E. Nagel, who is a frequentist—all three agree that a probability conclusion is relative to the premises, and is meaningless without reference to them.

[8] Drawn from private correspondence with C. J. Ducasse.

[9] C. J. Ducasse, "Some Observations concerning the Nature of Probability," *Journal of Philosophy*, vol. 37, no. 15 (July 17, 1941).

Intentionality and the Theory of Signs

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FRANZ BRENTANO wrote, in a well-known passage, that *intentionality* is peculiar to psychical phenomena. No *physical* phenomenon, he said, shows anything like it; hence intentionality affords us a criterion of the mental or psychical.[1] Let us refer to this view as "Brentano's thesis." Among the phenomena which he would have called "intentional" is the interpretation of *signs*. One may ask, is it possible to provide an adequate theory of signs which will show Brentano's thesis to be mistaken? In the present paper I shall make certain general points which, I believe, must be considered in any attempt to answer this question. I shall first attempt to state Brentano's thesis somewhat more exactly; then I shall turn to the analysis of the concept *sign*.

I

Psychical phenomena, according to Brentano's thesis, are those "which intentionally contain an object in themselves." Part, at least, of what Brentano had in mind is quite clear, I think. The psychical phenomena which most clearly illustrate his thesis are what are sometimes called *psychological attitudes*, e.g., believing, desiring, hoping, wishing, and the like. When he said that they are characterized by "intentional inexistence," he was referring to the fact that these attitudes can truly be said to have objects even though the objects which they can be said to have do not exist. Even if there weren't any honest men, for example, it would be quite possible for Diogenes to *look for* one. Diogenes' quest has an object, namely an honest man, but, on our supposition, there *aren't* any honest men. The horse can *expect* to receive his oats in ten minutes, even though

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the event which he expects does not in fact occur. William James would be able to *believe* that there are tigers in India, even if there weren't any tigers in India. Even if there aren't any disembodied spirits, it is quite possible for someone to *take something to be* one. But mere physical phenomena, on the other hand, cannot thus "intentionally contain an object in themselves." In order for Diogenes to sit in his tub, for example, there must be a tub for him to sit in. In order for the horse to eat his oats, there must be oats for him to eat. In order for William James to shoot a tiger in India, there must be a tiger there for him to shoot. And so on.

The statements in which we have described our examples seem to have the form of relational statements: "Diogenes *looks for* an honest man"; "Diogenes *sits in* his tub." But the relations described in the psychological statements, if they can be called "relations," are of a peculiar sort, for they can hold even though one of their terms, if it can be called a "term," does not exist. For, it would seem, one can be intentionally related to a such-and-such, even though there aren't any such-and-suches.[2]

These points can be put somewhat more precisely by referring to the language we have used. Thus we could say that in the language we have been using, the expressions "looks for," "expects," and "believes" are *intentional*, or are *used intentionally*, whereas "sits in," "eats," and "shoots" are not. We can formulate a working criterion by means of which we can distinguish expressions which are intentional or are used intentionally in a certain language from expressions which are not. It is easy to see, I think, what this criterion would be like, if stated for ordinary English.

A simple categorical statement (for example, "Parsifal sought the Holy Grail") is intentional if it uses a substantival expression (in this instance, "the Holy Grail") without implying either that there is or that there isn't anything to which the expression truly applies. We may also say that the verb of such a statement is intentional or is used intentionally. And we could say that a compound statement (for example, "If Parsifal sought the Holy Grail, he was a Christian") is intentional if any of its components would be intentional when asserted categorically.[3] We should interpret the term "substantival expression" in such a way that it will apply to the grammatical objects in such sentences as "Parsifal believed that he could find the Holy Grail" and "Parsifal believed himself capable of finding the Holy Grail." (Possibly, instead of speaking of such clauses as "applying" or "not applying" to something, we should use a more elaborate terminology; but for the present purposes, I think, our briefer statement will not be misleading.)

It seems clear that, according to our criterion, the verbs "believe," "de-

sire," "look for," "expect," and many others are used intentionally in ordinary English, and that "eats," "shoots," "kills," and many others are not. And there are still other terms which are ambiguous in that they are sometimes used intentionally and sometimes not; possible examples are such psychological terms as "need," "adjust to," "adapt to."[4]

It would be an easy matter, of course, to invent a new terminology which would not be intentional by our criterion. Russell once suggested, for example, that, instead of saying "I perceive a cat," we say "I am cat-perceptive."[5] Instead of saying "The dog expects food," a psychologist may say, "The dog has a food-expectancy," or "The dog has an F-expectancy." And by similar techniques he could re-express in nonintentional terms such statements as "James believes that there are tigers in India."

In all probability, however, the psychologist has only one means of conveying what such expressions as "F-expectancy" or even "food expectancy" might mean; namely, he can tell us that an animal may be said to have a food-expectancy if and only if the animal expects food. Hence we might say that an English expression in a certain use is intentional if in that use it conforms to our original criterion or is defined, or its meaning explained, in terms of other expressions which conform to our original criterion. It must be admitted that, with the introduction of such a qualification, our criterion becomes even less precise. But it is still precise enough, I think, to yield some interesting results.

In addition to statements describing psychological attitudes, there is another important class of statements which are intentional according to our criterion, viz., statements describing *relations of comparison*. For example: "This lizard is smaller than a dragon," "This goblet is other than the Holy Grail,"[6] etc. But all the other intentional statements of ordinary English, if I am not mistaken, are readily transformed into statements containing only familiar terms which are not intentional. Thus many statements describing dispositions, tendencies, and potentialities may be intentional: "The roof is vulnerable to future hurricanes," "The storm is now tending to go out to sea," "An atomic bomb, suitably placed, is capable of causing the devastation of Boston." But these could be re-expressed in some such way as the following: "If there should be future hurricanes, the roof would be damaged," "If the storm should continue as it is now, it would go out to sea," "If an atomic bomb were suitably placed, Boston would be devastated."[7]

What may seem to be still other types of intentional statements may be seen, upon closer inspection, to be statements describing psychological attitudes. Examples are statements about language: "The English expression 'the Holy Grail' refers to such-and-such a goblet." It will be generally

agreed, I think, that such statements are elliptical and, when properly expanded, can be seen to fall within our first category; for example, "English-speaking people refer to such-and-such a goblet by means of the expression 'the Holy Grail'."

Statements about teleological phenomena, for example, "The purpose of this acorn is that it grow into an oak," may be intentional, but these can be paraphrased so that they may be seen either to concern the purpose of some agent or else to concern dispositions and tendencies.

Certain modal statements are intentional according to our criterion: "It is possible that it will rain," "It is probable that . . ." "It appears that . . ."; also certain ethical statements: "Virtue ought to be rewarded in Heaven." There are various plausible analyses which would relegate these to our other categories; but whether these analyses are adequate need not now concern us.

Brentano's thesis may be construed as saying, then, that the intentional statements which describe psychological attitudes, unlike those describing dispositions, tendencies, and potentialities, *cannot* be re-expressed in familiar terms which are not intentional. The question to which we shall now turn is whether this thesis, in its application to *sign* situations, is mistaken. We shall ask, in short, whether intentional terms (other than those designating relations of comparison) are needed for describing in English the interpretation of signs.

II

We cannot be satisfied with the traditional analyses of sign situations since these, almost invariably, define such terms as "sign" by means of other intentional concepts. That is, we cannot say merely that an object is a sign if it causes someone to *believe*, or *expect*, or *think of* something, since "believe," "expect," and "think of" are clearly intentional terms. Nor can we say merely that an object is a sign if it causes someone to be *set for*, or to be *ready for*, or to *behave appropriately* to something, for these terms, despite their behavioristic overtones, are also intentional. Moreover, if we are to *show* that Brentano is mistaken, then we must not introduce any new technical terms into our analysis of sign behavior unless we can show that these terms apply also to nonpsychological situations. If we take our cue from previous investigations, we will find that two rather different nonintentional conceptions of *sign* are at hand. According to the one, a sign is essentially a *substitute* stimulus; according to the other, it is a *preparatory* stimulus. The second of these conceptions, I believe, is somewhat more promising than the first.

If we use the term "referent" as short for "what is signified," we may say that, according to the first view, the sign is a substitute for the referent.

It is a substitute in the sense that, as a stimulus, it causes effects upon the organism similar to those which the referent would have caused. According to this conception, something S may be said to be a sign of something E for an organism O, if and only if S affects O in a manner similar to that in which E would have affected O.[8] Hence the bell may be said to be a sign of food to the dog, since it affects the dog's responses, or dispositions to respond, in a manner similar to that in which the food would have affected them.

This type of definition involves many difficulties of detail, but we shall concern ourselves with only one, viz., that of specifying the respect or degree of similarity which must obtain between the effects caused by the sign and the effects which the referent would have caused.[9] Shall we say that S is a sign of E provided merely that S has some of the effects which E would have had? This would have the unacceptable consequence that all stimuli signify each other, since any two stimuli have at least some effects in common. Every stimulus causes neural activity, for example; hence, to that extent at least, any two stimuli will have similar effects. Shall we say that S is a sign of E provided that S has *all* the effects which E would have had? If the bell is to have all the effects which the food would have had, then, as Morris notes, the dog must try to eat the bell.[10] Shall we say that S is a sign of E provided that S has the effects which *only* E would have had? If the sign has effects which only the referent can have, then the sign *is* the referent and only food can be a sign of food. The other methods of specifying the degree or respect of similarity required by the substitute stimulus theory, so far as I can see, have equally unacceptable consequences. Let us turn, therefore, to the preparatory-stimulus theory.

According to the preparatory-stimulus theory, the sign is to be viewed as affecting the organism's responses, or dispositions to respond, to the referent. As a result of being stimulated by the sign, the organism will respond differently, if subsequently stimulated by the referent, than it otherwise would have done. In order to formulate a paradigm for this type of definition, let us borrow Husserl's terms "fulfill" and "disrupt" (or "disappoint").[11] We may say, then: S is a sign of E for O, if and only if S occasions in O a disposition which would be *fulfilled* if E were to occur, or which would be *disrupted* if E were not to occur. Our problem now becomes that of finding appropriate meanings for the terms "fulfill" and "disrupt."

Russell's terms, "yes feeling" (or "quite-so feeling") and "surprise," may be suggestive in this context.[12] Thus we might say that, as a result of being stimulated by the bell, the dog would have a yes-feeling if food

were provided and would be surprised if it were not. Let us assume that we can provide causal nonintentional accounts of *yes-feelings* and *surprises*; possibly they can be defined by means of such terms as "reinforcement," "disequilibration," and "shock."

It may well be that, with these concepts, we can provide an account of the dog and the bell which will show that this elementary sign situation is *not* intentional. It is possible that the dog, in virtue of the sound of the bell, is put into a bodily state such that he will be shocked or surprised if he does not receive food within the moment. And it may be that this bodily state which would lead to the shock or surprise can be specified in physiological terms, independently of the stimulus and of the shock. Whether this is so, of course, is a psychological question. But if it is so, then we must conclude that some sign situations are not intentional. Nevertheless, difficulties in principle seem to be involved when we attempt to extend the preparatory-stimulus theory to human behavior.

These difficulties concern the specification of the occasions upon which the appropriate fulfillments or disruptions must occur. According to our paradigm, these must be caused by the occurrence, or nonoccurrence, of the referent. But it is easy to think of elementary human sign situations where the appropriate events do not occur in the manner required. And to accommodate our definition to such cases, we seem required to make qualifications which reintroduce the intentional concepts we are trying to eliminate.

An example will clarify this point. Jones, let us suppose, interprets certain words or noises as a sign that his aunt is waiting at the railroad station. Our definition, in application to this situation, gives us: "As a result of being stimulated by the words, Jones would experience a yes-feeling if his aunt were at the station or would experience surprise if she were not." If Jones avoids the station, however, the requisite fulfillment or disruption may not occur. Shall we add, then, the qualification ". . . provided Jones visits the station"?

If his visit to the station is brief and if he is not concerned about his aunt, the requisite experiences may still fail to occur. Shall we add: ". . . provided he *looks for* his aunt"? But now we have an intentional term again. And even if we allow him to look for her, the experiences may not occur if some diversion happens to interrupt his search.

Moreover, even after we have made the necessary qualifications, we must still add something about what Jones would *perceive*; for example, ". . . if Jones were to perceive that his aunt is there (or isn't there)." We cannot, at this point, interpret the term "perceive" nonintentionally, construing it merely in terms of light waves, sensible stimulation, etc. For

if Jones were to meet his aunt and if she were to serve as visual stimulus object, etc., he might yet *take her to be* someone else; or he might meet and be visually stimulated by someone else and yet *take her to be* his aunt.[13] In such cases, the surprises and yes-feeling would not occur in the manner required by our definition.

Moreover, even if we allow ourselves the intentional terms "look for" and "perceive," our definition will still be inadequate. If Jones visits the bus terminal, *believing* it to be the railroad station, or if he visits the railroad station, *believing* it to be the bus terminal, the conditions prescribed by the definition may well fail to occur. Hence we must add to our other intentional qualifications further qualifications about what Jones must *believe*, or *not* believe. And so on.

The difficulties which we have encountered in connection with this example are of the following sorts: We have found it necessary to add that the organism, rather than be merely stimulated by the referent, must *perceive* it, or *recognize* it, or have it *manifested* to him, or take *something to be* it, or else we must add that these intentional events do *not* occur. We have seen that it may be necessary to add that the organism must *look for* the referent. And we have seen that it is necessary to add that the organism must have certain *beliefs* concerning the nature of the conditions under which he perceives, or fails to perceive, the referent. Similar difficulties can readily be seen to apply to any example which may come to mind.[14]

The analysis of signs, then, seems to lead us back to the intentional concepts with which we began. We noted, however, that there may be simple sign situations, involving the behavior of animals, which can be described nonintentionally. Possibly infants are involved in such situations. And possibly as Ogden and Richards intimated ordinary sign situations may be shown somehow to be "theoretically analysable" into such simple situations.[15] But to show how this might be done is a program or project for the science of semiotics; it is certainly not yet one of its accomplishments. And until this is shown, we can say, I think, that the presumption lies with the thesis of Brentano.

NOTES

[1] Franz Brentano, *Psychologie vom empirischen Standpunkte* (Leipzig, 1924), vol. 1, pp. 124–25.

[2] Brentano held that an intentional situation is not strictly *relational* and suggested that, instead of calling it "relational," we say that it involves "something relative" (*Etwas Relativliches*). Cf. Franz Brentano, *Wahrheit und Evidenz*, Oskar Kraus, ed., p. 195. He insisted in his later writings that there are no "unreal" or "inexistent" objects. *Ibid.*, pp. 73–118, especially pp. 87–89. The point of the doctrine of intentionality is, not that there is a peculiar type of inexistent object, but that there is a peculiar type of psychic phenomenon.

[3] The peculiar characteristics of intentional statements are discussed in the following

works: G. Frege, "Uber Sinn und Bedeutung," in *Zeitschrift für Philosophie und Philosophische Kritik*, n.s., 100:25–50 (1892), especially p. 31; reprinted in H. Feigl and W. Sellars, eds., *Readings in Philosophical Analysis*. B. Russell, "Philosophy of Logical Atomism," *Monist*, 29:32–63 (1918), especially pp. 47–63. G. E. Moore, *Philosophical Studies*, pp. 215–18. A. I. Melden, "Thought and Its Objects," *Philosophy of Science*, 7:434–41. W. V. Quine, "Notes on Existence and Necessity," *Journal of Philosophy*, 40:113–27 (1943). Hans Reichenbach, *Elements of Symbolic Logic*, pp. 274–84.

[4] In connection with such cases, a linguistic criterion of intentionality may be useful as an instrument for revising a language.

[5] B. Russell, *An Inquiry into Meaning and Truth*, p. 142.

[6] Compare Alonzo Church, review of Melden, *op. cit.*, in *Journal of Symbolic Logic*, 5:162 (1940). A slightly different type of example has been suggested to me by Donald Williams: In English we may use the sentence "The Holy Grail is a goblet" without intending to imply either that there is or that there isn't a Holy Grail. But statements of this sort are readily paraphrased by means of other statements which are not intentional; for example, "If there were a Holy Grail, it would be a goblet," or "If anything were a Holy Grail, it would be a goblet."

[7] In "The Tigers of India," William James discusses Brentano's thesis and refers to similar examples: "A stone in one field may 'fit,' we say, a hole in another field. But the relation of 'fitting' so long as no one carries the stone to the hole and drops it in, is only one name for the fact that such an act may happen. Similarly with the knowing of the tigers here and now. It is only an anticipatory name for a further associative and terminative process that may occur." *The Meaning of Truth*, p. 46n. Dickinson Miller has observed that James' pragmatism "might perhaps have been called, not a theory of truth, but a theory of reference." "Some of the Tendencies of Professor James' Work," *Journal of Philosophy, Psychology and Scientific Methods*, 7:648 (1910).

[8] Cf. C. K. Ogden and I. A. Richards: "A sign is always a stimulus similar to some part of an original stimulus and sufficient to call up an excitation similar to that caused by the original stimulus." *The Meaning of Meaning* (5th ed.), p. 53. Cf. similar definitions in A. Kaplan and I. Copilowish, "Must There Be Propositions?" *Mind*, vol. 48 (1939); B. Russell, *An Inquiry into Meaning and Truth*, p. 235.

[9] Some of the other difficulties which this type of definition involves are discussed by C. W. Morris, *Signs, Language and Behavior*, especially Chapter 1.

[10] Morris, pp. 12, 250. Cf. Max Black, *Language and Philosophy*, p. 171.

[11] Edmund Husserl, *Logische Untersuchunigen*, II Band, 2 Teil, p. 3. Cf. Egon Brunswick, *Wahrnehmung und Gegenstandswelt*, pp. 17ff.

[12] B. Russell, *The Analysis of Matter*, pp. 184, 248; *An Inquiry into Meaning and Truth*, p. 271; *Human Knowledge*, pp. 148, 125, and *passim*. Reichenbach uses the term "fulfillment," *Elements of Symbolic Logic*, p. 281. Morris uses the term "completion" comparably, *Signs, Language and Behavior*, p. 17. Cf. C. S. Peirce on the cognitive function of *surprise*, in *Collected Papers*, 5.51–5.52 and *passim*. Cf. also the uses of "reinforce" and "disrupt" in D. O. Hebb, *The Organization of Behavior: A Neuropsychological Theory*, especially pp. 134–39, 150–51.

[13] On the distinction between the intentional and nonintentional uses of such terms as "perceive," cf. Reichenbach, *Elements of Symbolic Logic*, pp. 274–75; Roderick M. Chisholm, "Reichenbach on Observing and Perceiving," *Philosophical Studies*, 2:45–48 (1951); "Verification and Perception," *Revue Internationale de Philosophie*, 5:251–67 (1951), especially pp. 252–53.

[14] Cf. C. J. Ducasse, "Some Comments on C. W. Morris's 'Foundations of the Theory of Signs'," *Philosophy and Phenomenological Research*, 3:43–52 (1942); C. L. Stevenson, *Ethics and Language*, p. 62.

[15] *The Meaning of Meaning*, p. 71.