

"intentionality," as introduced to modern philosophy by Brentano, denotes the property that distinguishes the mental from all other things. As such, intentionality has been related to purposiveness. I suggest, however, that there are many kinds of purposes that are not mental nor derived from anything mental, such as the purpose of one's stomach to digest food or the purpose of one's protective eye blink reflex to keep out the sand. These purposes help us to understand intentionality in a naturalistic way. The naturalist challenge here is to show, first, that natural purposiveness can explain the intentionality of explicitly represented purposes, hence that it is associated with "aboutness" (as in Brentano's usage). Second, it needs to show how the same kind of analysis can also be used to naturalize intentionality in cases where facts are represented rather than purposes or ends.

Ruth Garrett Millikan

NATURALIZING INTENTIONALITY

Brentano introduced the term "intentionality" into our modern philosophical vocabulary to denote the property which, as he thought, distinguished the mental from all other things. This property is sometimes informally called the "aboutness" or "aboutness" of perceptions, thoughts, sentences, and so forth. Brentano equated intentionality with the capacity to bear a real relation to something nonexistent, for example, the capacity of a belief to bear a correspondence relation to a nonexistent fact, hence to be false. Similarly, when our intentions are not fulfilled, they seem to bear relations to nonexistent facts. Call this problematic relation "Brentano's relation."

Brentano was surely mistaken, however, in thinking that bearing a relation to something nonexistent marks only the mental. Given any sort of purpose, it might not get fulfilled, hence might exhibit Brentano's relation, and there are many natural purposes, such as the purpose of one's stomach to digest food or the purpose of one's protective eye blink reflex to keep out the sand, that are not mental, nor derived from anything mental. Nor are stomachs and reflexes "of" or "about" anything. A reply might be, I suppose, that natural purposes are "purposes" only in an analogical sense, hence "fail to be fulfilled" only in an analogical way. They bear an analogy to things that have been intentionally designed by purposive minds, hence can fail to accomplish the purposes they analogically have. As such they also have only analogical "intentionality." Such a response begs the question, however, for it assumes that natural purposes are not purposes in the full sense exactly *because* they are not mental. It also fails to explain why this supposedly merely analogical intentionality should be unaccompanied by any analogical "aboutness." Surely one's stomach and one's reflexes are not "about" anything, even analogically. Brentano's relation seems, in these cases, to have come apart from aboutness, another mark usually taken to characterize the mental.

There is another, more positive, way of thinking of natural purposes—one on which a naturalistic theory of intentionality can be built. I will talk about a few of the more interesting features of this response as I have come to understand it.

One thing that the example of natural purposes shows is that although being subject to Brentano's relation may be necessary to intentionality, if we take intentionality to imply aboutness it is not sufficient. Aboutness is associated with a purpose only when the purpose is *explicitly represented*. On the other hand, for there to be an explicit representation of a purpose, *there must first be a purpose* to represent. The naturalist challenge here is to show, first, that the phenomenon of natural purposiveness can fulfill this second requirement, that a natural purpose may, equally naturally, be a represented purpose. Second, it needs to show how the same kind of analysis can be used also to naturalize intentionality in cases where facts are represented rather than purposes or ends. It must be shown, for example, how this way of naturalizing Brentano's relation can apply to the intentionality of beliefs, and of sentences that state facts. It needs to be shown in every case that what creates the appearance of Brentano's relation is merely an underlying *natural purpose*.

The job of articulating the notion of a natural purpose so that it will do what is required of it here, it must be emphasized, is *not* that of analyzing anyone's *conception* of natural purpose, but rather of producing

a notion that will organize certain natural phenomena for us in a way that casts light on the apparently paradoxical nature of intentionality. I had previously proposed a definition designed to capture just such a sense of natural purpose.¹ I called natural purposes of this sort "proper functions," meaning by "proper" a thing's "own" functions (Latin *pro-primum*, as in "propriety"). A thing's proper functions are effects which, in the past, have accounted for selection of its ancestors for reproduction, or accounted for selection of things from which it has been copied, or for selection of ancestors of the mechanisms that produced it according to their own relational proper functions, it being their function to be guided by certain variable aspects of the environment in this production. Whatever has proper functions must have had predecessors that historically effected such functions, thus helping to account for its existence or presence.² Because a thing's proper functions are such relative to its history and do not arise from its current dispositions, it is possible that it may not currently serve, indeed, may not even be capable of serving, all or any of its proper functions.³ This possible gap between a thing's proper functions and what it actually effects or can effect is a naturalized version of Brentano's relation. A thing's proper functions may correspond to states of affairs that never become existent. (There may also be other ways of characterizing natural purposes that will do the same job, but I know of none that has been successful so far.)

A great many different kinds of things get reproduced or copied because of the effects that they have. For this reason there are many different kinds of things with proper functions. Genes can have proper functions. Any of the various things that genes have as their functions to produce, either absolutely or relationally (that is, as a function of variable environmental input) also can have proper functions. For example, body organs and any other inherited traits can have proper functions. Inner states, such as the perceptual and cognitive states of organisms, can have proper functions that vary as a function of environmental input to the genetically programmed systems responsible for producing them. Unlearned behaviors can have proper functions that are either variant or invariant with respect to environmental input. There are also many kinds of proper functions that are not determined through genetic reproduction. Artifacts that are copied from earlier exemplars because these exemplars had certain effects can have proper functions. Behaviors learned by trial and error, hence copied from earlier behaviors, can have proper functions. Behaviors learned by copying others' behaviors can have proper functions. Especially important, conventional behaviors, including production of specific language forms, as well as other kinds of customs, fads, and so forth, can all have proper functions. What

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these latter functions are may or may not be understood by those who reproduce the relevant behaviors, for unconscious reproduction or reproduction for unconscious reasons is common.

But a proper function, a natural purpose, I have said, only becomes associated with intentionality when the purpose is explicitly represented. The notion of representation that we need here is, I believe, kin to the mathematical notion of representation. According to the mathematical notion, a structure consisting of a set of abstract entities along with certain designated relations among them is said to represent another such structure if it can be mapped onto it one-one. Similarly, an intentional representation corresponds to the affair it represents as one member of a whole set of possible representations. These bear certain relations to one another such that, ideally, the whole structure maps one-one onto a corresponding structure of possible representeds. When it is a *natural* purpose that is represented, this correspondence relation correlates the representation with a state of affairs that it is its proper function to guide a cooperating mechanism to bring about. "Cooperating mechanisms" are ones that have been selected or tuned to cooperate with one another to perform a certain function or functions. The forms of the representations in the system vary systematically according to the forms of the affairs it is their proper function to bring about, more exactly, to guide cooperating interpreting mechanisms to bring about. The *explicitness* of these representations of natural purposes results from contrast with alternative purposes that could have been represented instead by contrasting representations in the same representational system.

This explains the intentionality of explicitly represented purposes or goals. Discussing this kind of intentionality before that of representations of facts departs widely from the contemporary tendency which is, often, to ignore the intentionality of explicit purposes and goals completely. Indeed, a common assumption seems to be that the intentionality of single words or concepts can be explained first, next the ways these are combined to express full propositions, and only then an analysis of how the various sentential moods and propositional attitudes function can be given. On the present analysis there are two fundamental varieties of intentionality, two basic "directions of fit" for intentional entities, the goal-representing direction and fact-representing direction, and there is no intentionality at all without direction of fit. There is no intentionality without reference to full truth-conditional or satisfaction-conditional content. The intentionality of words and concepts is abstracted from their appearance in more complete functional representations.

The intentionality of representations of fact is not determined by their proper functions. That it represents a fact is a matter of *how* the fact-representation performs whatever functions it happens to have. Every device that has a proper function is backed by a history of devices like it that have actually performed that function, or is produced by a device (concept forming mechanism, belief forming mechanism) with a relational proper function backed by such a history, and so forth. Typically there will be a univocal general causal explanation of how performance of the relevant function was effected in these historical cases, the same explanation for each instance, or close enough. In the case of a fact representation, this explanation makes reference to a certain kind of initial condition. Namely, an aspect of the representation bears a specified mapping relation to a certain condition, typically, a condition in the environment, which relation helps account for the fact that cooperating mechanisms guided by the representation are enabled to perform their proper function or functions under that condition. The mapping is of the sort referred to earlier, correlating a set of possible representations with a set of possible represented conditions, where any such correlated pair would have caused performance of the same proper function(s) in accordance with the same general causal explanation.

This way of naturalizing intentionality has several effects on the analysis of language that are of interest.

Notice first that the analysis applies not merely to the intentionality of perception, thought and conventional language forms, but also to that of other reproduced artifacts such as conventionalized pictures, diagrams, charts, and other notational systems. It also applies to animal signals, such as the dance of the honeybee and the danger thump of the rabbit. Clearly the analysis does not derive the intentionality of thought from that of language. Just as clearly, it does not derive the intentionality of language and other conventional representational forms from that of thought. As the proper function of the nectar-locating dance of a honeybee is not to transmit an intentional attitude from bee to bee,⁵ the proper function of a conventional representation need not be transmission of an intentional attitude either. I have argued, for example, that it is not a proper function of sentences asserting identity, asserting existence, or sentences of the form "x means y" to impart intentional attitudes. Their functions are, rather, to alter the inner representational systems of hearers. These sentences do have truth conditions, however. Their truth conditions concern words. But it is not their function to produce thoughts about words, but rather, to alter the ways in which these words are handled or reacted to by hearers—an entirely different matter.

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This analysis of language agrees with Wittgenstein's insight that language forms, like tools, have jobs to do and that these jobs do not always require them to contribute to truth conditions. On the other hand, it denies that there are any such things as *rules* of language. Thus it avoids the need to explain the *status* of language rules, so puzzled over in the post-Wittgensteinian literature. Language forms have only proper functions. They have effects that have helped account for their continued reproduction, for their repeated use, in a given language community, and they have, of course, typical ways of producing those effects. The forces of selection that proliferate a specific language device, such as the English imperative mood form, along with a symbiotic hearer response to it, are comparable to the forces that proliferate mating displays, territory-marking behaviors, danger signals, and so forth, behaviors specific to the various non-human animal species. Of course the underlying mechanisms of reproduction and selection are quite different. But in both cases, the reproduction of a pairing between stereotyped advances by one partner and stereotyped responses by the other depends on the fact that benefits sometimes accrue to both partners. Consider the imperative mood as an example. There must be a high enough proportion of cases in which hearers gain from complying with imperatives, along with enough cases in which speakers also gain by hearer compliance, to keep the form from dying out of the language. Similarly, producing true beliefs in hearers is a proper function of standard indicatives. It is because they have often acquired true beliefs this way that hearers continue to decode the language as they do and, often enough, to believe what they hear. And it is only when hearers believe what they hear that speakers are encouraged to continue to use indicative forms. It does not follow that there is a *rule* somewhere, or a sanctioned prescription, to the effect that hearers must comply with imperatives. Nor is there a rule that speakers must intend them to comply, or a rule that speakers must speak the truth, and so forth—any more than there are *rules* or *prescriptions* for peacock mating displays. Of course, if one is trying to display like a peacock, then one succeeds or fails, and if one is trying to speak like an English speaker, one can also succeed or fail.

Proper functions do not concern norms in any evaluative or prescriptive sense. They do not concern norms in a statistical sense either. On the contrary, there are many items that *usually* fail to perform their proper functions. Although the function of the protective coloring on small animals of many species is to prevent them from being seen by predators hence from being eaten, most members of most small species are eaten anyway. Similarly, consider how few times one has to give in to a child

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1. See R. G. Millikan, *Foundations for*

2. This very topic is in detail in the *Cal Categories*

3. More exacting and *Other Biological*

4. Compare G. Press, 1957; and (Cambridge: Ca

who teases for things to keep the teasing from dying out. It is not because imperatives are usually complied with that causing compliance is one of their proper functions. There are, of course, such things as linguistic norms or standards, but they are such only in the non-evaluative, non-prescriptive and also non-statistical sense in which preventing it from being eaten is a standard or norm for the mouse's protective coloring.

I will mention one last result of this naturalist analysis of intentionality. When fully spelled out, the description of proper functions implies that every artifact produced for a purpose has that purpose as one of its proper functions.⁶ An utterance produced with a purpose is such an artifact. The purpose or intention with which a speaker utters her words ends these words with a proper function. But if the speaker speaks a public language, then the history of the language forms she uses also ends her words with a proper function. These two sources of functions may be consonant, or they may conflict, as in cases of insincerity. When the speaker purpose and the public function of the words fail to coincide, the speaker may or may not intend that the hearer fulfill the speaker's purpose knowingly. In lying, for example, the speaker does not intend this, but in the case of Gricean implicature, the speaker does. One reasonable conception of pragmatics places it where these two sources of function intersect, contrasting it with semantics, which studies the conventional, and studies what I have called the "proper" functions of language forms.⁷

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NOTES

1. See R. G. Millikan, *Language, Thought and Other Biological Categories: New Foundations for Realism* (Cambridge, Mass.: The MIT Press, 1984).

2. This very rough characterization of the notion "proper function" is filled out in detail in the first two chapters of my *Language, Thought and Other Biological Categories*.

3. More exactly how this can happen is explained in my *Language, Thought and Other Biological Categories*, chap. 1.

4. Compare G. E. M. Anscombe, *Intention* (Oxford: Oxford University Press, 1957); and J. Searle, *Intentionality: An Essay in the Philosophy of Mind* (Cambridge: Cambridge University Press, 1983).

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5. Indeed, apparently dancing bees do not understand their own dances, for they themselves return to the nectar locations they have indicated along the same circuitous routes by which they originally discovered the nectar, whereas their fellow workers take a direct route!
6. Cf. Millikan, *op. cit.*
7. For a parallel description of language conventions see Millikan, "Language Conventions Made Simple," *The Journal of Philosophy* 95.4 (1998): 161-80.

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Philosophy of Mind

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