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Intentionality and Its Puzzles

Intentionality is a term for a feature exhibited by many mental states
and activities: being directed at objects. Two related things are
meant by this. First, when one desires or believes or hopes, one
always believes or desires or hopes something. Let's assume that
belief report 1) is true:

1)   Dan Quayle believes that George Bush is a Republican.

1) tells us that a subject, Quayle, has a certain attitude, belief, to
something, designated by the nominal phrase that George Bush is a
Republican and identified by its content-sentence,

2)   George Bush is a Republican.

Notice that this sentence might also serve as Quayle's belief-text, a
sentence he could utter to express the belief that 1) reports him to
have.

Following Russell and contemporary usage I'll call the object referred
to by the that- clause in 1) and expressed by 2) a proposition. An
utterance of 2) by itself would assert the truth of the proposition it
expresses, but as a part of 1) its role is not to assert anything, but
to identify what the subject believes.

This same proposition can be the object of other attitudes and of
attitudes of other people. Dole may regret that Bush is a Republican,
Reagan may remember that he is, Buchanan may doubt that he is.

The second way in which mental states and activities are directed at
objects has to do with more familiar sorts of objects: spatiotemporal
objects like persons and things, abstract particulars like numbers,
and universals like the property of being a Republican or the relation
of standing next to. The truth of a proposition requires that certain
objects will have or come to have certain properties or stand in
certain relations. The attitude is about these objects, properties
and relations. Quayle's belief, for example, is about George Bush and
the property of being a Republican. While we can have attitudes about
ourselves and even our own mental states, we have an enormous number
of attitudes about other things. These things may be quite remote
from us. I have never seen Bill Clinton in person, never talked to
him. But I have many beliefs, hopes, desires, doubts, and fears about
him. We all have attitudes about people who are long dead, like
Aristotle and Caesar, and things that are millions of miles away, like
the planet Pluto. This can seem rather puzzling. What exactly is the
relation between a subject, and the objects about which they have
attitudes?

The concept of intentionality was introduced into modern philosophy by
Franz Brentano, who took what he called "intentional inexistence" to
be a feature that distinguished the mental from the physical

(Brentano, 1960). For discussion of the issue of how intentional states and activities fit into the physical world see INTENTIONALITY AND THE CAUSAL ORDER. In this article we focus on two puzzles about the structure of intentional states and activities, an area in which the philosophy of mind meets the philosophy of language, logic and ontology. We need to note that the term intentionality should not be confused with the terms intention and intension. Intentions, such as Bush's intention to run for re-election, are one kind of intentional state. Intensions are properties or concepts, as opposed to extensions: objects and sets of objects. To use Russell's imperfect but memorable example, featherless biped that is not a plucked chicken has the same extension as human being, but a different intension. There is an important connection between intensions and intentionality, for semantical systems, like extensional model theory, that are limited to extensions, cannot provide plausible accounts of the language of intentionality.

1.   Two puzzles

The attitudes are philosophically puzzling because it is not easy to see how the intentionality of the attitudes fits with another conception of them, as local mental phenomena.

Beliefs, desires, hopes and fears seem to be located in the heads or minds of the people that have them. Our attitudes are accessible to us through introspection. Quayle can tell that he believes Bush to be a Republican just by examining the "the contents of his own mind"; he doesn't need to investigate the world around him. We think of attitudes as being caused at certain times by events that impinge on the subject's body, specifically by perceptual events, such as reading a newspaper or seeing a picture of an ice cream cone. These attitudes can in turn cause changes in other mental phenomena, and eventually in the observable behavior of the subject. Seeing the picture of an ice cream cone leads to a desire for one, which leads me to forget the meeting I am supposed to attend and walk to the ice cream shop instead. All of this seems to require that attitudes be states and activities that are localized in the subject.

But the phenomenon of intentionality suggests that the attitudes are essentially relational in nature; they involve relations to the propositions at which they are directed and at the objects they are about. These objects may be quite remote from the minds of subject. An attitude seems to be individuated by the agent, the type of attitude (belief, desire, etc.) and the proposition at which it is directed. It seems essential to the attitude reported by (1), for example, that it is directed towards the proposition that Bush is a Republican. And it seems essential to this proposition that it is about Bush. But how can a mental state or activity of a person essentially involve some other individual? The difficulty is brought out by two classical problems, which I will call no-reference and co-reference.

Consider,

3)   Elwood believes the king of France is bald.

It seems that if France were a monarchy, and had a king, that king would be a constituent of the proposition that Elwood believed; his belief would be about him. Since there is no king, there must be no such proposition; what then does Elwood believe? This is the no-reference problem.

Compare 1) and 4),

4)   Quayle believes that the person who will come in second in the election is a Republican.

In September, 1992, 1) was surely true and 4) was probably false. And
yet Bush was the person who was going to come in second; that is, Bush
and the person who will come in second in the election co-referred.
But then it seems that the propositions Quayle is said to believe by
1) and 4) are the same. But then how can 1) be true and 4) be false?
This is the co-reference problem.

2.   The classical solution

The classical solution to these problems is to suppose that
intentional states are only indirectly related to concrete particulars
like George Bush whose existence is contingent, and that can be
thought about in a variety of ways. The attitudes directly involve
abstract objects of some sort, whose existence is necessary, and whose
nature the mind can directly grasp. These abstract objects provide
concepts or ways of thinking of concrete particulars. On this view
the propositions

that George Bush is a Republican

that the person who will come in second in the election is a Republican

are quite different, involving different concepts. These concepts
correspond to different inferential/practical roles in that different
perceptions and memories give rise to these beliefs, and they serve as
reasons for different actions. If we individuate propositions by
concepts rather than the individuals they are concepts of, the
co-reference problem disappears.

This proposal has the bonus of also taking care of the no-reference
problem. Some propositions will contain concepts that are not, in
fact, of anything. These propositions can still be believed, desired,
and the like.

This basic idea has been worked out in different ways by a number of
authors. The Austrian philosopher Ernst Mally thought that
propositions involved abstract particulars that encoded properties
like being the loser of the 1992 election, rather than concrete
particulars, like Bush, who exemplify them. There are abstract
particulars that encode clusters of properties that nothing
exemplifies, and two abstract objects can encode different clusters of
properties that are exemplified by a single thing (See Zalta, 1988).
The German philosopher Gottlob Frege distinguished between the sense
and the reference of expressions. The senses of George Bush and the
person who will come in second in the election are different, even
though the references are the same. Senses are grasped by the mind,
are directly involved in propositions, and incorporate modes of
presentation of objects.

For most of the twentieth century the most influential approach was
that of the British philosopher Bertrand Russell. Russell (1905,1929)
in effect recognized two kinds of propositions. Singular propositions
consist of particulars and properties or relations. An example is a
proposition consisting of Bush and the property of being a Republican.
General propositions only involve universals. The general proposition
corresponding to Someone is a Republican would be a complex consisting
of the property of being a Republican and the higher- order property
of being instantiated. (The terms singular proposition and general
proposition are from Kaplan (1989).)

Russell's theory of descriptions gives us general propositions where
we might have thought we were getting singular ones. Consider 5)

5)   The person who will come in second in the election is a Republican.

Since Bush will lose the election, one might suppose that this expresses the singular proposition we mentioned above. But in fact it expresses the same general proposition expressed by 6),

6)   There is a unique person that will come in second in the election, and he or she is a Republican.

Even 2) turns out not to express a singular proposition on Russell's theory. Ordinary proper names like Bush are hidden descriptions. Where y is some crucial set of Bush's properties, 1) reports that Quayle believes that the y is a Republican.

Similarly, 3) tells us that Elwood has a belief about a number of universals, such as being a King of France and being bald. All of these universals can exist, even though there is no King of France, so the fact that Elwood has the belief he has does not imply that there is such a person.

3.   Direct Reference

Over the past twenty-five years, the hidden descriptions treatment of proper names has come in for a lot of criticism (See Donnellan, 1970, Kripke, 1972). According to this critique the classical solution provides at best a partial solution to the no-reference and co-reference problems, and at worst rests on a mistaken conception of intentionality.

 To make the hidden descriptions treatment of proper names work, we need a description that i) denotes the bearer of the proper name, ii) provides the correct content for the proposition expressed by the sentence in which the proper name occurs. There seem to be two places to look for such a description, in the mind of the subject, and in the rules of language.

Someone like Quayle, who knows Bush well, would associate a rich set of descriptions or conditions with his name. Let's assume that our description, the y, incorporates all the facts that Quayle believes most firmly about Bush. Then, on the hidden description view, it seems that 2) expresses the same proposition as 7):

7)   The y is a Republican.

But is this right? Suppose, as seems likely, that one of the properties Quayle is most sure about, with respect to Bush, is that he is a Republican. Then this property will be incorporated into the y, and 7) will be a trivial proposition. But 2) is not trivial. Even Quayle could probably imagine circumstances in which George Bush might not have become a Republican.

Or consider Clinton, who also believes that George Bush is a Republican. Intuitively, Clinton and Quayle believe the same thing, that George Bush is a Republican. But, on the hidden descriptions view, they really do not, since the complex of things Clinton associates most firmly with Bush will not be exactly the same as y, the complex that Quayle associates with him. If Clinton uses sentence 1) to describe Quayle, which proposition is at issue? The one based on Clinton's conception of Bush or the one based on Quayle's?

Finally, suppose that Elwood has heard of Bush, like virtually everyone in the world. But Elwood's beliefs about Bush, like his beliefs about many things, are confused and fragmentary. He is not sure what party Bush belongs to, or whether he is King or President. All the true things he believes about Bush don't amount to enough to pick Bush out uniquely. Still, it seems that as long as Elwood has heard about Bush--- careless as he may be reading the newspaper articles, inattentive as he may be listening to the radio, inept as he

may be in remembering the little he manages to understand---he can
have beliefs about Bush, even if they are mostly wrong.

The second place to look for the appropriate description is the
linguistic conditions of reference. It seems there must be some
relation p that obtains between a name and the object to which it
refers. It has been suggested, for example, that the relation is
basically causal: a is the bearer of N iff a stands at the beginning
of a certain sort of causal chain that leads to the use of N. This may
be more or less independent of the speaker's belief, since many
speakers do not have the foggiest ideas what p might be.

It does not seem, however, that the associated description, the x such
that p(N,x) meets our second condition. For, whatever p might turn
out to be, it does not seem that 2) expresses the same proposition as
8)

8)   The x such that p(George Bush, x) is a Republican.

Intuitively, 2) doesn't tell us anything about the name George Bush,
and 8) doesn't tell us anything about the person George Bush. What 2)
says could be true, even if no one were named George Bush (although we
couldn't express it this way), and what 8) says could be true even if
George Bush were a Democrat, so long as someone else was named George
Bush, and that person were a Republican.

The conclusion to which these considerations seem to point is, in
Russellian terms, that a statement like 2) expresses a singular
proposition after all, and 1) attributes to Quayle a belief in a
singular proposition. In David Kaplan's terminology, names are
directly referential (Kaplan, 1989). This does not mean (as it might
seem to), that the link between a name and the object it refers to is
unmediated. It means that the object a name refers to is directly
involved in the propositions expressed by sentences in which the name
occurs.

But then the classical solutions to the co-reference and no-reference
problems are at least very incomplete. We'll focus on the first.
Recall that Bill Clinton's original name was Bill Blythe---he took
Clinton, his stepfather's name, while a teenager. Suppose that at one
point Elwood is willing to assert 9) but not 10):

9)   Bill Clinton is a Democrat.

10)   Bill Blythe is a Democrat.

Then he learns about Clinton having two names, and becomes willing to
assert 10). It seems that there was an important change in Elwood's
beliefs. And yet it seems that the belief he expressed earlier with
9) and the one he expressed later with 10) express exactly the same
singular proposition, with Clinton and the property of being a
Democrat as constituents.

Things are still more complicated, for there are strong arguments that
indexicals (I, you, now) and demonstratives (this f, that f) are also
directly referential. Let u be a use by Clinton of

11)   I am a Democrat.

What proposition does this express? Since uses of the word I refer to
the speaker, one can associate with the use of I in 21) the condition,

12)   Being the speaker of u.

One might then be tempted to suppose that 11) expresses the same
proposition as

13)   The speaker of u is a Democrat.

But this isn't plausible. The proposition expressed by u, Clinton's
utterance of 11), will be true in circumstances in which Clinton is a
Democrat, but doesn't utter u. In uttering u, he says that he is a
Democrat. This was no doubt true before he uttered u, and would have
been true even if he had not uttered u. The utterance u says nothing
about itself. In uttering 11), Clinton would be confirming Elwood's
belief that he is a Democrat, a belief Elwood would express with 9).
It seems that u expresses a singular proposition.

Now suppose that Clinton himself was ignorant of or has forgotten his
original name. Imagine that someone trustworthy tells him that Bill
Blythe is a Democrat but doesn't reveal that Bill Blythe is Clinton
himself. Clinton is willing to assert both 9) and 10). Given that
names and indexicals are directly referential, by doing this he
expresses his beliefs in exactly the same singular proposition. But
Clinton clearly has two beliefs in the same proposition: yet another
version of the co-reference problem.

4.   Mental Representations.

Russell considered his theory to be a version of realism, in the sense
that the objects of the attitudes were taken to be objective entities,
external to the mind of the subject. Realists in this sense suppose
that the mind can directly grasp such objects as Frege's senses,
Mally's abstract objects, or Russell's universals. Cognition of
concrete particulars was indirect, mediated by cognition of abstract
objects.

An equally natural response to the puzzles is to reject realism in
this sense, in favor of the alternative that intentionality basically
involves having mental representations: ideas, thoughts, or mental
terms and sentences in the subject's mind. Cognition of external
objects, both abstract and concrete, is mediated by concrete
particulars in the mind. There are as many varieties of this approach
as there are theories of mental representations. According to a very
straightforward theory patterned after the enthusiastic Fodor(1981)
and the skeptical Stich (1983),the representations are best thought of
as terms, predicates and sentences of a "language of thought". This
approach inherits both the traditional empiricist distinction between
simple and complex ideas, and the theme of compositionally from the
philosophy of language. One supposes that the basic expressions of
the language of thought gain their meaning from their role in
perception, cognition, and action, and the meaning of complex
expressions is determined by the meanings of their parts.

  An advocate of this view can adapt Russell's theory of descriptions
to the language of thought, and adopt his partial solutions to the
no-reference and co-reference problems. A mental description may be
denotationless, and different mental descriptions may denote the same
object. But there is no need to adopt the hidden descriptions view of
basic expressions like names and indexicals. One can suppose that the
reference of these basic terms is determined by their cognitive role
and their links with perception and action, rather than by any hidden
descriptive content.

Consider the mental equivalents of 9), 10) and 11). We can imagine
Elwood to have formed two mental names (opened two mental files) for
Clinton that are not internally connected, based on different causal
interactions with Clinton, as childhood friend and as candidate. When
Elwood reads about Clinton in the newspapers, new predicates become
associated with the second name but not with the first. We can
suppose that the mental analogue of I is that term in the language of
thought that a person uses to keep track of information gained in the

special ways one can gain information about oneself. The mental
sentences corresponding to 9), 10) and 11) will have different causal
and cognitive roles, even though it is the political affiliation of
the same person that makes them each true.

So far, so good, but the story is very incomplete. To flesh out this
sort of account, one needs to understand the relation of the internal
mental representations involved in the attitude to the texts that
express them and the content sentences of reports that describe them.
With respect to texts, the most natural view is that the mental
representation involved in an attitude is synonymous with the text
that expresses it.

The question of content sentences is more complicated. Let's return to
1). What exactly does this tell us about Quayle's mental
representations on this theory?

The natural hypothesis is that Quayle's mental representation should
have the same meaning as 2), which is both the content sentence of the
belief report and Quayle's belief text. However, things are not so
simple. Again, it is proper names and indexicals that provide
problems. Suppose Clinton has a mental sentence with the same meaning
as 10) in the belief structure of his mind. How would a knowledgeable
person, Quayle say, report this belief of Clinton's? He would not use
the English translation of the sentence in Clinton's head and say 14)

14)   Clinton believes that I am a Democrat.

This would be to say that Clinton believes the false proposition that
Quayle is a Democrat, not the true one that Clinton is. He would say,
instead,

15)   Clinton believes that he is a Democrat.

There seems to be a looser connection between the content sentences in
accurate attitude reports and mental sentences in the mind than is
envisaged in this theory. It seems that Quayle is characterizing
Clinton's belief, not in terms of the words in Clinton's head, but in
terms of the objects to which those words refer. Clinton's mental
version of I and Quayle's use of the pronoun he have the same
reference, but not the same meaning. It seems that describe the
attitudes not by describing the mental representations involved in
them, but the objects those representations are about.

5.   Two-tiered views

With these last considerations, propositions sneak back into the
mental representations account, albeit with a somewhat diminished
status. Propositions are not directly grasped by the mind, but tools
we use to describe something important that different attitudes,
involving different subjects and different ways of thinking about
objects, may have in common.

On the family of view I shall call two-tiered, our original notion of
the object of the attitudes assimilates two different levels of
comparison among attitudes(See Barwise and Perry, 1983, Crimmins,
1992; Crimmins and Perry, 1989; Kaplan, 1989; Richard, 1990; Salmon,
1986; Salmon and Soames, 1988; Shiffer, 1978, 1990). Consider the
hopes of Clinton, Bush and Perot as the election draws near. They
each might say,

16)   I hope that I win the election.

Their hopes are similar at the level of mental representations, but
different, indeed incompatible, at the level of the proposition hoped
for. On the other hand, Hilary Clinton would not say 16), although

she hopes for the same thing that Clinton does:

17)   Bill Clinton hopes that he wins the election, and so does Hilary Clinton.

 On a typical view of this sort, for an attitude report to be true,
the subject must have a mental sentence f(a) in the appropriate
structure, which expresses the same proposition as the content
sentence of the report. For 1) to be true, Quayle must have some
sentence that expresses the singular proposition that Bush is a
Republican. This sentence need not be a translation of the content
sentence; the terms in it need not have the same meaning as those in
the content sentence, only the same reference.

Indeed, as our reflections above about Quayle, Clinton and 14) and 15)
showed, sometimes the content sentences cannot be translations of the
mental sentences. The job of the attitude reporter is to expresses
from his or her perspective the same proposition that the subject's
mental sentence expresses from the subject's perspective.
Propositions are not directly grasped by minds, but are artifacts of
our method of keeping track of truth conditions across differences in
perspective and criteria of identification.

On this view, the language we use to report the attitudes is basically
incomplete and bound to sometimes be misleading. An attitude involves
an agent having a certain sort of mental representation, which, given
the agent's circumstances, determines a certain proposition (which is
usually thought of as a structured proposition of the sort Russell
provides, although other approaches are possible). It is the subject
and mental representation that are crucial to the occurrence of the
attitude; if circumstances are wrong, no proposition may be
determined, or the same proposition may be determined by quite
different attitudes. But the attitude report focuses on the agent and
proposition, only providing indirect information about the mental
representation. It is this incompleteness that accounts for the
no-reference and co-reference problems.

Consider our example involving three ways of referring to Clinton.
Bill Clinton and Bill Blythe correspond to two ways anyone can think
of Clinton, and I corresponds to another, the "self-thinking" way of
thinking about Clinton, which is a way of thinking we can each use to
think about ourselves. Now if Quayle utters 15), we will naturally
suppose that Clinton's mental sentence is I am a Democrat. But the
content sentence of 15) identifies only the proposition Clinton
believes, not how he believes it. For all 15) tells us, Clinton's
mental sentence might be Bill Blythe is a Democrat or (looking at
himself in a mirror, noticing the moderately liberal demeanor, but not
recognizing himself), that man is a Democrat. Basically, attitude
reports explicitly identify only two parameters of the three that are
involved in the attitudes.

Among philosophers who offer two-tiered accounts, there is agreement
that our attitude reports are looser than is envisaged on the other
accounts, and rely more on pragmatic factors for to communicate facts
about the mental representations involved in the attitudes. For
example, unless we are told otherwise, we naturally expect that people
believe things about themselves in the first person way, and not only
by an abandoned name from their youth. Hence we would normally infer
from Quayle's utterance of 15) that Clinton has a belief he would
express with I am a Democrat and not just one he would express with
Bill Blythe is a Democrat.

When we get to details, however, two-tiered theorists disagree not
only about the mechanisms involved, but even about the basic facts
about which attitude reports are true and false in problematic
situations. Consider 18), 19) and 20):

18)   Elwood believes that Bill Clinton is a Democrat

19)   Elwood believes that Bill Blythe is a Democrat

20)   Elwood doesn't believe that Bill Blythe is a Democrat

On one approach, each report has an implicit quantifier that ranges over the hidden parameter (See Barwise and Perry, 1983; Salmon, 1986). So 18) and 19) are true and 20) is false if Elwood believes the proposition that Clinton is a Democrat in some way or another. 20) suggests that he believes the proposition when he thinks of Clinton as Bill Clinton, while 19) suggests that he believes it when he thinks of Clinton as Bill Blythe. This is conceived as merely matter of pragmatics. In the case of Elwood we would be reluctant to assert 17) and would not be misleading if we asserted 20). But literally, 19) is true and 20) is false.

Another approach takes it that the way of thinking about Clinton are an unexplicit or unarticulated parts of what 18), 19) and 20) are about (See Crimmins, 1992; Crimmins and Perry, 1989; Shiffer, 1978). For a belief report to be true, the subject has to believe the proposition identified by the content sentence in virtue of thinking about the objects in the way provided by the context. The report is about certain ways, however, and doesn't merely quantify over them. The words Bill Clinton in 18) suggests that it is thinking of Bill Clinton as Bill Clinton that is at issue; given this, 18) says that Elwood believes the proposition in this way. For the truth of 19) and 20) however, the other ways of thinking about Clinton, as Bill Blythe, is relevant. On this view, 18) and 19) are true, and 20) is false, given the facts about Elwood.

On the two-tiered view, the attitudes are local mental phenomena, involving subjects and mental representations. But the cognitive role of these mental representations has to be understood in terms of the interactions of the agent with external objects, abstract and concrete, and we use these objects to classify and describe the attitudes.

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Keyword (to come)