CAPACITY, ABILITY, PREDISPOSITION AND DISPOSITION

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A crucial concept in recent theory of mind is the concept of disposition. It has been particularly important in the behaviorist program because of two closely related things that have come to the attention of the behaviorist. 1) Noticing that there may be no visible difference between two acts, only one of which is said to involve intelligence, or the use of the mind, the behaviorist distinguishes between them by saying that the intelligent act alone was an exercise of a behavioral disposition. So if a man wins at poker intelligence is involved only if he has a habit of doing this. 2) An explanation of some piece of human behavior may seem to be causal when in fact no explanation of the behavior in terms of preceding behavior can be given. The behaviorist argues that explanations in these cases are in terms of dispositions to behave in certain ways and that dispositional explanations are not causal. It is obvious that both of these moves have the common purpose of avoiding any reference to inner events or processes. This paper challenges the behaviorist's contention that it is inappropriate to speak of dispositions as causes. I will analyse the concept of disposition and show that it is not wrong to speak of a disposition as a cause, or at least as part of a cause.

Considering the influence that Ryle has had on philosophical behaviorists,[1] it might be useful to state a definition of "disposition," that seems to be implied by what Ryle says. Dispositions are what can be predicated of particular objects only by means of statements which require for their analysis the employment of synthetic general hypotheticals. Thus, "He is unpunctual," means that whenever he is supposed to be at a certain place at a certain time, he is always, or nearly always, late; and "The melting point of this piece of ice is 32 degrees," means that if the temperature of this piece of ice is rasised to 32 degrees it will melt. The following points need to be made: 1) Singular statements referring to dispositions, though not law-statements, are similar to law-statements. 2) The synthetic hypotheticals need not be of the universal type; in fact, most of them are not. The uncooperativeness referred to in "He is an uncooperative person," means that he is uncooperative in most situations where cooperation is called for and is more typical of what are called dispositions than is the temperature of ice to melt at 32 degrees. 3) There can be dispositions to form dispositions or to break up dispositions, i.e., a man can have a disposition to improve his memory or to stop smoking.

The analysis of disposition that is implied in Ryle's writing is fairly

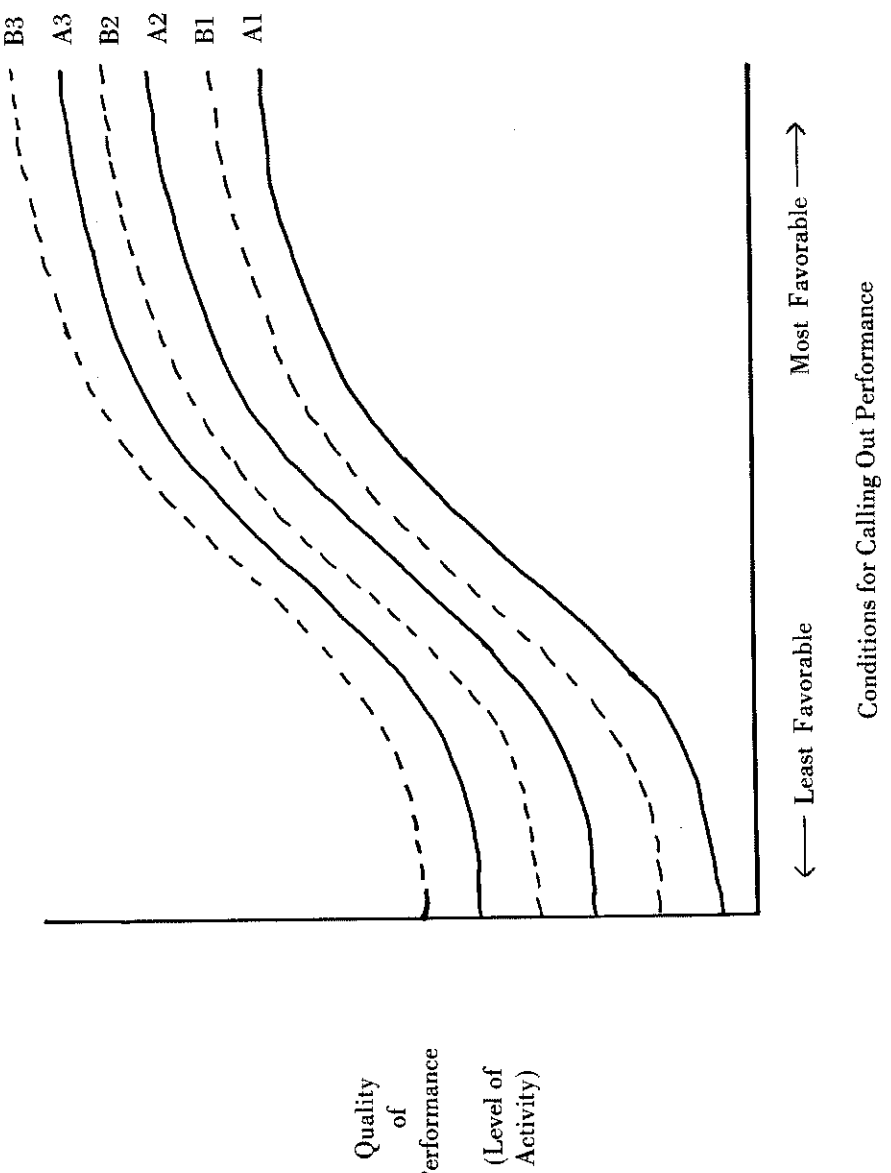
close to common usage. There is one apparent discrepancy. Very rarely is the term used in ordinary discourse (or even in scientific writing) except in connection with determinables, and it is further instructive that most of Ryle's own examples of how the term, "disposition," is used is in connection with determinables. By a determinable I mean some trait that varies in degree. Thus, such character traits as aggressiveness, friendliness, intelligence, bravery and punctuality would all be determinables. So would knowledge of how to bake a cake but not knowledge that Richard Nixon is president of the United States, though, according to Ryle, and of course he is right, analysis of the latter expression no less than the former would have to be in terms of synthetic hypotheticals. But I am not here arguing that "disposition," should always be used only when speaking of determinables. I do believe, however, that restriction of the term of the class of determinables is of value in explaining the logic of the concept.

Abilities and capacities are more often referred to by people who talk about dispositions (both philosophers and psychologists) than any other type of disposition. Because they can often be more easily measured than some of the other dispositions that are exercised by humans, it is possible to speak of them in relatively precise terms. I shall begin then with a discussion of abilities and capacities.

Although the terms, "ability," and "capacity," are often used interchangeably, if a distinction is made between the terms, "ability," is usually used to mean the best a person could do (given his level of development), whereas "capacity," is used to mean the highest ability a person could acquire. I propose to redefine these terms so that they will be more useful in explaining how hereditary and environmental factors combine to produce skillful performances and so that their definitions can be used as model concepts upon which more comprehensive concepts can be constructed that will be applicable to any behavior.

"Ability," is defined as what a person could do throughout a whole range of conditions varying from the least favorable to the most favorable for carrying out the performance and achieving the goal. A person of superior ability would do better throughout the whole range of conditions than would a person of inferior ability. Similarly, increase in ability would be reflected in improvements in performance throughout the whole range of conditions, whereas decrease in ability would be reflected in a lowered quality of performance throughout the whole range of conditions. These relations may be illustrated graphically. The curves may be read as increases or decreases in ability of a single individual, or they may be read as comparisons of the abilities of different individuals.

"Capacity," is then defined as what a person's ability would be under conditions for developing the ability ranging from the least favorable to



the most favorable. Assuming that the conditions for developing the ability were equal, a person of superior capacity would have greater ability throughout the whole range of conditions than would a person of inferior capacity. These relations may also be conceptualized graphically by referring to the preceding graph, but here we must make use of both the curves drawn in solid lines as representing the capacity for something of one individual and the set of curves drawn in dashed lines as representing the capacity of some other individual for that same something. If we call the first individual A and the second individual B, then since the dashed curves lie above the solid curves, it can be said that B has the greater capacity. Notice, however, that it does not follow that B has the greater ability. That all depends upon which ability curve describes the present abilities of A and B. If A is on his highest ability curve and B is on his lowest ability curve, then it is A that will have the highest ability. But again if A has the highest ability, it doesn't follow that B will perform better at a given time. Perhaps B (because he is trying as hard as he can) while A (because he is hardly trying at all) is at the lowest point on his ability curve. If this is so, then B will be the better performer.

These relations between capacity, ability and performance can also be illustrated by means of equation. Notice that there are two equations representing performance. One of these equations uses the word "ability," while the other equation substitutes the right-hand side of the equation for ability.

Performance = ability x present conditions

Ability = capacity x past conditions

Performance = capacity x past conditions x present conditions

The terms "disposition," and "predisposition," apply to any behavioral trait. "Disposition," is defined as the amount of a trait that would be exhibited in behavior throughout a whole range of conditions ranging from the least favorable to the most favorable for calling out the behavior exhibiting the trait. The same graph that was used before can be used again, except that it would be helpful to think of some dispositional trait other than a skill, such as aggressiveness. Again ignoring the dashed curves, the solid curves may be read as increases or decreases in the dispositional trait of a single individual or as comparisons of the amount of the trait in different individuals.

"Predisposition" is then defined as the dispositions that would characterize an organism throughout a whole range of conditions varying from the least favorable to the most favorable for the development of the disposition. Here again we must make use of both the curves drawn in solid lines and the curves drawn in dashed lines. Since the dispositional curves for B lie above the dispositional curves for A, B has more of the

predisposition than A. But this by itself implies nothing about the amount of the disposition each has or the degree that each will exercise the disposition. The determinate of the determinable, disposition, will depend upon past conditions as well as predisposition, and the determinate of the determinable, degree of exercise of the disposition, will depend upon present conditions as well as dispositions.

This is dark language, but means no more than the following:

Behavior = disposition x present conditions

Disposition = predisposition x past conditions

Behavior = predisposition x past conditions x present conditions

I will now maintain that dispositional statements have a use in connection with the ascription of causes. But before making my more specific claims, let it first be admitted that dispositional statements are not always used to answer questions in regard to causes. To say by way of a compliment that Harry is a good algebra student is merely to assert the law that whenever he is tested on algebra he does well. Some philosophers, including Ryle, will not admit even this much, but since the statement is a subjunctive conditional, I am inclined to call it a law-statement. There seems to be no good reason why the term "law" should always be withheld when speaking of specific objects.

My more specific claims are that there is a loose definition of cause according to which dispositional statements in certain contexts function as statements of causes, but that when a stricter definition is given to that term, it is seen that dispositional statements are radically incomplete causal explanations. It is claimed that these definitions are used both in science and in common life, but it is not claimed that my loose definition is the only loose definition of cause that there is, or that my strict definition is the only strict definition that there is, or that it is the strictest definition. I make only those minimal claims that are necessary to make my points. This is not intended to be an adequate account of concepts of causality. For instance, I have not found it relevant to my purposes to mention sufficient conditions, and although I might seem to be referring to necessary conditions, the actual use of that term would be misleading.

It is not at all uncommon in ordinary language for there to exist a loose and a strict meaning of a term which are linked in a certain fashion. The loose sense furnishes the criterion that is usually employed in picking out things to which the property can be ascribed, but ascription of the property is withdrawn if it is shown that the conditions of the stricter criterion have not been complied with. My contention is that my loose and strict meanings of "cause" are related in somewhat this way, though here awareness of the strict sense is more apt to force a rewording of the causal statement than an abandonment of what it claims.

My loose definition of cause is as follows. A causes B =*df*. A and B are facts and B wouldn't have been a fact without A. (It is understood that the descriptions of A and B are logically independent.) My strict definition of cause is as follows. A causes B = *df*. A and B are contemporaneous events (or processes, in case processes cannot be assumed under events) and B wouldn't have happened without A. Examples of the use of "cause," in the loose sense are the following: "His being too fat was the cause of his heart attack," "He developed lung-cancer because he was a cigarette-smoker," "Arsenic was the cause of his death," and "The beauty operator down at Tillie's was the cause of Peter's divorce from Mary." Approximations to the strict sense are: "The circulation of arsenic through his bloodstream was the cause of his death," "The flirtations of the beauty operator made Peter's heart beat faster," and "The absorption of nicotine by the cells of his body was the cause of a rapid proliferation of cells."

At the very minimum, nothing can be the cause of anything, or the effect either, unless it is a fact. So it is certainly a mistake to refer to dispositions as causes if dispositions are not facts. Ryle is impressed by the objection that dispositions are not facts, though he goes on to defend his talk about dispositions by saying that there are other jobs for language to perform than the reporting of facts. What a curious defence of his use of dispositional words! If Harry is redheaded and a good student, is not his being a good student as much of a fact as his being a redhead? It is a truism, Ryle says, that potentialities are nothing actual.[2] But, far from being a truism, the statement is false in all except Aristotelian language. It makes perfectly good sense to say informatively that she failed in show business because she had no actual talent, though she thought she did. And the acorn really (actually) does possess the potentiality to become an oak tree, unless something has happened to destroy its potentiality. If ability to ascribe a characteristic to an individual be taken as a test of facticity, then surely at least some dispositions would qualify. It is almost as easy to tell whether a person is a cigarette smoker (though it might take a little longer) as it is to find out whether he is a redhead.

That dispositions are datable should count in favor of their status as facts. He didn't know algebra until he took the algebra course, but now he does. He wasn't nervous until he went to the war, but now he is. He couldn't swim until he went into the navy, but now he can. Dispositions can be as long or as short in duration as we want to suppose them to be. I understnad that there are certain magnets whose magnetic powers change with lightning speed as the current is turned on or off. These *changes* in disposition have most of the earmarks of events.

I want shortly to give some examples of statements which seem to refer to dispositions as causes, but it should first be observed that to question

that dispositions can be effects is to run directly counter to what is strongly suggested by language. The magnetism of the magnet is a function of electricity being run through its coils. The old soldier's chronic nervousness was caused by his war experiences. Pedagogs like to believe that at least some of the knowledge that their students possess is due to their pedagogy. The list could go on. Now what would be most surprising is that dispositions could count as effects but not as causes.

There are some statements which seem to refer to dispositions as causes but which are radically misleading as only a little reflection will show. "He developed lung cancer because he is a cigarette smoker," "He has well-developed biceps because he is a weight lifter," and "He has callouses on his hands because he is a ditchdigger." In these cases and in many others it is the exercise of the disposition that is spoken of as the cause. Thus, it is not his disposition to smoke cigarettes that is the cause of his lung cancer but the fact that he has smoked a lot of cigarettes.

Here are some statements which can (in certain contexts) function as causal statements, though the dispositions referred to are causes only in the loose sense. "He won the match because he has great athletic ability," "Because of her talent, she played her part better than any of the other thespians," "He took offense at my harmless remark only because he is a paranoid," "He failed his reading test because he has dyslexia," and "The beauty operator wasn't really flirting with Peter—Mary is just jealous." The following will be singled out for special mention: "That model airplane did not fly when it was thrown into the air because it is not capable of flying."

If the statements in the preceding paragraph are to be taken as causal statements, then the dispositional clauses in them must be given a different interpretation than the (apparently) dispositional clauses of the statements that were mentioned earlier. In the earlier examples, the interpretation of the "dispositional" clauses was that the clauses were really referring to the exercise of dispositions rather than the dispositions themselves, but that explanation won't do here. For though it makes perfectly good sense to say that he developed lung cancer because he smoked too many cigarettes, it makes no sense to say that the cause of his winning the match was the exercise of his ability or that the cause of his taking objection to my harmless remark was the display of his paranoia. This is so because "exercising the player's ability," is just another way of describing what "winning the match," describes, and "being a display of the paranoid's paranoia," is just another way of describing what "objecting to my harmless remark," describes. And yet all of these statements (with the possible exception of the one about the model airplane) have, by way of pointing to peculiarities of individuals without which the actions would not have occurred, something of the air of causal explanations.

Consider some situations that might give causal force to statements similar to the ones above. Jack has just heard Sally play Chopin. Impressed by the performance, Jack says, "She must have been practicing a lot." "Oh, no," I reply, "She's only been taking piano for three months." "Then she must have had a marvelous teacher." "It's not that either," I say, "She has great natural ability." Mary flares up at Bill that she is tired of the beauty operator flirting with him. "Has she been?" I ask Bill a little later. "No," Bill explains, "Mary is just a jealous woman." Knowing that Jimmy has been going to school for years and that he seems bright, Jack asks me why he failed the simple reading test. "He has dyslexia," is my reply. Hearing the paranoid's bitter rejoinder to my harmless remark, but not knowing he is a paranoid, Frank asks if the man has some special reason for not liking me. "No," I reply, "He's a paranoid."

Some of the situations in which we are inclined to mention or not to mention dispositions or predispositions as causes can be explained in a general way by reference to the graph or equations that were given earlier. If a person does not do very much of something that we would expect a normal human being to do, though we know that conditions are right for him doing it and that past conditions have been right for the development of disposition, then we say that his predisposition, or native propensity, for this behavior is low. If a person does more of something than we would expect a normal human being to do but we know that conditions are not right for his doing it and that past conditions have not been right for him to develop the disposition, then a strong predisposition is urged as the cause of him doing more of this than expected. If present conditions are such that we would expect a normal human being to manifest a considerable amount of a certain type of behavior but some person manifests very little of this behavior, we would often say that he has a low disposition to do that.

In all cases, a person's dispositions and predispositions will play a role in what he does, but these roles are not always explicitly mentioned. Here are some situations in which external, or environmental, conditions will be mentioned rather than dispositions or predispositions. If a person shows a considerable disposition to behave in a certain way even though we have reason to believe that he has a low predisposition to behave this way, we say that conditions must have been right in the past for the development of the high disposition that he shows. If a person shows a slight disposition to behave in a certain way but we have reason to believe that he has a high predisposition to behave in this way, we point to past conditions as being wrong for the development of the disposition. If a person at some time manifests a considerable amount of a certain trait but we know that he has a weak disposition to do this, we say that conditions are optimum, or nearly optimum, for the manifestation of the trait. If a

person manifests only a slight amount of a certain trait but we know that he has a strong disposition to do this, we say that conditions are not advantageous for the manifestation of the trait.

Any person who refers to a disposition or a predisposition as the cause of anything whatsoever will experience an uneasiness if pressed for a further explanation, because he realizes that in the strict sense only contemporaneous events or processes can be causes. If we say of a person that he remembers his mother, we would in the ordinary case be speaking of one of his dispositions, but if we speak of his remembering his mother as the cause of the tears flowing down his cheeks, it is some mental happening and not this disposition that we are referring to. For another example, a mere disposition to talk (which has been cited as the very essence of thinking) can neither succeed in formulating or communicating ideas. What is needed in addition to the external stimulus is what is only indirectly referred to by mention of the disposition or predisposition, i.e., some nondispositional factor which combines with the external stimulus in producing the observed effect.

The case of the model airplane may be mentioned to bring home this last point. Remember what the statement said: "The model airplane did not fly because it was not capable of flying." Now suppose that a model airplane, even if in perfect working order, will not fly unless it is started in a certain way—for instance, it must be thrown into the air in a certain way. The airplane may not fly because it is not thrown into the air in the right way (external stimulus) or because it is not "capable of flying"—that is, its wires and pulleys do not connect its parts together in the right way. And to say that the airplane does not fly because it is not "capable of flying" is simply to say that there is something wrong with its construction, though it is not to say what is wrong with its construction. Something like this is true of any dispositional or predispositional explanation. Some of them may be more specific, though they are never as specific as we would want them to be.

NOTES

[1] My impression of what Gilbert Ryle means by "disposition," is obtained from a general reading of Ch. V of *The Concept of Mind* (London: Hutchinson and Co.), 1960.

[2] Ryle, p. 119.

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