-handedly, Gibson (1966, 1979) changed *perception* into *perceiving*: Our conception of perception as passive reception was turned into action. The action Gibson had in mind was not the kind of activity that cognitive psychologists or neuroscientists talk about: They nearly always mean activity in the brain, or the activity of thinking (e.g., imagining, remembering). By contrast, the action that Gibson had in mind was physical activity, a body moving about in the world, using its visual, auditory, and other perceptual systems to detect differences that are meaningful. To be meaningful the differences had to matter to the body—they had to make a difference in actual fact. For differences to matter in this way requires that the body care; that is, there must be a caring relation between the body and its environmental surroundings. The body must care about the environment, so that it properly differentiates what is what, and thus, how it should move (Costall, 1995; Hodges, 2007b, 2009). The environment must provide what the body needs for it to survive and flourish; that is, the environment must offer a place that the body can “call” home, a place that is fitting and well-furnished. The relationship between place and perception is intimate, and it is negotiated by action—that is, caring activities, carried out over time, that give shape to the place, that develop its possibilities in new directions, and that open up new spaces for further action.

Since Gibson was a serious scientist, my account of ecological psychology, thus far, may seem odd, bordering on romanticism. But this particular way of describing Gibson is intentional. *Intentionality* is the terminology that philosophers would use to point to what I described in the previous paragraph as “detecting differences that are meaningful,” “caring activities,” and “how it should move.” Brentano (1902), who is frequently cited for first articulating the importance of intentionality, took it that our actions are aimed at values. He was a cognitivist, so activities for him were “mental,” but they pointed to something beyond themselves. I think he was right about values, and wrong about cognitivism. It is not just that our thoughts point toward values; our physical movements are directed toward realizing them. Gibson’s psychology, like Brentano’s, is an intentional psychology—actions are directed toward something beyond themselves (e.g., Petrusz and Turvey, 2010; Reed, 1982). It is also an axiological psychology (Hodges and Baron, 1992; Kadar and Effken, 1994): Our actions—perceiving, feeling, performing, culturing, and creating—are intended to realize values.

Gibson summarized his life’s work in perceptual psychology by saying, “I have been moving toward a psychology of values instead of a psychology of stimulus” (Locker, 1980, p. 208; cited in Reed, 1988, p. 296). Vision, for example, is not caused; certain wavelengths of light do not force the visual system to generate some specified output. Rather visual systems explore (i.e., systematically sample) the variations in the structure of light surrounding any given perceiver, which Gibson called the ambient optic array, seeking clarity, coherence, comprehensiveness, and complexity (Hodges, 2007a; Hodges and Baron, 1992). This requires a dialogical moving back and forth; for example, we move closer to see some difference or connection, but then step back to gain a more comprehensive view, and realize we misunderstood what we had seen earlier and move forward again to reexamine it. The values sought in speaking and listening can be understood in much the same way (Hodges, 2009). We speak in order to help others and ourselves differentiate, to integrate, to expand, and to complicate our actions and understandings of the world and our place and activities in it.

A crucial point, one that brings us back to the exercise with which we began, is that values-realizing activity is inherently frustrating. To say that perceiving or conversing is frustrating is not a commentary on emotional experiences; rather, it is a fundamental feature of complex physical systems that are subject to many different requirements that pull against each other, such that the system cannot fulfill all of them at once (Beek et al., 1992; Sherrington, 2010). Complex physical systems, including visual systems and linguistic systems, are a continuous juggling act, always moving to keep things balanced on the edge between order and chaos, between stability and freedom (Wallot and Van Orden, 2011). There is no single point that is our destination in looking or in conversing. Rather there is the ongoing process of distinguishing, relating, grasping, and letting go to try a new way of grasping, relating, and distinguishing. In short, there is always more to learn. This is often frustrating, but it is also one of the fundamental joys of being alive.

3. The daunting question

If I am to realize values in writing this article, it is necessary to care about those to whom I write, as well as caring about language and ecological psychology. As Bakhtin (1986) noted, language is always *addressed*: It is to somebody from some

body. Thus, the problem: How do I start the article? What to say? After all, readers are looking for something, for meanings that point toward values, toward more just, comprehensive, and gracious ways of understanding language and the sciences that study it. The problem I faced, the one faced by all who open their mouth to speak or who set pen to paper, is the deepest in all of language: *What (if anything) ought to be said?* The listener (or reader) has the reciprocal conundrum: *What ought to be listened to or read?*

This question is sufficiently unnerving it is rarely addressed. Most studies of language artfully avoid it. The most potent forms of scholarship have spoken primarily, if not exclusively, of forms and their ordering and spacing, in describing language. We have spoken of phonological forms, syntactic structures, and semantic networks. All of this work has a powerful tendency to be disembodied and unaddressed. Forms are treated as having no place, no purpose, and no relationship beyond themselves. Language is viewed, not as a means of social, physical, and moral encounter between two or more related bodies who belong to a people with a history, and who are obligated to real tasks that demand their cooperative efforts, but as a game of coding and decoding an abstracted and only partly deciphered set of rules for coding. It is as if we who study language were kinesiologists, given the task of understanding the body and its movements, but we chose instead to describe in exquisite detail the shapes, colors, features and folds of the clothing covering the body. There would be correlations, of course. Watching clothes can tell us something about bodies, but not nearly enough.

Can we face the daunting question? Even ecological psychologists have flinched. Despite their avowed intent to study meaning and value, ecological theorists and researchers have found themselves engaged in a series of rearguard actions that have diverted their attention. The most persistent issue ecological psychology has confronted is the deep-rooted tendency in Western science to separate environments and their inhabitants from each other, to treat animate beings as separable from their surroundings (Järvillehto, 2009; Turvey, 2009). Most ironic is the separation of animate beings from their own kind, for example, treating any given human being as an autonomous thinking machine (Costall, 1995; Good, 2007; Kono, 2009). Ecological science has worked hard to show that we cannot describe the world independently of the inhabitants who know and act in and on that world, if we want to understand that knowing and doing (Chemero, 2009). Space, time, weight, light, and a host of other things that most psychologists want to accept as “givens”—that is, they assume they already know all they need to know about those events from physicists’ descriptions—ecological scientists want to treat more pragmatically. For example, the meaning of *weight*, may not be mass, as physicists have proposed for their purposes, but something more like *resistance to rotation* (Amazeen and Turvey, 1996), which includes how mass is distributed (i.e., shape and volume). To put it in linguistic terms, there is not a lexicon “sitting there” in physics that can be used without question by psychologists. Semantics must be contextualized by pragmatics.

What holds true for ecological physics also applies to language. A wonderful example of the fresh insights and challenges that can emerge when one approaches the phenomenon of interest in this ecological way is Robert Port’s deep questioning of the nature and status of phonemes. In a series of papers (e.g., Port and Leary, 2005; Port, 2007, 2010a), one of which has appeared in this journal (Port, 2010b), he has challenged the assumption that there are a small number of fixed basic units, shared by all members of a linguistic community, which are combined and ordered to generate speech (Chomsky and Halle, 1968). Letter-like representations are too “impoverished” to “support either real-life speech perception or expressive and fluent speech production” (Port, 2010a, p. 309). What linguists have identified as phonemes are communally produced and maintained stabilities: “Actual languages are emergent structures created by human communities not by individual human brains” (Port, 2010a, p. 314). Thus, language, even at the level of articulatory action, is far more distributed physically, socially, and historically than has been traditionally assumed (Cowley, 2007, 2011; Rączaszek-Leonardi, 2010).

Carol Fowler (2007, 2010a) is an ecological researcher who has questioned Port’s “interesting and radical” claims (Fowler, 2010b; Hodges and Fowler, 2010), but who has herself spent over two decades articulating and defending a direct-realist understanding of speech perception and production that claims that speech is fundamentally gestural. Both Port’s and Fowler’s arguments push us to see language as a much more physical phenomenon than it has been taken to be by most cognitive accounts, while at the same time drawing attention to how deeply social speaking and listening are. Fowler makes the astonishing and sensible claim that people can “directly perceive the meaning” of others’ utterances, going onto say, “The necessity is not due to physical law directly, but to cultural constraints that have evolved over generations of language use” (Fowler, 1986, p. 24). Like Port, Fowler appreciates the emergence of stable patterns in communities over historical time, that have become what might be called “naturalized resources” for social coordination. In terms of epistemic warrant, Fowler’s view of the lawfulness of language suggests that a truly ecological view does not draw the sharp distinction that is so often drawn between what is natural and what is cultural, or between what is lawful and what is conventional (Reed, 1987).

Ecological researchers think language is creative in a way that goes far beyond what Chomsky (1965) imagined with a finite lexicon and a finite grammar yielding an indefinitely large number of sentences about which an individual would have intuitions about how syntactically well-formed they were (Smith, 1999, p. 33). By contrast, Port has claimed that, “every utterance is a creative behavioral response to our experience, potentially shaped by every possible facet of our lives” (Port, 2010a, p. 323). Ecological researchers see what we call language as a complex system that operates over multiple space–time scales. Van Orden and his colleagues (e.g., Hollis et al., 2008; Van Orden et al., 2005, 2010; Wallot and Van Orden, 2011) have found support for Port’s claim in simple dimensions of linguistic activity, such as pronunciation and word recognition. They have participants say the same words hundreds or thousands of times, taking measurements on a number of physical parameters. One of their key findings is that the more measurements they take, the more variability they find. This is exactly the opposite of what we usually expect when we do more measurements: We expect to narrow the uncertainty and fuzziness of the phenomenon (e.g., the word), so that it is defined more precisely and accurately. Instead, they find that more

measurements reveal new dimensions of variability having to do with larger scale events (e.g., cultural, historical, evolutionary) over longer time frames. As Port suggests, every time we speak we place ourselves, locating ourselves in particular histories, but in doing so we enlarge our language and languages more generally. The newness (i.e., creativity, novelty) pointed to by Port goes far beyond merely sentences; it includes, among other things, the very way we shape sounds on particular occasions. The novelty of word order, hailed by cognitivism, seems pinched by contrast.

The claims of Port, Van Orden and others are paralleled in the argument of [Evans and Levinson \(2009\)](#) concerning linguistic universals: “the more we discover about languages, the more diversity we find” (p. 436) and “almost every new language that comes under the microscope reveals unanticipated new features” (p. 432). This unanticipated diversity is a powerful example of the ecological nature of linguistic dynamics: The more comprehensive our sampling of human languages has become, the greater the variability in the gesturing, syntax, and semantics that has been observed. This enormous diversity, which is assembled across many more space–time scales than previously assumed, suggests two surprising things. The first is that language is more systematic (i.e., more complex and integrated) than even those who assume a universal grammar would have guessed. The second is that this more complex, multi-scaled way of understanding language indicates that linguistic forms “reflect cultural preoccupations and ecological interests” ([Evans and Levinson, 2009, p. 436](#)), not just general biological and psychological constraints ([Christiansen and Chater, 2008](#); [Locke and Bogin, 2006](#)).

The cultural preoccupation and ecological interest embodied in this article is my attempt to create an appreciation for what an ecological approach to language might have to offer. Since the ecological approach to language is not a well-articulated, formal theory, I will present a few themes and issues that emerge from such an approach that tend to differentiate it from other approaches, and that may deserve to be developed into a more full-fledged account. No attempt is made to provide a comprehensive review of ecological efforts. Nonetheless, I hope what is offered will be of service, both to novices first learning about ecological psychology, and to those who have spent many years trying to work out such an approach.

4. Place and intention

When humans speak and listen, they locate themselves. Language irreversibly places us and holds us accountable. Whenever we speak we reveal where we are, something about where and whom we have come from, how we are positioned—physically, socially, and morally—relative to others around us presently, and something about where we see ourselves going. In one of the principal texts exploring an ecological approach to language, [Fowler \(1986\)](#) discusses a delightful example of this sort of locating, positioning, and accounting. In a classic sociolinguistic study [Labov \(1963\)](#) noted subtle shifts in pronunciation of two diphthongs among residents of a small island off the coast of Massachusetts that was a farming and fishing community until the island was “discovered” by tourists from the mainland, who “took over” during vacation season and drove up prices. Historically, before and during the settlement of the island by English colonists the two diphthongs were lowering, but Labov found a reversal of this pattern occurring among many of the “native” islanders. The year-round residents apparently reverted to the older way of speaking in keeping with their older way of living, differentiating (no doubt, unconsciously) themselves from the crass newcomers. The reversal was noticed most often in younger residents who planned to stay on the island, compared with those who were planning to leave. Slight variations in vocal tract actions indexed that speakers *belonged* to the island, and that they intended to remain and care for it. Language ties us to a place, a history, and a way of life.

The nature of this locating and placing is primarily dialogical. Chomsky (presentation at Yale University, 2006; cited by [Fowler, 2010a](#)) has proposed that language is primarily for thinking; however, the ecological psychologist suspects this tells more about Chomsky than it does about language. For academics who spend much of their time reading and writing, thinking as a form of talking to oneself may account for the largest proportion of what is “said” or “heard” in a day. The primal condition of language, though, is not thinking, but the mother (or some other caretaker) and the child listening and speaking to each other (e.g., [Bråten, 2007](#); [Cowley et al., 2004](#); [Trevarthen, 1998](#)). Thinking as a solo activity emerges from this social co-action ([Melser, 2004](#)). It is a kind of playing where we pretend to address and be addressed to simulate the benefits of real conversation. It not the same (i.e., the resistance and cooperation of a real conversation partner cannot be matched by imagination left to its own resources) for the same reason that memory and inference is not equivalent to action and perception: Virtual time and real time are both useful, but are not exchangeable. Real conversations entrain us to the rhythms, timing, prosody, pronunciations, and grammatical patterns of others, or in other cases, we alter these to condescend to or aspire to a different position in the social order. Our speaking places us socially, as well as physically, indicating both our origins and our aspirations.

[Fowler \(1986\)](#) observes that the locating and the intending, which are embodied in linguistic activity, constrain the listener as well as the speaker. Each needs the other for an act of conversing to occur, but they also need the dialogue of others in which to place their own listening and speaking.

Vocal-tract activity can only constitute a linguistic message in a setting in which, historically, appropriately constrained vocal-tract activity has done linguistic work [...] [L]isteners apprehend the linguistic work that the phonetically structured vocal-tract constraint is doing by virtue of their sensitivity to the historical and social context of constraint in which the activity is performed.

([Fowler, 1986, p. 23](#))

Speaking and listening must occur jointly, but they must be tuned, not only to each other, but also to the larger historical and social context. This comes close to recognizing the claim put forward by Bakhtin (1986) that our utterances always address, not only those immediately present, but also those who have come before us and after us.

5. Good continuations

Perhaps nothing in the prior paragraph surprises the reader. But for those familiar with ecological psychology, there is a surprise. Many of the most influential theorists of ecological psychology have focused on the physicality and the lawfulness of psychological actions (Turvey, 1992; Shaw et al., 1982; Petrusz and Turvey, 2010; Shaw, 2001). This is one of the reasons that language studies have not been front and center on the ecological workbench. Chomsky (Smith, 1999) and those he has influenced also worked to establish a lawful basis for language, but the terms used were cognitive and idealistic, with an implicit nod to biology (e.g., claims of an innate, universal language acquisition device), rather than being focused on physical relations between perceivers, actors, and their environments. Phonemes, for example, have been assumed to be “mental entities,” not physical coordinations of a speaker’s vocal-tract, constrained to coordinate with the auditory, visual, and other perceptual capabilities of a caring listener (Fowler, 2007).

Fowler, though, takes on the daunting question I raised earlier—at least partially—claiming that listeners can directly perceive the meaning of what others say to them, but only when “uttered in an appropriate setting” (1986, p. 24). She goes on to say that “the necessity is not due to physical law directly, but to cultural constraints that evolved over generations of language use” (p. 24). This does not mean that listeners can (or should) lawfully reproduce the intention of the speaker (e.g., imitate or comply with the other’s intention, if it can be known apart from what is said). Even the speaker may not know exactly what or he or she means. Often enough, we speak to others in order to discover what it is that we think, or what it is that we ought to do. Meaning, though, for two people who share a common history, and who care about each other, their present task, and their future together, have the real, potent possibility of directly resonating to this larger story of which they are a part—they feel it—in such a way that they know how the story should be continued. That is, together in concert with their culture, their place, and their purpose they can choose what Gestalt psychologists would call a “good continuation” (Quinn and Bhatt, 2005).

Perceiving what is to be done (linguistically, as well as otherwise) needs to be scaled over the largest array of times and levels of analysis imaginable. Can a speaker be sure about any one phoneme, any one word, any one sentence, or any one conversation? Never. One can always second-guess a word choice, or rephrase a sentence, or wish one had been more articulate, more thoughtful, or more just and kind. What Fowler’s bold thesis suggests, though, is that people who really belong to each other, to a people, to a place—who are cultured, caring, and committed—can direct their actions in ways that are reliably informative and useful. Together, with all that their place, time, and history give them, they can address themselves directly to the task of advancing the particular conversation in which they are embedded, which participates in the larger tasks they have of culturing the place and people of which they speak.¹

In short, Fowler’s (1986) direct realist theory of language proposes that speaking with each other works. This is not unlike the argument that Gibson (1966) had to make a half century ago about perception. Against (almost) the entire Western philosophical and scientific tradition which claimed (and still claims) that perceiving is unreliable (i.e., biased, ambiguous, illusory), he pointed out the obvious: Perceiving works and works well, spectacularly so much of the time, so much so that it is fair to say it provides our most convincing contact with our surroundings and the others who share those surroundings with us. The crucial proviso that speaking with each other works, according to Fowler, was noted above: What is said must be “uttered in an appropriate setting” (1986, p. 24). Just as Gibson had to point out that much, if not most, of the research done on perception deliberately undermined the ability of perceptual systems to operate properly (e.g., only allowing a single, stationary view of an artificial layout designed to be ambiguous), Fowler (2003) has pointed out that too much linguistic research focuses on small scale units (e.g., phonemes) deprived of their proper context (e.g., an ongoing conversation between two or more people). Bang and Døør (2007), among others, has argued that dialogue should be the smallest unit of linguistic analysis.

Part of the problem with the selection of units has been the dualism that separates *culture* from *nature*. This invidious tendency (Ingold, 2000) is so pervasive that even ecological psychologists have fallen prey to it. In their search for a natural scientific account of perceiving, acting, and other psychological skills, ecological researchers have often treated the social-developmental dimension of reality (which scales up to the cultural–historical), as something secondary, to be addressed later, after “more basic” activities (e.g., an ecological physics of perceiving and acting) are sorted out (e.g., Heft, 2007; Hodges and Baron, 2007). The physical world is not fixed and given; rather culturing is a natural aspect of that world. Whether that culturing begins with plants or animals, or comes even earlier, the physical world we know and care for is a cultured world. It bears the marks of prior actions, both good and ill.

Conversing with each other over time, across and within generations, orients and directs those who do it in ways that can be stunningly specific and remarkably reliable. If it were not so, it is likely that none of us would be alive, and it certainly means we would not be writing and reading articles as part of an enterprise called science. Even though I will never meet

¹ The use of *conversation* is not meant to convey anything about the sophistication or seriousness of what is being discussed. A conversation could have no sentences, to speak of, and could be utterly practical in coordinating some physical activity, such as cooking or climbing, or it could be a game of wordplay, chatter, or gossip among friends or teammates.

most readers and they will never meet me, by writing and reading, we act in the firm faith that something truthful, just, and good can emerge from our movements. It is not guaranteed by natural law or forced by cultural fiat: It emerges only from responsible, dialogical actions on the part of writers, readers, editors, and publishers, who work together to create and share something of worth. An ecological approach to language sees it as more than a possibility: It is a promise and a responsibility.

Note that Fowler's claim of lawful specificity and reliability depends on a larger context of cultural commitment and continuity. Language is grounded, not by the attachment of signals to referents, as nearly all cognitivist approaches to language have assumed (e.g., Harnad, 1990; Rączaszek-Leonardi, 2010), but by a much larger, much looser, but much more binding array of evolutionary, historical, cultural, local, and personal patterns, that place the person speaking, as well as well as placing the movements (e.g., vocal tract and body) that we identify as the details of semantic, syntactic, and articulatory structures and transformations (Treffner et al., 2008). As hinted at throughout the discussion above, the appearance of lawfulness (large scale invariances) and rule-following (small scale invariances) depends on the embedded, embodied willingness of people to submit themselves to communal practices over generations. Without these larger-scale, values-realizing constraints, linguistic activity could not become lawful and rule-following, to the extent that those characterizations are meaningful descriptions of the activity.

Does looking tell us what we ought to do? Most psychologists do not believe (at least when they are speaking as psychologists) that looking can even inform us of what our present circumstances are. It is even more preposterous, they believe, that perceiving can indicate anything reliable about the future or about what it would be good to do. In fact, it is widely believed that it is a logical mistake, a “naturalistic fallacy,” to try to move from a descriptive claim to a prescriptive one (Brinkmann, 2009). By contrast, an ecological account makes the outrageous, but perfectly defensible claim (Brinkmann, 2005, 2009; Hodges, 2007a,b; Hodges and Baron, 1992) that every psychological activity, embodies a movement from *is* to *ought*. Whenever we act, including perceptual acts, we act prospectively: We orient and move toward what we take to be good. We can and do fail sometimes to realize the goods we perceive, and often we can and do fail to perceive those goods in the first place. But if perceiving, acting, and conversing were as dicey and dangerous as many cognitive accounts presume, we would not be here to argue the point.

The possibility that we can perceive directly, through conversing, the character of our surroundings, so that we can know better and worse directions in which to move, suggests that we might want to think of language itself, the activities of listening and speaking with each other over time, as a perceptual system. To that we turn next.

6. Dialogical arrays

When most of us think of perceptual systems like vision, audition, or haptics, we associate them with particular anatomical features, such as eyes, ears, and hands, respectively. Gibson (1966), however, considered legs to be part of a visual system. Some anatomical structures that were sensitive to the information in light were certainly necessary, but unless those structures could move and explore the ambient optic array, they would be extremely limited in the guidance they could provide for the animal's appropriate action. Similarly, language needs to move and be spread out if it is to provide information that can guide actions and enable coordination. Although we have generally been taught to think of language as a form of cognition, we might do well to consider it a perceptual system. We speak to each other as a way of probing what I have called the dialogical array (Hodges, 2007a, 2009), the distribution of other speaking bodies around oneself, that can reveal some information about what they have felt, seen, heard, smelled, and tasted, including what they have done and to what effect. Exploring the dialogical array is like giving legs to a visual system: It extends a person's capabilities by orders of magnitude. One of the great advantages of humans as a species is their ability to make use of their linguistic skills to extend their knowledge beyond what they individually can perceive, no matter how much and for how long they travel as individuals. Conversing about their present situation allows everyone involved to know better where they *stand*—physically, socially, and morally—than if they were limited to using only their other perceptual skills (e.g., vision, haptics).

Although Gibson spent little of his time addressing language, he acknowledged that conversing allows one “to see through the eyes of another” (Gibson, 1982, p. 412), but he suggested that it provided only indirect knowledge, since the speaker, not the listener, selects the information to be articulated. However, Gibson's contrasting of information gained through dialogue with information gained through one's own looking or tasting, seems to be based on the Enlightenment tendency to trust oneself over others. A young boy who trusts his mother's words, or a woman who trusts the description of a friend, based on what past action and perception have taught them about the perceptual skill and moral commitment of the other, is acting no less directly than someone trusting himself or herself to see, feel, or taste what is good or is not.

All perceptual activity, including my own, is selective. Precisely what may lead me on some occasion to prefer another person's perceiving to my own is that I have perceived over time that the other person is better than I am (or better-positioned than I am, or some other qualifying condition) at searching for and finding the relevant information. Perceiving, whether it involves my probing a crevice with a stick, or my sniffing and squeezing a fruit, or my engaging in vocal tract modulations that may prompt others nearby to modulate theirs in return, producing a round of exchanges, yields information directly. The information gained may be sufficient to success on some task in which the person is engaged, but it may not be. My doing all the looking or smelling does not necessarily provide more epistemic warrant for actions I take based on that information, than is afforded by the act of conversing with others and acting in concert with them. In fact, over a wide array of situations it is likely that joint perception and action, including conversation, will yield the best outcomes both for

the group and the individuals in it. How individuals may use and be used by others to gain knowledge that can be shared is a fascinating and complex issue, one that social psychologists, ecological psychologists, and students of language would do well to study further (see, for e.g., [Campbell, 1990](#); [Hodges, 2007a](#); [Hodges and Geyer, 2006](#); [Tomasello, 2009](#)).

7. Speaking from ignorance

As an illustration of these complexities, consider the following social psychological experiments ([Hodges et al., in press](#)). Although the experiments are artificial in many ways, they involve dialogical arrays of a sort, and provide insight into “the point” of conversing with others. The question the experiments address is, “What will people say when they are asked to speak from a position of ignorance to others who are more knowledgeable than they are?” In one version of the experiment three people participate in an experiment on “seeing from different angles and distances.” They were placed in three positions relative to a screen on which we projected words that were easy to see from in front of the screen ([Fig. 1](#)), and all participants saw one example from this perspective prior to being seated at positions A, B, and C ([Fig. 2](#)). Two participants who are confederates are assigned to positions A and B, and always give the correct answer. The real participants are placed in position C, where it is virtually impossible to see the words clearly, but easy to see that positions A and B are much better than C. What will the person at position C say when A and B have gone first, providing the correct answer? From the perspective of standard psychological views about social influence (e.g., [Cialdini and Goldstein, 2004](#)) this situation seems utterly straightforward: Answers given by A and B would be expected to be completely persuasive for C, who would always agree. We ([Hodges et al., in press](#)), however, predicted that people would experience this situation as a dilemma, and more specifically, that people would sometimes, maybe often, disagree with the correct answers of others. This is, in fact, what we found in a series of experiments using a variety of procedures and layouts. In the basic experiments described above, 27% of answers disagreed with the correct answers offered by A and B, even though C believed A and B’s answers were correct.

The rationale for our prediction comes from values-realizing theory, including pragmatic considerations ([Hodges, 2007a](#); [Hodges and Geyer, 2006](#)). We believed that participants placed in poor positions would find it awkward to be participating in a situation that calls for a sharing of views, but in which they feel like there is nothing distinctive for them to contribute. The obvious basis for their participating in the dialogical array has been undermined. Furthermore, the truth of the matter is that they really cannot see anything. If so, why should they not say something that makes this plain? The dilemma, ironically, is that they have not been asked to tell the truth, but to give the correct answer. It would be easy to give the correct answer, but, if they simply repeat the others, they have not indicated the truth of their ignorance. Participating in a conversation requires more than just being agreeable or giving the correct answer. It requires a sensitivity to and acknowledgment of multiple values that take into account the various positions in which people find themselves, and the obligations they undertake together to honor those goods and learn about their own placement with respect to them.

Although the experiments just described were done to test a social psychological hypothesis ([Hodges and Geyer, 2006](#)), not to explore the nature of dialogical arrays, interpreting them in terms of language and learning is revealing. Consider, for example, a person who finds himself in a conversation on a topic about which he is ignorant. Rather than keeping his silence, he enters the conversation, talking as if he understood what was being said, yet actually revealing his ignorance. My wife, who works at MIT, has heard people who know nothing about physics talking to world-class physicists about physics, as if they could do such a thing. Why would people make fools of themselves in this way? Perhaps it is not so foolish as a semantic literalist might consider it. People are simply acknowledging that conversations work when people do not agree about everything, do not have everything in common, and do not repeat each other. In one sense they are showing their

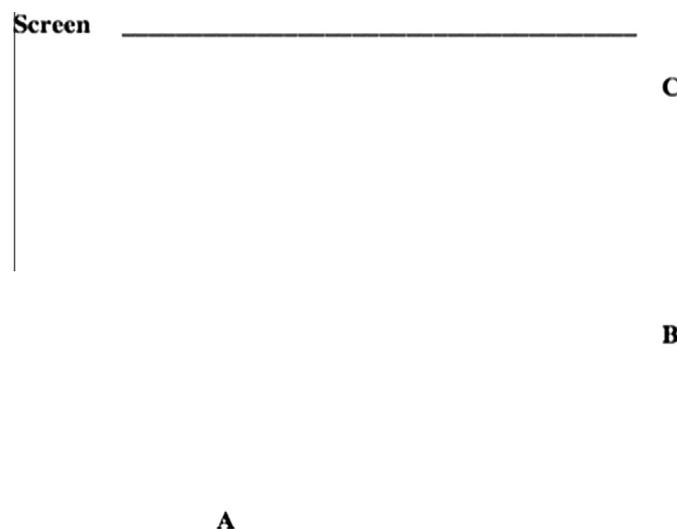


Fig. 1. Positions of participants in speaking from ignorance studies (not to scale).

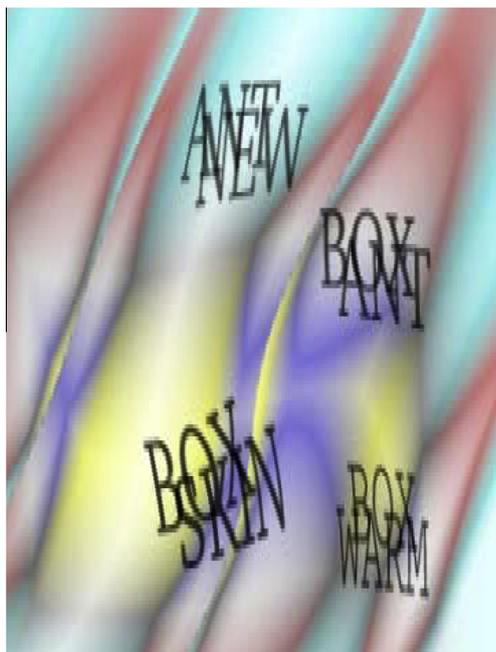


Fig. 2. A slide used in the speaking from ignorance studies (reduced to B/W color). The question asked was, “What is the bottom word in the lower right hand corner?” Answer: *Warm*. Sample question had indicated meaning of *bottom*.

ignorance, but they are also indicating that they want to be in the conversation, that they want to be included, that they want to learn more about what is going on (Steffensen, 2012). They trust that others will be kind enough to take note of both their ignorance and their desire. By making temporary fools of themselves, they express a hope that others will help them become less so.

What, after all, is the point of language? Why do we engage in dialogical arrays, probing each other and sharing our various perspectives, histories, and plans? Often it seems that psychologists and linguists assume the point of conversing is to reach agreement, or to conform to others views and ways of doing things (e.g., Tomasello, 2005, 2008). Pragmatic theorists (e.g., Mey, 1993, 2003), on the other hand, often point to the value of disagreement and conflict. Dialogical arrays require both disagreements and agreements, but the point of listening or speaking to others is to learn—about others, ourselves, and our situation, and the larger context of that situation (e.g., prior events in which various individuals have participated and what they see as various possibilities to be realized in the future). Learning, by definition, proceeds from ignorance. If language—conversations among people who live and work together over generations—contributes to learning, then “speaking from ignorance” is not an occasional, odd occurrence, as the example of talking to a physicist about physics might have implied. Instead, it is always and everywhere the case that we are speaking from ignorance. We speak, not because we know, and need to set others straight, but because we are ignorant and need to learn. Of course, sometimes each of us plays the role of the physicist—about a particular topic we are in a better position, or we have travelled a path that provides more information than is available to others. But even when we share expertise, we speak from ignorance, and it is our tacit realization of this truth that encourages us to encourage others who are less experienced (or more poorly positioned) to “ask silly questions” or to “not be afraid to try it.”

Studies of people giving wrong answers to communicate a larger truth (Hodges and Geyer, 2006), and of giving foolish answers in an attempt to learn and contribute (Hodges et al., in press), illustrate that language is complex and opaque, rather than economical and transparent. This may seem a puzzling claim for an ecological approach to language, with its claims about the directness of perception–action systems. Ecological theory, though, works at moving beyond two metaphors, *language as representation* and *language as a tool*. Both metaphors treat language as a means of *fixing* reality. A representational account treats language as a fixed set of idealized structures and forms; it objectifies language. The language-as-tool metaphor “fixes” in the sense of being an instrument of our will, a means by which we can shape the world to our liking. Linguists have found the first metaphor most tempting, social psychologists the latter. An ecological approach suggests another way: “the creativity of conversation is less about generating new syntactic combinations than *jointly* acting to create new possibilities that invite responsible action” (Hodges, 2007b, p. 173). With its focus on joint action, an ecological approach also sees language less as a tool of exclusion or manipulation than many pragmatic theorists would have it (e.g., Mey, 1993). The very act of conversing moves us toward sharing, rather than conforming.

Having extolled the power of dialogical arrays to inform us about our surroundings, it is important to point out that all of the discussion, both in this section and in the preceding one about place and intention, depend on the values-realizing context in which these dialogues emerge. All of the powers of language as a means of perceiving our place in the world and as a means of prospecting our actions, depend on moral orders functioning appropriately, as well as social and physical ones

(Costall, 1995; Hodges, 2007b). For dialogical arrays to be effective for learning, pragmatic skill and moral commitment are required, and it is to these topics we turn our attention.

8. Pragmatics and responsibility

Pragmatics can be described as the study of how our speaking and listening are shaped to be *caring* and *careful*. Grice's (1975) influential account of pragmatic constraints takes cooperation to be a fundamental motive of conversing. Humans are "an extraordinarily cooperative species" (Sterelny, 2003), and it is likely that this has contributed to our having developed linguistic abilities in unprecedented ways (Tomasello, 2008, 2009). If one examines the guts of Grice's claims one finds a values-realizing core: Language works, according to Grice, only if we attend to the demands of truth, kindness, justice, economy, clarity, and coherence, as we speak. From an ecological perspective, the dialogical complement must be added: The listener must attend to the demands of charity, creativity, and trust, as they listen, if the conversation is to work. However, even adding the listener is not enough. In conversations we jointly work out what justice, truth, and freedom demand of us (as a group, and as individuals) as we work together on some task(s).

All this points to a fundamental function of language: It is a crucial means by which humans care for each other, including themselves, and their surroundings (Hodges, 2007a). Unless humans care about themselves, others, and the world, there is little or no reason to speak or to listen. As the opening exercise of the paper illustrated, saying something meaningful (i.e., values-realizing) is no trivial feat; proper phonology, syntax, and semantics do not necessarily yield *sense*. To speak meaningfully is to engage in an act of irreversible, impredicative responsibility to addressees (Hodges and Fowler, 2010). To say that an act is *impredicative* is to say that it is self-referential (Petrusz and Turvey, 2010): It points to the self, locating it as responsible to the other, and to assessing properly their current location and relation, and to prospecting together their future possible directions. The *irreversibility* of action is that it moves in some real direction with real force; it cannot be taken back. Speaking is such an action in its ecological setting; we say what we say as who we are, to whom we say it, at the place and time of the saying, and all of this gives ontological and moral heft to our utterances. It was this heft that Bakhtin (1993) was pointing to in claiming that utterances were always *addressed* and *answerable*. Our utterances bear (embody) the placing and the intentionality of their circumstances.

We speak out of the conviction that together we can measure our present place better, and can work out more fruitfully how we might move into the future, creating new places and possibilities into which to act, if we engage each other in conversation. Since listening is not only the reciprocal of speaking, but actually co-constructs the utterances of the speaker, as the conversation unfolds over time, it partakes of the same responsibility as speaking. This suggests that the directness of language, its meaning and value, "lies not in some deductive certainty, but in the subtle social and moral dynamics of real physical bodies, dialogically arrayed, that have directly shared and cared for a set of places and tasks over a common history, working to do the next thing that needs to be done for the good of those places, those tasks, and themselves" (Hodges and Fowler, 2010). "Conversing seeks good prospects" (Hodges, 2007b, p. 174).

The ecological claim, that the intention of conversing is prospecting the good, and caring for the good and those seeking it, is not romantic idealization. Pragmatics is the study of some of the ways in which language is careful. A crucial part of language acquisition is learning that people can say smart sounding things that are not, or they can speak politely but with no real love or respect, or they can use their semiotic skill to divert our attention while trying to deprive us, or others, of justly deserved goods. Pragmatic sensitivity and finesse are required to sort out insight from nonsense, wisdom from danger. One of the most difficult lessons we learn is that the problem of pragmatics is not confined to others; we, ourselves, cannot be trusted always to be forthcoming and gracious, truthful and considerate. How do we address pragmatic weaknesses in ourselves as well as others? How do we really learn to care in our listening and speaking?

The most important pragmatic resource needed to detect defective intentions of others is the diversity offered by dialogical arrays over time. The dialogical nature of language itself (Linell, 2009) helps to keep us, and others, more honest, more forgiving, and more caring than we otherwise would be. In a very real sense we talk in order to argue, but the purpose of the arguing is not to bend others to our will, nor to resist bending to their will. The point is for both (or all of the) parties to learn something together about their relative positions, and "what was at issue in their disagreement" (Martin and Fonseca, 2010, p. 14). We listen and talk not to agree, or to disagree, but through agreements and disagreements to locate and direct ourselves toward goods (i.e., values) that can only be realized jointly.

This account of the pragmatics of argumentative activity in the context of dialogical arrays may sound idealistic; however, evidence from a surprising direction suggests it might be quite realistic. Mercier and Sperber (2011) have proposed that reasoning is not the autonomous, individual skill it is often assumed to be; rather, it has evolved "within the framework of the evolution of human communication" (p. 60) and functions best in the context of argumentative dialogue. They suggest that reasoning functions largely to generate arguments in favor of one's own position, especially if the situation is seen as a debate. This "confirmation bias," as it is often called, is usually viewed as a flaw in reasoning. Mercier and Sperber propose, however, that it is a feature of competent thinking that exists because reasoning ordinarily functions in a social context of argumentation, in which each person thinks of reasons supporting his or her views, knowing that others in the group with differing views will advance their own arguments. While the production of arguments reflects the biases of individuals' perspectives, the members of the group will reason together to evaluate the merits of all claims.

Studies indicate that groups who "share an interest in discovering the right answer" usually do a good job of evaluating various counter-claims, such that "truth does indeed win" (Mercier and Sperber, 2011, p. 72). Thus, although the *production*

of arguments is biased by the desire to persuade others, the *evaluation* of arguments is worked out socially, such that the group is able to do what no individual within the array can do as effectively alone. This suggests that reasoning is for arguing, and arguing is embodied in dialogical arrays. The group as a whole is able to ferret out the truth of a matter, or the best course of action to take, even if none of the individuals held to that truth or that action choice prior to arguing dialogically the merits of the various views (e.g., Laughlin et al., 2003). Thus, the so-called confirmation bias might be better viewed as “a joint dialogical approach” that is an efficient “division of cognitive labour” (Mercier and Sperber, 2011, p. 65).

The argument of Mercier and Sperber reinforces the claim that dialogical arrays allow their participants to evaluate and reorient their positions individually and collectively, so that they can move in better directions than could be discerned from any of the individual perspectives. Thus, being responsible to the others in the dialogical array encourages conversation that is “reasonable” in the best sense, but it depends on a values-realizing commitment to truth, trust, and social solidarity. What grounds both conversing and reasoning are physical–social–moral obligations and the perception–action skills that work to realize values through dialogical arrays.

9. Righting language

Reasonableness of the sort Mercier and Sperber (2011) allude to is a communal virtue. It is the ecological context in which language can be righted. Ecological psychology works to right language—to restore it to its proper state, in which its proper functions—caring and caretaking—can be justified and vindicated (Millikan, 2005). It tries to do this by putting language back on its feet, as it were, but in the quite literal sense of understanding it as an embedded, embodied activity (Fowler, 2010a) that comes from somewhere and is going somewhere, but now finds itself “standing upright” in a dialogical array in which information will be shared, questions posed, and arguments proposed and challenged.

Dialogical arrays locate participants in powerful and personal ways, but they also extend their grasp—both perceptual and performatory—by orders of magnitude. Participants become more aware of their being cared for by a larger environment and a larger history than they otherwise would have imagined. They are better able to learn their limits, but they also can gain an appreciation of their ability to go beyond the horizon of the immediate situation to have effects far beyond their present place and moment. These possibilities are probable, but not guaranteed: It they require that participants be truthful and careful, trusting and cautious, determined to maintain their social solidarity while realizing that the strength of the array lies in its diversity. Thus, language is for learning and for realizing values. As we, who speak and listen, participate together in dialogical arrays, we can begin to place ourselves, and then work together to care for the larger place that sustains us, developing our life together.

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