

Reviews on Key Issues in Religion and Science

with Bert H. Hodges, "Language as a Values-Realizing Activity: Caring, Acting, and Perceiving"; Claudia E. Vanney, "Is Quantum Indeterminism Real? Theological Implications"; and Robert A. Segal, "The Modern Study of Myth and Its Relation to Science."

LANGUAGE AS A VALUES-REALIZING ACTIVITY: CARING, ACTING, AND PERCEIVING

by Bert H. Hodges

Abstract. A problem for natural scientific accounts, psychology in particular, is the existence of value. An ecological account of values is reviewed and illustrated in three domains of research: carrying differing loads; negotiating social dilemmas involving agreement and disagreement; and timing the exposure of various visual presentations. Then it is applied in greater depth to the nature of language. As described and illustrated, values are ontological relationships that are neither subjective nor objective, but which constrain and obligate all significant animate activity physically, socially, and morally. As an embodied social activity, conversational dialogue is characterized in terms of values, pragmatics, and presence rather than in terms of syntactic and semantic rules. In particular the nature of dialogical arrays is explored, and the hypothesis that language is an action system, a perceptual system, and a caring system is explored. Language expands horizons and makes it possible for humans to realize their calling as culture makers and caretakers.

Keywords: cognitive science; dialogue; language; naturalistic fallacy; ontology; perception; psychology; semiotics; time; values

THE ALIENATION OF VALUE

Terrence Deacon goes through 543 pages in his book, *Incomplete Nature*, and finally arrives at the topic of *value* on his last two pages. This is what he says: "Perhaps the most tragic feature of our age is that just when we have developed a truly universal perspective from which to appreciate the vastness of the cosmos . . . we have at the same time conceived the realm of value as radically alienated from this seemingly complete

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understanding of the fabric of existence. In the natural sciences there appears to be no place for right/wrong, meaningful/meaningless, beauty/ugliness, good/evil, love/hate, and so forth" (Deacon 2012, 544). The problem has long been recognized by celebrated psychologists, such as Wilhelm Wundt (1908; see also Mischel 1970), Franz Brentano ([1889] 1902), Wolfgang Köhler ([1938]1966), Solomon Asch (1952, 1968), and James Gibson ([1979]1986; see also Reed 1988), all of whom worked to develop a scientific psychology that took values as a central concern. Despite their efforts, many, if not most, psychologists remain wedded to dogmas that mute the fundamental significance of values for thought and action (e.g., Kendler 1999). However, many recent voices have argued that values are central to defining and understanding psychological phenomena, such as perceiving, acting, reasoning, and remembering, and that furthermore, without values, psychology cannot possibly function as a proper science (e.g., Martin, Kleindorfer, and Brashers 1987; Schwartz 1990, 2010; Hodges and Baron 1992; Kadar and Effken 1994; Reed 1996; Brinkmann 2009, 2011).

The purpose of this article will be to provide a brief review of an ecological account of values (Hodges and Baron 1992; Hodges 2007b) and its application to various physical, social, and cognitive tasks, with special attention to the nature of language as a values-realizing activity. More particularly, language will be explored as a perceptual system, an action system, and a caring system. This way of rethinking language—what it is, what it does, and why it exists—will push against views of language that see it in terms of a system of rules, centered in phonology, syntax, or semantics. Instead, it will pull in the direction of a psychology of pragmatics and presence.

Exhibit A for the necessity of values for psychological activities is the nature of science itself. Scientific activity is widely acknowledged to be a values-realizing activity, from beginning to end (e.g., Putnam 2004; McMullin 2012), although claims about a fact/value dichotomy and worries about the "naturalistic fallacy" often tip the scales toward skepticism (Brinkmann 2011, chapter 5). Not only is the human activity of engaging in scientific research and theorizing a values-seeking enterprise, the phenomena under consideration in those sciences are values-realizing. A wide variety of thoughtful voices have argued that values are essential for understanding phenomena in the social sciences and life sciences more generally (e.g., Taylor 1989; Joas 2000; Rolston 2000; Cahoon 2013). Some have gone further, suggesting that values are ingrained in the general dynamics of the universe (e.g., Hodges 2007b; Nagel 2012; Kauffman 2013; Ulanowicz 2013).

To begin, an account that is generally referred to as *values-realizing theory* (e.g., Hodges 2007a, 2009) is provided. It will then be illustrated in its application to a number of domains other than language. First,

the physical act of carrying is considered. Second, social dilemmas (e.g., whether to dissent from majority views) are discussed. Third, experiments on the perceived time of various kinds of events (e.g., tasting a lemon) are described. In each case, issues involving values are shown to play important roles in the phenomena, leading to new insights and further research. Finally, an ecological, values-realizing account of linguistic activities is explored at some length.

VALUES AS ECOSYSTEM CONSTRAINTS

One danger in beginning with scientific activities as exemplifying the importance of values is that it lends itself to considering values only in human terms. Once it is assumed that values exist only for humans, it leads many theorists to assume that values are a characteristic of human subjects themselves. Thus, most accounts of values treat them as subjective preferences, possessed by individuals, groups, cultures, or perhaps the species as a whole (e.g., Schwartz 1994; Bazerman and Greene 2010). Psychologists, and social scientists more generally, tend to treat values in exactly this way. The lineage of this view goes back at least to David Hume ([1739]1978), who took matters of right/wrong, meaningful/meaningless, and good/bad to be sentiments. Values were quite real, but only as psychological states. Recent evolutionary psychologists (e.g., Curry 2006; Walter 2006) have invoked Hume as a champion for the cause of wresting morality away from philosophers and religionists, and giving it to social science researchers intent on naturalizing ethics. There is a long tradition of critique of this subjectivist, emotivist approach to understanding value (e.g., Kant [1781]1999; MacIntyre [1981]1984, 1988; Midgley 1993), which can be suggestively summarized by noting three important weaknesses. One, it confuses value with valuation. Two, it cannot account for social coordination or self-critique. Three, it drastically shortchanges the diversity of values.

In contrast to such subjectivist accounts, values-realizing theory (Hodges and Baron 1992; Hodges 2007a, 2007b, 2009) makes three claims. First, values are inherently plural. Even “simple” tasks, such as reaching for a glass to take a drink, demand attention to multiple values. The starting and stopping of the movement, the accuracy of direction, the acceleration and deceleration of the movement, the shaping and coordinating of the fingers, and so forth, all depend on values. Driving a vehicle, a more complex task, is similarly constrained by accuracy, safety, speed, tolerance, comfort, justice, clarity, and freedom, for a start (Hodges 2007b).

Second, values such as accuracy, safety, and speed are real relationships, both ontological and social, and as such they are joint goods that can be realized only in concert with other actors and enabling conditions (e.g., sufficient light, friction). Being safe, going fast, and being accurate depend on a whole field of relationships, not simply on any one driver’s

preferences or priorities. Thus, values are ontological relationships, both physical and social, that constrain actions in ways that allow coordination to emerge. These constraints are *obligatory*. They exist whether we like it or not, whether we pay attention to them or not. Failure to pay sufficient attention to them leads to a loss of integrity in the ecosystem dynamics, leading to events that we might label, for example, as *having a wreck* or *endangering others*. Since values are relational standards, rather than personal possessions, our actions answer to values, and can be judged, both by us and by others. We can criticize ourselves, and work to improve our grasp of the appropriate relationships, or we can learn from the correction of others who have noted our shortcomings. Without such standards that transcend sentiment and desire, learning and development (i.e., getting better) would not be possible. Neither would helping someone else, since there would be no basis for judging whether we were improving their prospects by our efforts. If there is no *right* beyond our own desires and sentiments, it is difficult to see how cooperation and criticism are possible. Even at a biological level of analysis, self-repair, mutual constraint, and cooperative activity occur (Ford 2008).

Third, the diversity and systematicity of values constraining tasks such as reaching or driving demand attention, but always include the possibility and reality of mistakes and mishaps. There is always more to learn, and actions can always become more skilled. Thus, "to confuse valuation with value is akin to confusing perception with the object perceived. Perception does not create the object; it grasps it" (Frondizi 1963, 15). Values "are capable of inducing valences that are not a result of the person's own needs or will. . . . [They] may even command us to perform some activity not in our personal self-interest" (De Rivera 1989, 13). If values are not larger and more basic than the activities that realize them, there is no real basis for assessing those activities, and ultimately of defining them. If someone were only to enter a car when conditions were ideal, and no one else was on the road, and proceed to move the car down a straight path at 5 mph, would we really want to call that *driving*? At best it would be an extremely weak version of the skill, one suitable, perhaps, for a novice, but it is only against some larger standard of the values that define driving that we could judge its sophistication or its shortcomings.

While the most common ways of defining and locating values have tried to locate them in humans, individually or collectively, some have tried locating values in objects, events, or processes that are objective. Reed (1996, 103) proposed that "efforts after meaning and value" are what defines the psychological dimension of animate life. For him, values are resources located in the environment, which may afford a given animal on a given occasion a meaningful activity (e.g., eating, hiding). From this perspective values are what Gibson ([1979]1986, 127) referred to as *affordances*, "what the environment . . . offers the animal, what it provides

or furnishes, either for good or ill.” Reed takes affordances to be objective features of the environment, which do not require a correlative activity on the part of the animal: Even if no animal is there, or attentive, or acting, the affordance still exists.

By contrast, values-realizing theory proposes that affordances be understood more relationally (cf. Still and Good 1998). Driving does not exist in vehicles, or roads, or traffic systems, any more than it exists in drivers. Rather values are distributed within the ecosystem of driving, such that the many components of driving (e.g., roads, vehicles, drivers) must be in proper relationships to each other, affording the activity of “safe travel” (Gibson and Crooks 1938; Hodges 2007b). Therefore, values do not exist simply as objective or subjective possibilities; rather, they are the boundary conditions (i.e., initial conditions and intentional dynamics) that define ecosystems. As such, they provide the constitutive demands that constrain the activities of humans, or other animate beings, functioning within the ecosystem. Values, I have argued (Hodges and Baron 1992; Hodges 2009), are more fundamental than natural laws (e.g., gravitational fields constraining driving) and social rules (e.g., traffic “laws,” roadways), and are the basis for integrating rules and laws, yielding activities that can properly be identified as perceiving, acting, thinking, and feeling.

All animate beings must realize values. For example, bacteria, crickets, and finches, like humans, require some freedom of movement, an ability to maintain coherence, and ways of finding food, reproducing, and so on. Similarly, environments demand organismic activity: Soil requires the activity of earthworms, digestive tracts require bacteria, and traffic systems require the activity of engineers, maintenance workers, and gas station attendants. Environments exist for animate life, and the actions of animals, humans included, take advantage of and give shape to the affordances that make values-realizing activities possible. Thus, values are ontologically real demands, obligations, and opportunities that are best defined at ecosystem levels, rather than being restricted to organisms, environments, or particular portions of these (e.g., genes, environmental objects or processes).

Having acknowledged that all animate beings must engage in values-realizing activity, it is important to note that there can be considerable diversity across and within species in the specific ways that they must relate to their surroundings, to other animals, and to themselves. What freedom and integrity are for earthworms (e.g., Darwin 1881; described in Reed 1996) is quite different from what freedom and integrity are for humans. One of the most widely discussed and dramatic differences that mark human life is language. As Michael Tomasello (2008) points out, humans are unique among animals in having developed many thousands of communicative gestural systems. Human languages differ from tribe to tribe, and region to region. There is not one way that humans talk and listen to each other, but many. Thus, even if one hypothesizes some universals

across languages (e.g., Hauser, Chomsky, and Fitch 2002; Pinker and Jackendoff 2005; Berwick and Chomsky 2011), there must be an equally sustained and serious attempt at accounting for the diversity of cultures and communicative systems. Some have questioned whether true universals that are peculiar to language exist (e.g., Evans and Levinson 2009), and others have argued that grammar in particular has emerged from social-cultural development and learning rather than being an outcome of evolutionary history and biological maturation (e.g., Tomasello 2008).

How individuals come to participate in their local linguistic communities will not be a focal concern in this article; rather, the focus will be on the nature of language itself and how it functions for individuals in their ecological settings. Before turning to language, values-realizing theory and its application to three domains of research are presented. The diversity of the examples is intentional, since it indicates something of the possible breadth of the theory.

APPLYING VALUES-REALIZING THEORY

Values-realizing theory (Hodges and Baron 1992; Hodges, 2000, 2007a, 2007b) is an elaboration and development of James Gibson's claim that his ecological theory was "moving toward a psychology of values" (Locker 1980; cited in Reed 1988, 296), as well as the work of James Martin and his colleagues on cognition (e.g., Martin et al. 1987). It shares affinities with the work of Barry Schwartz on economic and social decision making (e.g., Schwartz 1990, 2010), and the work of Holmes Rolston in biology (e.g., Rolston 2000). Values-realizing theory has been applied to perception-action tasks (Hodges and Lindhiem 2006; Hodges 2007b), as well as cognitive (Lu, Zhang, and Hodges under review), social (Hodges and Baron 1992, 2007; Hodges and Geyer 2006; Hodges et al. 2014), developmental (Hodges and Baron 1992; Hodges 2014a), and linguistic tasks and issues (Hodges 2007a, 2009, 2014b; Hodges and Fowler 2010). In each of these domains the theory appears to have drawn attention to unnoticed or underappreciated patterns and has generated new questions and hypotheses worth exploring.

Some of the distinctive features of a values-realizing approach to perception, action, emotion, and cognition are the following. (1) Values are the boundary conditions that provide for the dynamics of self-organizing ecosystems and the directedness of animate activity within it. They are demands that ecosystems place on ways of life (i.e., niches) within the system. As such, they are ontological (Hodges 2000), as well as epistemic and ethical (Hodges 2009). (2) These multiple values are heterarchically organized. *Heterarchical* means that multiple values are involved in any given action without control being vested in any one of them; each value is constrained by all the other values. One value may take the lead with respect

to another, but across time and task, their ordering will reverse; there are no fixed hierarchies (Hodges 2009). (3) The heterarchical relation of values yields what Scott Kelso (1995) calls *multi-stability*. It predicts patterns in which skilled activities can be seen as physically frustrated. *Frustration* is a fundamental marker of complex systems near criticality (Wallot and Van Orden 2011) and has been used as a description of physical and biological systems that have multiple attractors (Sherrington 2010). Such systems “are subject simultaneously to very many different physical requirements that they cannot possibly satisfy fully” (Beek, Turvey, and Schmidt 1992, 91). In such situations control is distributed, not centralized, and the skill does not settle into lawful “comfort zones” nor does it follow a rule-governed regime. Instead skilled activity balances precariously, as it were, in a way that allows it to be flexible, adaptive, and persistent. (4) Values are revealed over time and thus have a developmental dimension. Values are not laws, or rules, or goals, but ongoing obligations (Hodges and Baron 1992). Values provide the larger dynamical context in which laws (large-scale stabilities) and rules (small-scale stabilities) are coordinated, and the criteria by which goals may be established, coordinated, evaluated, and revised (Hodges 2007b). Neither laws nor rules by themselves can account for intentionality in psychology, biology, and physics (Hodges and Baron 1992; Hodges 2000; Kauffman 2013; Ulanowicz 2013).

To illustrate these features of values-realizing and their diversity of application, three quite different examples will be offered: (1) carrying an object, (2) deciding what to do when you disagree with others, or when you are in a position of ignorance, and (3) estimating temporal durations of events that vary in magnitude and valence.

Carrying. To pick up and carry an object and set it down is an intentional act that is intrinsically values-realizing. It is to perceive where something is located and to translate it to where it ought better to be. I pick up the trash and take it outside to a refuse container, or I take the groceries from the car into the house and place them in the refrigerator. This movement from *is* to *ought* is characteristic of all intentional acts, whether cognitive, emotional or physical. Implicitly, these actions do exactly what Hume ([1739]1978) and others have questioned, namely, they move across the “gap” supposedly separating facts from values. From a values-realizing perspective, psychology just *is* the study of the “naturalistic fallacy.” Such actions are perfectly ordinary and pervasive. They are not fallacies, at least by definition. It may be that after having moved item A to position B, we may observe the new layout and perceive that it is not better in its new position, and return it to its prior place, or try yet another placement. The movement, of course, will not have been determined by logic alone (at least in most cases), so Hume’s claim about a logical gap between *is* and *ought* can be defended, but it does illustrate Reid’s (1846) complaint that

Hume had spuriously exalted logical faculties over other ones on which human life depends. Carrying is a values-realizing activity; it is an implicit judgment of better and worse placement.

Values constrain not only the end-points of the act of carrying, they enable and shape the manner of movement. For example, kinematic (i.e., two-dimensional) patterns of body movements (created by "point lights" placed at joints, such as hips, knees, and ankles) are judged more "careful" when children are being carried than groceries, but only under conditions demanding great care (e.g., uneven steps separated by gaps; Hodges and Lindhiem 2006). This is impressive, given that observers making the judgments did not know anything was being carried, especially what kind of objects (e.g., child, groceries); they simply saw moving patterns of dots. Along similar lines, it has been found that observers are sensitive to physical values (e.g., weight) and intentions to deceive (e.g., trying to make a heavy object appear light). Observers of point-light films are able to identify both the true facts of weight and the deceptive intentions of the actors doing the carrying (Runeson and Frykholm 1983; Hodges 2007b). This is true even when trained actors and mimes are used, and they engage in their best efforts to disguise and deceive (Mark 2007). The value of truth resists distortion.

These studies suggest that values cannot be located simply in the items carried, nor in those doing the carrying, nor in the environmental conditions (e.g., steps vs. level floor), but in the relationships among them relative to the task. Standing still with a child, or walking on an uncluttered, level floor reveals little about the care with which the carrying is done. The physical, social, and moral boundary conditions interact in ways that yield multi-stable or frustrated patterns of movement, which indicate something of the true character of what is occurring. Bodies and their movements are literally shaped by what is morally good and socially appropriate, as well as what is physically possible and biologically comfortable to do. Values such as freedom, accuracy, safety, speed, comfort, and truth mutually constrain carrying actions, such that they cannot be treated simply as law-governed, rule-following, or goal-seeking activities.

Disagreeing with others. Carrying is often a social activity as well as a physical one, but answering questions and agreeing or disagreeing with others always is. How do we decide when to agree or disagree with others? One of the critical factors guiding such choices is what we believe to be true about the situation about which we are conversing. It is widely believed by social psychologists, however, that if there is a conflict between what an individual observes and what others say about that same situation, especially if the others are unanimous in their claim (known as an *Asch dilemma*; Hodges and Geyer 2006), then the individual is extremely likely to abandon his or her personal view for the majority's view (Cialdini and

Goldstein 2004). If the individual believes he or she does not have a very good view of the situation, adopting this consensus view is believed to be eminently sensible. However, if the individual thinks he or she has a well-informed view, then agreeing with the majority is believed to reveal epistemic or ethical weakness: The person has (presumably) allowed their fear of exclusion or humiliation or their desire for belongingness to trump a proper epistemic confidence (e.g., Campbell and Fairey 1989). Although the consensus view is that people have a strong tendency to conform to others, even when they are incorrect (e.g., Friend, Rafferty, and Bramel 1990), there is telling evidence to the contrary. In an experimental situation in which a unanimous majority repeatedly makes false claims about factual matters (Asch 1956), people dissent from the majority approximately 2/3 of the time (Bond and Smith 1996; Hodges and Geyer 2006). In short, people are truth-tellers, not conformists. Conversely, when confronted by an experimental situation in which it seems as though an individual would be more than justified in following the lead of others (e.g., they know they are ignorant and others are well-informed), people choose *not* to do so about 25%–30% of the time (Hodges et al. 2014). Thus, people do not blindly follow the lead of others, even when it might seem justified. Overall, this research indicates that people care about the truth, but have a larger conception of truth than simply providing correct answers to isolated questions (Hodges and Geyer 2006; Hodges et al. 2014).

The reasons for (sometimes) not agreeing when agreement is expected and (sometimes) agreeing when disagreement is expected are much the same, according to values-realizing theory (Hodges et al. 2014). In both cases people work to realize multiple values that are in tension with each other in these particular situations. Given that one can never be sure that one's own take on reality is definitive, it is eminently sensible to take others' views into account. Even when an individual is quite sure of his or her own view, it is crucial to take social solidarity into account, as well as truth, in deciding what to say. If an individual were to dissent from others consistently, it would indicate a lack of trust, which would likely lead to a cessation of dialogue, undermining each individual's ability to gain from the insights of those others in the future. Honoring social solidarity is to be concerned with the larger goods, such as truth and trust, which make group life and communal action possible. Thus, values-realizing theory makes the claim that people are wise to compromise (at least sometimes) with others with different views, agreeing occasionally, while making clear their dissenting views (Hodges and Geyer 2006). Similarly, in a situation in which others are better informed, it makes sense for not everyone to follow the lead of others all the time, since it would indicate—falsely—that one has warrant for what one says, and is not merely repeating others. More generally, if one always agrees with others, or always disagrees, it runs the risk of undermining one of the reasons for conversing, that

is, learning together by sharing diverse but related viewpoints (Hodges et al. 2014).

Situations of disagreement or of ignorance are experienced as dilemmas, as exemplars of frustration (in the sense identified earlier), but they are quite common in everyday life. A values-realizing approach suggests that there are no laws or rules that will solve such dilemmas automatically or appropriately. Each situation, each relation, and each moment in them require judgments, tacit or explicit, of how best to carry forward the situation, as well as of the relations, taking into account future moments that cannot be foreseen, but that can be foreclosed or opened up by actions in the present moment. Not everyone does or should respond to these situations in the same way. Evidence suggests that there is multi-stability, with heterarchical shifts both across and within individuals (Hodges and Geyer 2006). Trust, truth, and social solidarity all have to be honored if groups are to survive and flourish, but each of these can take the lead at particular moments for particular people.

The brevity of goodness. If people are asked to reproduce the temporal duration of briefly presented numbers (e.g., 0.5–5.0 sec), they tend to estimate larger numbers (8 vs. 3) as having been visible longer (e.g., Lu et al. 2009). Similarly, they estimate visual presentations of larger objects to last longer (Xuan et al. 2007), as well as brighter (Xuan et al. 2007), faster moving (Kaneko and Murakami 2009), and heavier ones (Lu, Mo, and Hodges 2011). In short, greater magnitudes increase perceived time relative to lesser magnitudes. It seems as though larger physical values stretch space-time, increasing its dimensions. However, the story is more complicated. Pictures, sounds, or other events that are emotionally arousing are often judged to last longer as well (e.g., Droit-Volet and Gil 2009; Mella, Conty, and Pouthas 2011). One way of explaining both sets of results is that both physically imposing events and emotionally imposing events generally have greater consequences for our existence and our actions. Longer term consequences stretch time.

The interpretation just offered emerges from a values-realizing perspective (Lu et al. under review), and it goes beyond existing hypotheses that either posit some innate neural system for space, time, and number (e.g., Walsh 2003), or that focus only on arousal and emotionality (Droit-Volet and Gil 2009). What appear to be disparate, unrelated dimensions (e.g., weight, taste) or measurements (e.g., arousal, valence) form coherent patterns if one places them in a larger meaningful context where actions have consequences for realizing values. For example the difference in three grams and eight grams has no effect on time perception if one is considering lifting them; however, if one is a toxicologist evaluating exposures to a toxin, the effect on time is considerable (Lu et al. 2011). Small magnitudes that ordinarily do not affect time perception have substantial effects when they

function in a larger context where they have meaningful consequences that are large or long-lasting. A values-realizing account helps to explain not only these heterarchical shifts in accuracy of timing (e.g., it may be safe to lift eight grams, but not to ingest eight grams of a toxin); it also draws attention to previously unnoticed patterns.

One such pattern identified by Lu et al. (under review) is a relation between valence and timing: Positive events are perceived as shorter, and negative events are perceived as longer. The example Lu et al. offer is of the heterarchical shift in timing produced by different affordances of the same object, namely a watermelon (compared to a lemon and a bitter melon). If one is considering *tasting* the watermelon (sweet, which is positively valenced), its duration is underestimated, but if one is considering *lifting* it (heavy, which is negatively valenced) its duration is overestimated. To the extent that positively rated events are indexing goodness, and negatively rated ones are indexing badness, then the pattern can be described as “good is shorter, and bad is longer.” Goodness and badness cannot be localized in objects, persons, or activities alone; rather, it is in their relation. The reason for the relative brevity of goodness and the longevity of badness is not yet known, but is being explored. One possibility is that good events present us with a greater array of opportunities for meaningful action than do bad ones, and so we perceive the allotted time of exposure as relatively “too short” to explore those opportunities. By contrast, when the event is negative, it does not invite as rich a set of possibilities, and so we may feel we have “more than enough” time, relatively speaking. In short, the brevity of goodness is frustrating, as is the extent of badness. In any event, timing is not a matter of mechanical, linear isochrony, but is action-oriented and prospective, and is often experienced as frustration (e.g., too little or too much).

To summarize the three examples just reviewed, it appears that values—ontological, epistemic, and ethical—constrain and enable each of the activities considered. Regardless of whether the focal task is physical, social, or cognitive, research indicates that values play a crucial role in the constitution and execution of the task. Does an ecological, values-realizing account afford a larger, richer set of perspectives on language as well? Language is often treated as a cognitive system (e.g., a grammar), which uses physical gestures (e.g., articulatory speech patterns) for social purposes (e.g., to help one think, or to communicate with others). Are there other ways of unfolding the dynamics of conversation and the skills entailed in it?

GOOD PROSPECTS: LANGUAGE, VALUES, AND HUMAN NATURE

Scaling up. Physicists Robert Laughlin and David Pines (2000) argue that the challenge facing physics is to “scale up,” focusing on the “richness” of “collective” and “emergent behavior.” The biologist Robert

Rosen (1996) notes that physicists and biologists often resist doing this. Psychologists and linguists are little different. Most studies of language, both psychological and linguistic, focus on small scales—the phoneme, the sentence, turn-taking, speech acts (e.g., Fowler 2003). Even at larger scales of analysis the temptation is to cut language down to a manageable size. Social psychologists often treat it as a tool for persuasion, or for portraying one's identity or status (e.g., Krauss and Chiu 1998). On this view, language is about power and presentation. Herbert Clark (1996) takes a larger, more social view of language. He proposes that the central function of language is coordination, which helps to move beyond the individualistic bias of many accounts of language, pointing to the importance of joint action and a search for what he calls *common ground*. Tomasello (2008) offers a still more subtle analysis of coordination, suggesting that, as linguistic skill develops, it moves from requesting, to informing, to sharing. Edward Reed (1996, 174) goes even further, claiming that stories are “second only to perception” as a way of synthesizing experience, and Warren Brown and Kevin Reimer (2013), among others, have pointed to the importance of metaphor and narrative in fostering virtuous action.

My hypothesis has been in terms of caretaking. In learning to converse with others, we are finding our way in the world, enabling us to care for each other, and the larger ecology that makes our life possible (Hodges 2007a, 2009).

To speak of language in terms of caring, sharing, and coordination is to characterize language in its collective, emergent richness. Linguistic activities function as constraints that guide actions in ways that are virtuous. At least that is their potential, and often their intent. It is important to realize that actions are not caused by utterances (Hodges 2007a). Conversing with others is a form of seeking, of finding our way in a complex world, a world that cannot be entirely comprehended or controlled (Reed 1988, 319). As a consequence, speaking and listening are always prospective, even when the topic is the past or the present. Conversations are always in search of good prospects; that is, openings that afford continued conversation, but more importantly, that give promise of new, richer ways of acting, thinking, and feeling (Hodges 2007a, 597–98). All of these ways of characterizing language suggest it is something more than a formal system, or a biological endowment for thinking (Berwick and Chomsky 2011). Language, it seems, is “for doing,” and even more precisely and provocatively, for *doing good* (i.e., realizing values).

Language functions as an action system. “Actions are realizations of what the environment affords” (Reed 1982, 101), and the systemic nature of actions must be understood at the larger, richer, collective scale that Laughlin and Pines (2000) advocated. “Human children do not, strictly speaking, learn something called language, but instead develop a repertoire of skills—cognitive, social as well as communicative—that enable them

to become competent (junior) partners in their community” (Reed 1996, 153). The functions of language as an action system can only be understood in this larger communal context, out of which emerge collective attempts to “alter the world in some way” (Holtgraves 2002, 177). Like acts of carrying, utterances are acts intended to change matters, not merely reflect or represent them. This has profound consequences for how languages are understood. “If language is viewed as action, then the criteria for evaluating it is no longer grammaticality” (Holtgraves 2002, 178). Neither is semantic accuracy and directness (Hodges, 2007a, 2009). As an action system, language contributes to the ability of communities to engage in collective action over greater stretches of time and space, which enables the creation of new affordances. In short, language makes cultural activities of the sort humans take for granted possible. Language contributes to coordination, to sharing, to caring, all of which are constitutive aspects of culture. Given that, language needs to be judged by the same criteria that are used to evaluate social and cultural actions more generally.

Alienation. Language is not simply an action system that encourages virtuous, caring actions. Humans find themselves alienated from their environments in ways that other animals do not. This may be tied to the emergence of self-consciousness and what Reed (1996) called the experience of humans being *disjoint* from their environment (Hodges 2009). Bernard Baars (1997) and George Mandler (1985) speak of the universal experience of *loss* and *pain*, and Terrence Deacon (1997, 437) speaks of the “foreboding sense of . . . impending loss” that marks humans’ prospective awareness of their own death. Humans have a sense of loss whether facing backward or forward. The sense of disjointedness and loss are indexes of the unfulfilled intentionality that marks existence, which was earlier described as frustration, and which physicists (e.g., Sherrington 2010), biologists (e.g., Nobrega et al. 2014), and psychologists (Wallot and Van Orden 2011) have begun to acknowledge.

Nonetheless, values-realizing theory assumes that value is accessible. What is good can be prospectively identified with sufficient specificity that it can be sought. Furthermore, there is sufficient information available in various environmental arrays (e.g., optic, acoustic, haptic) that humans and other animate beings can engage in wayfinding, coordinating, and caring. Accessibility and sufficiency do not, however, guarantee that any given animal on any given occasion will realize values. Without an enormous amount of work by many people over immense amounts of time, all sorts of ordinary activities (e.g., reading, driving, attending symphony) would not be possible for individuals. A long and complicated cultural history lies behind thousands of affordances we take for granted. It is almost impossible to imagine that these affordances would exist apart from the enabling constraints of language as an action system.

Presence and answerability. The alienation of humans from their environments changes how language functions. It must be a perceptual system as well as an action system. Language must take on new forms that move beyond caring, coordinating, sharing, and helping. Conversing must take on the role of questioning, of disagreeing, of doubting, of debating. This is because language is intrinsically dialogical and moral. In taking on questioning and other dialogical forms we acknowledge that in speaking and listening to each other, we must be *careful* as well as caring. Language is founded in trust, truth, and social solidarity. The larger joint project of wayfinding and caring, to which language contributes, occurs in contexts that require great sensitivity. The various aspects of language are systematically interdependent in ways that bespeak presences and obligations that go far beyond the immediate horizon of task and topic.

Mikhail Bakhtin (1986) has provided one of the most compelling hypotheses along these lines. He argues that conversing always assumes a virtual third party in addition to the two parties that we minimally assume a conversation or dialogue entails. These two parties are not senders and receivers, but personal agents, addressing and being addressed. However, they do their addressing of each other in the presence of a *superaddressee* that Bakhtin describes in communal, historical, and ontological terms. This superaddressee is a powerful if invisible presence, which might be understood as "God, absolute truth, the court of dispassionate human conscience, the people, the court of history, science, and so forth." It functions as "the witness and judge" of what we say and do and is "a constitutive aspect of the whole utterance, who, under deeper analysis, can be revealed in it" (Bakhtin 1986, 126–27). If Bakhtin is correct, then what we say and hear helps us to understand the world, history, and the social and moral orders within which we live, move, and have our being. Without a larger story in which we can participate, without a larger horizon of values that we can acknowledge in our actions, words would be worthless.

Sober scientific assessment suggests that we should not write off Bakhtin's hypothesis as philosophical or literary flourish. The challenge, of course, is to explore ways in which it provides real traction in experimental and practical contexts. One context in which it has proved useful is in analyzing the Asch dilemma (i.e., a unanimous consensus answers incorrectly) described earlier, and making predictions about how different people might respond differently, depending on the superaddressees to whom their utterances are addressed (Hodges and Geyer 2006, 12).

A second way of engaging Bakhtin's hypothesis is to consider how speaking and listening involve more than information transfer or an expression of formal (e.g., syntactic) legitimacy. From a values-realizing perspective the central fact of language is *answerability*, which is Bakhtin's (1993) term for the obligations inherent in addressing and being addressed in specific historical circumstances where action on behalf of others and

oneself is required. Hodges and Fowler elaborate this in the context of symmetry-breaking, the space-time changes in identity that yield the enormous variety of specific states and structures in the physical world.

When humans speak and listen, or write and read . . . these actions *irreversibly place us*. They locate us in specific physical and social ecologies, and they emerge from temporal scales ranging from evolutionary and cultural to interpersonal and microneural. To postulate a question, a statement, or even to give a grunt or a groan is to locate oneself, to take a stance with respect to oneself, to others (including predecessors and successors as well as those to whom one now speaks or writes), and to the geographies and tasks within which those selves are located. Actions, including those of ordinary conversations . . . cannot be done without pointing to oneself and to the responsibility entailed in speaking or listening. (Hodges and Fowler 2010, 240)

A third way that the affordances of Bakhtin's claims can be developed is presented in the next section, in which the ecology of conversations is explored in terms of dialogical arrays (Hodges 2007a, 2009).

Dialogical arrays. Language is a socially embodied activity that increasingly becomes structured over time so that its order enables us to discern something of the order of other surfaces, events, actions and affordances to which it points. A *dialogical array* is a group of hearer-speakers surrounding a given speaker-hearer, listening and talking in ways that provide information about the common ground that they literally share, that is, the immediate physical-social-moral situation in which they all find themselves. More importantly, perhaps, the speaking and listening across the various literal points of view embodied in the array can reveal information about what lies *beyond* the common ground. It can provide information about places from which people in the array have come, and the events in which they participated. It can even reveal something of the intentions of the array's participants regarding their prospects for future events and activities (Hodges 2007a, 2009).

In short, dialogical arrays help to locate us in a much larger world than the one provided by our own point of view. It extends any individual participant's perceptual reach, both temporally and spatially, by orders of magnitude. Dialogical arrays invite us to go beyond the horizon of our common ground. If we do, there is the real possibility we will discover something of what supports, surrounds, and cares for that field of vision and action that are present to us in the array itself. Language bespeaks a *presence*. In dialogue we reach beyond our horizons, through others, to learn of the sources of ontological care that have made our existence, our conversation, and our purpose possible. Every time we speak and listen, we embody the ontological conviction that we are not alone (Hodges 2009, 148).

To treat language as a perceptual system is anomalous. It is generally assumed there are a variety of perceptual systems—haptic, kinesthetic, olfactory, and so on—with specialized receptors tuned to particular types of energy that contain patterns that can be informative for animate movement (Gibson 1966). Gibson ([1979]1986) proposed that these informative patterns can be treated as *arrays*—acoustic, optic, chemical, and so on—that a given animal can sample over time by exploratory actions that are ordered in some way. Language, though, does not seem to be like seeing, hearing, and other senses, since it has no specialized receptors. The larger reason, though, that language is not viewed as a way of perceiving the world is more straightforward: It seems limited to exploring other people. But is this really the case?

Gibson acknowledged that conversing allows one “to see through the eyes of another” (Gibson [1967]1982, 412). Nevertheless, he claimed that listening to others’ descriptions of the world provides only indirect knowledge, since the speaker, not the listener, selects the information to be articulated. However, this need not be the case, because the dialogical array is an action array as well as a perceptual array. Gibson himself seems to have realized this: “Words, like gestures, can . . . be used to direct the sense organs of the hearer toward parts of the environment he would not otherwise perceive, and to induce a second-hand perception of parts of the larger environment that the speaker has perceived but the hearer has not” (Gibson 1966, 26). Overall, Gibson’s doubts about the directness and trustworthiness of another’s looking are the result of his lack of appreciation for the dialogical nature of language.

A dialogical array is jointly created and sustained. Only in our active probing and being willing to be probed is it possible to learn about our situation and its prospects. As we probe with questions, declarations, exclamations, proposals, and all the other modes of linguistic “looking,” we can increasingly come to see (much as in ordinary vision) our real prospects for doing something worthwhile together. Dialogical arrays are *collective*. They necessarily involve multiple people interacting, if information is to be made available. No individual can control or manipulate the array; rather, it is agentic.

In speaking to each other, humans generate gestures (vocal or manual) that produce complex acoustic and visual patterns, and these patterns may provoke gestures that can be seen and/or heard in return. Bats do something similar in generating sounds that provide information about their surroundings. However, the acoustic arrays used by bats are causal; the physical layout causes informative patterns to be available. By contrast, dialogical arrays are not causal; one person may speak, but the response provoked may or may not be informative about the common ground of their situation, or what lies beyond that common ground (Hodges 2009).

Since dialogical arrays cannot function as causal tools, they depend on responsible actions by both speakers and hearers. Most of all they depend on commitments to trusting each other, so that what is done collectively goes beyond each individual's inclinations or aspirations, providing each of them with the confidence and knowledge needed to move from the common ground they share to the uncommon ground beyond. As Wendell Berry (1990, 209) states: "In a conversation, you always expect a reply. And if you honor the other party to the conversation, if you honor the *otherness* of the other party, you understand that you must not expect always to receive a reply that you foresee or a reply that you will like. A conversation is inimitably two-sided and always to some degree mysterious; it requires faith." Speaking and listening are risk-taking ventures, but they provide crucial resources for moving prospectively into an uncertain future with confidence, humility, and hope.

Caring and complexity. The language just used (e.g., *risk*, *hope*) frames language in terms of virtues. Another framing that is deeply resonant with this perspective is available in complexity theory. Recent research (e.g., Hollis, Kloos, and Van Orden 2009) has suggested that linguistic activities are far more complex than has generally been assumed, being distributed over many space-time scales, which are far more interdependent and integrated than previously imagined. Central to this complexity are context sensitivity and global interdependence.

The distinctive character of caring embodied in conversation emerges from two features of complex dynamical systems . . . context-sensitivity and interdependency. Caring arises out of interdependency and demands context-sensitivity (Hodges 2009). The pragmatics of languaging and language can thus largely be summarized as, learning how to be *caring* and *careful* in our speaking and listening to each other. To care and to be careful is to evaluate and select better and worse ways to move. Every aspect of language involves the selection and shaping of movements, from pronunciation to syntax, from word choice to choice of addressees . . . [A]ll of these implicit, largely unconscious choices depend on values-realizing dynamics. (Hodges, Steffensen, and Martin 2012, 503)

At the heart of language, one finds not a biologically hard-wired formalism for syntactic well-formedness but a complex set of moral-social-physical skills (i.e., virtues) that are jointly shaping actions in search of good continuations and good prospects. Language is a caring system, as well as an action system and a perceptual system.

The choices made by linguists and psychologists to focus on small-scale units have hindered their noticing these larger scale skills and their intimate relation to values and virtues. Even when the focus is on pragmatics in the study of language, the tendency is to describe pragmatic constraints on speaking and listening as social rules on the one hand or a law-like

logic of communication on the other (e.g., Mey 2001). For example, Paul Grice's (1975) well-known pragmatic requirements for effective conversation are often treated as rules or laws. However, his maxims of cooperative conversation point to values that must be realized and virtues that must be practiced for conversations to work: Truth, kindness, justice, economy, clarity, and coherence are among the obligatory demands that constrain and enable sentient speech. Anthony Holiday (1988) argues that semantic facts within a linguistic community are not mere conventions; rather, they are grounded in ethical values. Among those he considers are truth, justice, sincerity, trust, and awe, noting that: "In imagining a language we presuppose a mode of deep-seated agreement which is only possible if the integrity of the persons who speak the language is sustained, and clearly this cannot be done unless reverence for persons and their rights to speak and be listened to is a prevailing norm" (Holiday 1988, 109).

Although theorists and researchers speak to it far less often, listeners must also practice a range of virtues, including charity, creativity, trust, and patience. All the articulatory, syntactic, and semantic precision and sophistication in the world would be useless without these virtues and the values they help to realize. The point of language is far more complex and systemic than creating or comprehending a properly formed sentence, or even a whole string of sentences (Hodges 2014b). The creativity of language is primarily about creating new possibilities for action rather than generating new sequences of sounds that are grammatical. Most importantly, these new possibilities generally are jointly created (Hodges 2007a), so that it is *together* that conversational partners are able to improve themselves, and their surroundings, including others.

Tomasello (2008, 2009) has advanced the claim that human's languages only were able to come into existence in evolutionary history because of what amounted to a social-moral revolution. The most crucial difference between communicative gesturing in apes and in humans is not the use of symbols (i.e., semantics), or the ordering of symbols (i.e., syntax), or the refinement of vocalized gestures (e.g., phonemic prosody). Rather, humans came to care about each other in a way that apes do not, which then led to their being cooperative in unprecedented ways (Tomasello 2008, 85). How humans came to be so cooperative is one of the great scientific mysteries, according to Tomasello, but he is convinced it was the great hurdle to be overcome in the evolution of language. If this hypothesis is correct, it is pragmatics that is the most biologically basic aspect of language, not syntax (e.g., Chomsky 1986) or semantics (e.g., Deacon 1997). Syntax and semantics emerge from pragmatic constraints as cultural developments that become stabilized with the emergence of norms and some level of conformity to them (Tomasello 2008, chapter 6).

Expanding horizons. An emerging consensus (e.g., Reed, 1996; Richerson and Boyd 2005; Tomasello 2008) claims that culture is a distinctive characteristic of human life. Other species culture in their own particular ways, but no species seems to be as dependent and as expansive as humans have been in their culturing. The culturing made possible by dialogical arrays, and the expansion of horizons of value-elaborating and value-creating activity emerging from them, have created new ways of caring for the world. Humans' distinctive calling is not only culturing, but more precisely caretaking. Compared with other apes, humans are orders of magnitude more caring and cooperative. Tomasello (2009, 84) observed that "it is a startling fact that among all the great ape species except humans, the mother provides basically 100 percent of childcare. Among humans, across traditional and modern societies, the average figure is closer to 50 percent." Sarah Hrdy (2009) has argued humans are cooperative caretakers in a way other hominins are not: Children in nearly all human cultures have many caretakers, including fathers, other mothers, older siblings, and so on. Humans naturally engage in sharing, and one form of that sharing is caring together for infants, including those who are genetically unrelated. Interestingly, one of the most common forms of caretaking is carrying the infant (Hodges and Lindhiem 2006).

As surprising as these differences are, the much larger difference between humans and other species is the way in which their taking care of the world has increasingly become literally true. Large numbers of human activities are guided and constrained to consider the good of other places, peoples, and times, far from their own neighborhoods and their own particular personal, family, and tribal stories. Agriculture, government, commerce, art, education, worship, science, and innumerable other activities that are common to nearly all humans, are outgrowths of our ability to be guided by the perceptions and actions of others. Recent research has given new impetus to the exploration of social learning, but anthropologists and psychologists have struggled in framing its social and moral dimensions (e.g., Richerson and Boyd 2005; Mesoudi 2009; Harris 2012; Mercier and Sperber 2011; Over and Carpenter 2012; Hodges, in press). For psychologists, for example, following the lead of others is often treated as a failure to maintain cognitive and moral independence (Hodges and Geyer 2006). Working out a more comprehensive and cogent account of how humans go about following the lead of others and integrating others' guidance with their own attempts at acting and perceiving should be high on the agenda of social, cognitive, and ecological sciences. There are plenty of surprises waiting to be discovered. For example, recent research indicates that even young children show a remarkable caring and carefulness about truth, and a surprising sensitivity to social solidarity, that belies widespread assumptions about their being so trusting as to be gullible (Corriveau and Harris 2010; Harris 2012; Hodges 2014a).

Dialoguing with others prepares us for exploring new times and places, and tunes us for wise action. Our perceptions and our emotions can be quicker and truer in their attempts at clarity, coherence, and comprehensiveness if we have learned by talking to others about their histories and their intentions than if we were to attempt to explore on our own. In other cases, by engaging in the discipline of dialogical arrays, we are strongly encouraged to slow down, to consider other perspectives and longer time frames, so that we question our own very limited and fallible perspective on events. Language helps us to acknowledge the complexities of existence; that the world and our place in it are beyond any given individual's ability to comprehend, to integrate, and to clarify.

CONCLUSION: INCREASING THE INTEGRITY AND CREATIVITY OF THE WORLD

In our conversing with each other, we are able to do far more than simply coordinate practical matters, or to create markers of ingroup identity, or to manipulate others to our own ends. We are able to *stretch time and space*, so that we can *locate our place* in the world far more definitively, and learn something of the larger stories of which we are a part. Language helps us to realize something of the diversity of goods that can be creatively realized, if we are responsible and persistent. This richness makes us realize that our time for doing good is short. Conversely, language aids us in realizing the extent to which malicious words and actions, seemingly small and insignificant at the beginning, can be carried over generations and magnified into massive cultural rifts.

Speaking with each other is a way of prospecting, of finding our way forward together, both in the conversation, and more generally in life. Each party in the dialogical array *carries* the others, and *is carried* by them. As with parents carrying their infants, in good conversations this is done in a way that is both caring and careful. Even in the closest of friendships, there is always danger. Even in the most casual and flippant of conversations, something kind or convicting can happen. Conversing with each other requires that we care for others, as well as ourselves, and that we care for the places within which we work, play, and otherwise engage each other. When we open our mouths or move our hands to speak, we place ourselves, both temporally and spatially (Hodges and Fowler 2010), but we also commit ourselves to exploration, challenge, and change.

Conversing requires far more than aligning ourselves with others in our semantics, syntax, prosody, and body movements (e.g., Pickering and Garrod 2004) or conforming to local social norms (Tomasello 2005). As noted earlier (*Disagreeing with others*), it is crucial that we diverge from others as well as converge. If we did not differ from each other, there would be scant reason to converse (Fusaroli et al. 2012; Howes et al. 2013; Hodges

2014b). *We need to disagree and agree* with others in a way that moves us to enrich the physical, social, and moral possibilities of our environments. Elena Cuffari (2014) observes that “it through conflict, argument, and negotiation that ‘deep mutual understanding’ gets a chance to occur.” The understanding emerging from such dialogue is not simply recognition of similarity; it is also acknowledgement of the human calling to create, to culture, and to care. In answering this calling, humans can contribute to the integrity of the world, and—not so incidentally—find their own as well.

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