III

THE LOGICAL FORM OF ACTION SENTENCES

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STRANGE GOINGS on! Jones did it slowly, deliberately, in the bathroom, with a knife, at midnight. What he did was butter a piece of toast. We are too familiar with the language of action to notice at first an anomaly: the "it" of "Jones did it slowly, deliberately, . . ." seems to refer to some entity, presumably an action, that is then characterized in a number of ways. Asked for the logical form of this sentence, we might volunteer something like "There is an action x such that Jones did x slowly and Jones did x deliberately and Jones did x in the bathroom, . . ." and so on. But then we need an appropriate singular term to substitute for 'x'. In fact we know Jones buttered a piece of toast. And, allowing a little slack, we can substitute for 'x' and get "Jones buttered a piece of toast slowly and Jones buttered a piece of toast deliberately and Jones buttered a piece of toast in the bathroom . . ." and so on. The trouble is that we have nothing here we would ordinarily recognize as a singular term. Another sign that we have not caught the logical form of the sentence is that in this last version there is no implication that any *one* action was slow, deliberate, and in the bathroom, though this is clearly part of what is meant by the original.

The present paper is devoted to trying to get the logical form of simple sentences about actions straight. I would like to give an account of the logical or grammatical role of the parts or words of such sentences that is consistent with the entailment relations between such sentences and with what is known of the role of those same parts or words in other (non-action) sentences. I take this enterprise to be the same as showing how the meanings of action sentences depend on their structure. I am not concerned with the meaning analysis of logically simple expressions in so far as this goes beyond the question of logical form. Applied to the case at hand, for example, I am not concerned with the meaning of "deliberately" as opposed, perhaps, to "voluntarily"; but I am interested in the logical role of both these words.

[1] I have profited from discussion with Daniel Bennett, Paul Grice, Sue Larson, David Pears, Merrill Provence, and David Wiggins. John Wallace and I talked on topics connected with this paper almost daily walking through the Odyssean landscape of Corfu during the spring of 1965; his contribution to the ideas expressed here is too pervasive to be disentangled. My research was supported by the National Science Foundation.

To give another illustration of the distinction I have in mind: we need not view the difference between "Joe believes that there is life on Mars" and "Joe knows that there is life on Mars" as a difference in logical form. That the second, but not the first, entails "There is life on Mars" is plausibly a logical truth; but it is a truth that emerges only when we consider the meaning analysis of "believes" and "knows." Admittedly there is something arbitrary in how much of logic to pin on logical form. But limits are set if our interest is in giving a coherent and constructive account of meaning: we must uncover enough structure to make it possible to state, for an arbitrary sentence, how its meaning depends on that structure, and we must not attribute more structure than such a theory of meaning can accommodate.

Consider the sentence:

(1) Jones buttered the toast slowly, deliberately, in the bathroom, with a knife, at midnight.

Despite the superficial grammar we cannot, I shall argue later, treat the "deliberately" on a par with the other modifying clauses. It alone imputes intention, for of course Jones may have buttered the toast slowly, in the bathroom, with a knife, at midnight, and quite unintentionally, having mistaken the toast for his hairbrush which was what he intended to butter. Let us, therefore, postpone discussion of the "deliberately" and its intentional kindred.

"Slowly," unlike the other adverbial clauses, fails to introduce a new entity (a place, an instrument, a time), and also may involve a special difficulty. For suppose we take "Jones buttered the toast slowly" as saying that Jones's buttering of the toast was slow; is it clear that we can equally well say of Jones's action, no matter how we describe it, that it was slow? A change in the example will help. Susan says, "I crossed the Channel in fifteen hours." "Good grief, that was slow." (Notice how much more naturally we say "slow" here than "slowly." But *what* was slow, what does "that" refer to? No appropriate singular term appears in "I crossed the Channel in fifteen hours.") Now Susan adds, "But I swam." "Good grief, that was fast." We do not withdraw the claim that it was a slow crossing; this is consistent with its being a fast swimming. Here we have enough to show, I think, that we cannot construe "It was a slow crossing" as "It was slow and it was a crossing" since the crossing may also be a swimming that was not slow, in which case we would have "It was slow and it was a crossing and it was a swimming and it was not slow." The problem is not peculiar to talk of actions, however. It appears equally when we try to explain the logical role of the attributive adjectives in "Grundy was a short basketball player, but a tall man," and "This is a good memento of the murder, but a poor steak knife." The problem of attributives is indeed a problem about logical form, but it may be put to one side here because it is not a problem only when the subject is action.

We have decided to ignore, for the moment at least, the first two adverbial modifiers in (1), and may now deal with the problem of the logical form of:

(2) Jones buttered the toast in the bathroom with a knife at midnight.

Anthony Kenny, who deserves the credit for calling explicit attention to this problem,[2] points out that most philosophers today would, as a start, analyze this sentence as containing a five-place predicate with the argument places filled in the obvious ways with singular terms or bound variables. If we go on to analyze "Jones buttered the toast" as containing a two-place predicate, "Jones buttered the toast in the bathroom" as containing a three-place predicate, and so forth, we obliterate the logical relation between these sentences, namely that (2) entails the others. Or, to put the objection another way, the original sentences contain a common syntactic element ("buttered") which we intuitively recognize as relevant to the meaning relations of the sentences. But the proposed analyses show no such common syntactic element.

Kenny rejects the suggestion that "Jones buttered the toast" be considered as elliptical for "Jones buttered the toast somewhere with something at some time," which would restore the wanted entailments, on the ground that we could never be sure how many standby positions to provide in each predicate of action. For example, couldn't we add to (2) the phrase "by holding it between the toes of his left foot"? Still, this adds a place to the predicate only if it differs in meaning from "while holding it between the toes of his left foot," and it is not quite clear that this is so. I am inclined to agree with Kenny that we cannot view verbs of action as usually containing a large number of standby positions, but I do not have what I would consider a knock-down argument. (A knock-down argument would consist in a method for increasing the number of places indefinitely.[3])

Kenny proposes that we may exhibit the logical form of (2) in somewhat the following manner:

(3) Jones brought it about that the toast was buttered in the bathroom with a knife at midnight.

Whatever the other merits in this proposal (I shall consider some of them presently) it is clear that it does not solve the problem Kenny raises. For it is, if anything, even more obscure how (3) entails "Jones brought it about that the toast was buttered" or "The toast was buttered" than how (2) entails "Jones buttered the toast." Kenny seems to have confused two different problems. One is the problem of how to represent the idea of *agency*: it is this that prompts Kenny to assign "Jones" a logically distinguished

[2] Anthony Kenny, *Action, Emotion and Will* (London, 1963), ch. VII.

[3] Kenny seems to think there is such a method, for he writes, "If we cast our net widely enough, we can make 'Brutus killed Caesar' into a sentence which describes, with a certain lack of specification, the whole history of the world." (*op. cit.*, p. 160). But he does not show how to make each addition to the sentence one that irreducibly modifies the killing as opposed, say, to Brutus or Caesar, or the place or the time.

role in (3). The other is the problem of the "variable polyadicity" (as Kenny calls it) of action verbs. And it is clear that this problem is independent of the first, since it arises with respect to the sentences that replace 'p' in "x brings it about that p."

If I say I bought a house downtown that has four bedrooms, two fireplaces, and a glass chandelier in the kitchen, it's obvious that I can go on forever adding details. Yet the logical form of the sentences I use presents no problem (in this respect). It is something like "There is a house such that I bought it, it is downtown, it has four bedrooms, . . ." and so forth. We can tack on a new clause at will because the iterated relative pronoun will carry the reference back to the same entity as often as desired. (Of course we know how to state this much more precisely.) Much of our talk of action suggests the same idea: that there are such *things* as actions, and that a sentence like (2) describes the action in a number of ways. "Jones did it with a knife." "Please tell me more about it." The "it" here doesn't refer to Jones or the knife, but to what Jones did – or so it seems.

". . . it is in principle always open to us, along various lines, to describe or refer to 'what I did' in so many different ways," writes Austin in "A Plea for Excuses."[4] Austin is obviously leery of the apparent singular term, which he puts in scare quotes; yet the grammar of his sentence requires a singular term. Austin would have had little sympathy, I imagine, for the investigation into logical form I am undertaking here, though the demand that underlies it, for an intuitively acceptable and constructive theory of meaning, is one that begins to appear in the closing chapters of *How to Do Things with Words*. But in any case, Austin's discussion of excuses illustrates over and over the fact that our common talk and reasoning about actions is most naturally analyzed by supposing that there are such entities.

"I didn't know it was loaded" belongs to one standard pattern of excuse. I do not deny that I pointed the gun and pulled the trigger, nor that I shot the victim. My ignorance explains how it happened that I pointed the gun and pulled the trigger intentionally, but did not shoot the victim intentionally. That the bullet pierced the victim was a consequence of my pointing the gun and pulling the trigger. It is clear that these are two different events, since one began slightly after the other. But what is the relation between my pointing the gun and pulling the trigger, and my shooting the victim? The natural and, I think, correct answer is that the relation is that of identity. The logic of this sort of excuse includes, it seems, at least this much structure: I am accused of doing b, which is deplorable. I admit I did a, which is excusable. My excuse for doing b rests upon my claim that I did not know that $a = b$.

Another pattern of excuse would have me allow that I shot the victim

[4] John Austin, "A Plea for Excuses," in *Philosophical Papers* (Oxford, 1961), p. 148.

intentionally, but in self-defense. Now the structure includes something more. I am still accused of b (my shooting the victim), which is deplorable. I admit I did c (my shooting the victim in self-defense), which is excusable. My excuse for doing b rests upon my claim that I knew or believed that $b = c$. The additional structure, not yet displayed, would reveal the following as a logical truth: $x = c \rightarrow x = b$, that is, if an action is my shooting the victim in self-defense, it is my shooting the victim.

The story can be given another twist. Again I shoot the victim, again intentionally. What I am asked to explain is my shooting of the bank president (d), for the victim was that distinguished gentleman. My excuse is that I shot the escaping murderer (e), and, surprising and unpleasant as it is, my shooting the escaping murderer and my shooting of the bank president were one and the same action ($e = d$), since the bank president and the escaping murderer were one and the same person. To justify the "since" we must presumably think of "my shooting of x" as a functional expression that names an action when the 'x' is replaced by an appropriate singular term. The relevant reasoning would then be an application of the principle $x = y \rightarrow fx = fy$.

Excuses provide endless examples of cases where we seem compelled to take talk of "alternative descriptions of the same action" seriously, i.e., literally. But there are plenty of other contexts in which the same need presses. *Explaining* an action by giving an intention with which it was done provides new descriptions of the action: I am writing my name on a piece of paper with the intention of writing a check with the intention of paying my gambling debt. List all the different descriptions of my action. Here are a few for a start: I am writing my name. I am writing my name on a piece of paper. I am writing my name on a piece of paper with the intention of writing a check. I am writing a check. I am paying my gambling debt. It is hard to imagine how we can have a coherent theory of action unless we are allowed to say here: each of these sentences describes the same action. Redescription may supply the motive ("I was getting my revenge"), place the action in the context of a rule ("I am castling"), give the outcome ("I killed him"), or provide evaluation ("I did the right thing").

According to Kenny, as we just noted, action sentences have the form "Jones brought it about that p." The sentence that replaces 'p' is to be in the present tense, and it describes the result that the agent has wrought: it is a sentence "newly true of the patient."[5] Thus "The doctor removed the patient's appendix" must be rendered "The doctor brought it about that the patient has no appendix." By insisting that the sentence that replaces 'p' describe a terminal *state* rather than an *event*, it may be thought that Kenny can avoid the criticism made above that the problem of logical form

[5] Kenny, *op. cit.*, p. 181.

of action sentences turns up within the sentence that replaces 'p': we may allow that "The patient has no appendix" presents no relevant problem. The difficulty is that neither will the analysis stand in its present form. The doctor may bring it about that the patient has no appendix by turning the patient over to another doctor who performs the operation; or by running the patient down with his Lincoln Continental. In neither case would we say the doctor removed the patient's appendix. Closer approximations to a correct analysis might be "The doctor brought it about that the doctor has removed the patient's appendix" or perhaps "The doctor brought it about that the patient has had his appendix removed by the doctor." One may still have a few doubts, I think, as to whether these sentences have the same truth conditions as "The doctor removed the patient's appendix." But in any case it is plain that in these versions, the problem of the logical form of action sentences does turn up in the sentences that replace 'p': "The patient has had his appendix removed by the doctor" or "The doctor has removed the patient's appendix" are surely no *easier* to analyze than "The doctor removed the patient's appendix." By the same token, "Cass walked to the store" can't be given as "Cass brought it about that Cass is at the store," since this drops the idea of walking. Nor is it clear that "Cass brought it about that Cass is at the store and is there through having walked" will serve; but in any case again the contained sentence is worse than what we started with.

It is not easy to decide what to do with "Smith coughed." Should we say "Smith brought it about that Smith is in a state of just having coughed"? At best this would be correct only if Smith coughed on purpose.

The difficulty in Kenny's proposal that we have been discussing may perhaps be put this way: he wants to represent every (completed) action in terms only of the agent, the notion of bringing it about that a state of affairs obtains, and the state of affairs brought about by the agent. But many action sentences yield no description of the state of affairs brought about by the action except that it *is* the state of affairs brought about by that action. A natural move, then, is to allow that the sentence that replaces 'p' in "x brings it about that p" may (or perhaps must) describe an event.

If I am not mistaken, Chisholm has suggested an analysis that at least permits the sentence that replaces 'p' to describe (as we are allowing ourselves to say) an event.[6] His favored locution is "x makes p happen," though he uses such variants as "x brings it about that p" or "x makes it true that p." Chisholm speaks of the entities to which the expressions that replace 'p' refer as "states of affairs," and explicitly adds that states of affairs may be changes or events (as well as "unchanges"). An example

[6] Roderick Chisholm, "The Descriptive Element in the Concept of Action," *The Journal of Philosophy*, vol. LXI, No. 20, pp. 613–625. Also see Chisholm, "The Ethics of Requirement," *American Philosophical Quarterly*, vol. 1, no. 2, pp. 1–7.

Chisholm provides is this: if a man raises his arm, then we may say he makes it happen that his arm goes up. I do not know whether Chisholm would propose "Jones made it happen that Jones's arm went up" as an analysis of "Jones raised his arm," but I think the proposal would be wrong because although the second of these sentences does perhaps entail the first, the first does not entail the second. The point is even clearer if we take as our example "Jones batted an eyelash." In this case I think nothing will do but "Jones made it happen that Jones batted an eyelash" (or some trivial variant), and this cannot be called progress in uncovering the logical form of "Jones batted an eyelash."

There is something else that may puzzle us about Chisholm's analysis of action sentences, and it is independent of the question what sentence we substitute for 'p'. Whatever we put for 'p', we are to interpret it as describing some event. It is natural to say, I think, that *whole* sentences of the form "x makes it happen that p" also describe events. Should we say that these events are the *same* event, or that they are different? If they are the same event, as many people would claim (perhaps including Chisholm), then no matter what we put for 'p', we cannot have solved the *general* problem of the logical form of sentences about actions until we have dealt with the sentences that can replace 'p'. If they are different events, we must ask how the element of agency has been introduced into the larger sentence though it is lacking in the sentence for which 'p' stands; for each has the agent as its subject. The answer Chisholm gives, I think, is that the special notion of making it happen that he has in mind is intentional, and thus to be distinguished from simply causing something to happen. Suppose we want to say that Alice broke the mirror without implying that she did it intentionally. Then Chisholm's special idiom is not called for; but we could say "Alice caused it to happen that the mirror broke." Suppose we now want to add that she did it intentionally. Then the Chisholm-sentence would be: "Alice made it happen that Alice caused it to happen that the mirror broke." And now we want to know, what is the event that the whole sentence reports, and that the contained sentence does not? It is, apparently, just what used to be called an act of the will. I will not dredge up the standard objections to the view that acts of the will are special events distinct from, say, our bodily movements, and perhaps the causes of them. But even if Chisholm is willing to accept such a view, the problem of the logical form of the sentences that can replace 'p' remains, and these describe the things people do as we describe them when we do not impute intention.

A somewhat different view has been developed with care and precision by von Wright in his book *Norm and Action*.[7] In effect, von Wright puts action sentences into the following form: "x brings it about that a state

[7] Georg Henrik von Wright, *Norm and Action* (London, 1963).

where p changes into a state where q." Thus the important relevant difference between von Wright's analysis and the ones we have been considering is the more complex structure of the description of the change or event the agent brings about: where Kenny and Chisholm were content to describe the result of the change, von Wright includes also a description of the initial state.

Von Wright is interested in exploring the logic of change and action, and not, at least primarily, in giving the logical form of our common sentences about acts or events. For the purposes of his study, it may be very fruitful to think of events as ordered pairs of states. But I think it is also fairly obvious that this does not give us a standard way of translating or representing the form of most sentences about acts and events. If I walk from San Francisco to Pittsburgh, for example, my initial state is that I am in San Francisco and my terminal state is that I am in Pittsburgh; but the same is more pleasantly true if I fly. Of course, we may describe the terminal state as my having walked to Pittsburgh from San Francisco, but then we no longer need the separate statement of the initial state. Indeed, viewed as an analysis of ordinary sentences about actions, von Wright's proposal seems subject to all the difficulties I have already outlined plus the extra one that most action sentences do not yield a non-trivial description of the initial state (try "He circled the field," "He recited the *Odyssey*," "He flirted with Olga").

In two matters, however, it seems to me von Wright suggests important and valuable changes in the pattern of analysis we have been considering, or at least in our interpretation of it. First, he says that an action is not an event, but rather the bringing about of an event. I do not think this can be correct. If I fall down, this is an event whether I do it intentionally or not. If you thought my falling was an accident and later discovered I did it on purpose, you would not be tempted to withdraw your claim that you had witnessed an event. I take von Wright's refusal to call an action an event to be a reflection of the embarrassment we found follows if we say an act is an event, when agency is introduced by a phrase like "brings it about that." The solution lies, however, not in distinguishing acts from events, but in finding a different logical form for action sentences. The second important idea von Wright introduces comes in the context of his distinction between *generic* and *individual* propositions about events.[8] This distinction is not, as von Wright makes it, quite clear, for he says both: that an individual proposition differs from a generic one in having a uniquely determined truth value, while a generic proposition has a truth value only when coupled with an occasion; and that, that Brutus killed Caesar is an individual proposition while that Brutus kissed Caesar is a generic proposition, because "a person

[8] *Op. cit.*, p. 23.

can be kissed by another on more than one occasion." In fact the proposition that Brutus kissed Caesar seems to have a uniquely determined truth value in the same sense that the proposition that Brutus killed Caesar does. But it is, I believe, a very important observation that "Brutus kissed Caesar" does not, by virtue of its meaning alone, describe a single act.

It is easy to see that the proposals we have been considering concerning the logical form of action sentences do not yield solutions to the problems with which we began. I have already pointed out that Kenny's problem, that verbs of action apparently have "variable polyadicity," arises within the sentences that can replace 'p' in such formulas as "x brought it about that p." An analogous remark goes for von Wright's more elaborate formula. The other main problem may be put as that of assigning a logical form to action sentences that will justify claims that two sentences describe "the same action." A study of some of the ways in which we excuse, or attempt to excuse, acts shows that we want to make inferences such as this: I flew my spaceship to the Morning Star, the Morning Star is identical with the Evening Star; so, I flew my spaceship to the Evening Star. (My leader told me not to go to the Evening Star; I headed for the Morning Star not knowing.) But suppose we translate the action sentences along the lines suggested by Kenny or Chisholm or von Wright. Then we have something like "I brought it about that my spaceship is on the Morning Star." How can we infer, given the well-known identity, "I brought it about that my spaceship is on the Evening Star"? We know that if we replace "the Morning Star" by "the Evening Star" in "My spaceship is on the Morning Star" the truth-value will not be disturbed; and so if the occurrence of this sentence in "I brought it about that my spaceship is on the Morning Star" is truth-functional, the inference is justified. But of course the occurrence can't be truth-functional: otherwise, from the fact that I brought about one actual state of affairs it would follow that I brought about every actual state of affairs. It is no good saying that after the words "bring it about that" sentences describe something *between* truth-values and propositions, say states of affairs. Such a claim must be backed by a semantic theory telling us how each sentence determines the state of affairs it does; otherwise the claim is empty.

Israel Scheffler has put forward an analysis of sentences about choice that can be applied without serious modification to sentences about intentional acts.[9] Scheffler makes no suggestion concerning action sentences that do not impute intention, and so has no solution to the chief problems I am discussing. Nevertheless, his analysis has a feature I should like to mention. Scheffler would have us render "Jones intentionally buttered the toast" as "Jones made-true a that Jones-buttered-the-toast inscription." This cannot,

[9] Israel Scheffler, *The Anatomy of Inquiry* (New York, 1963). See especially pp. 104–105.

for reasons I have urged in detail elsewhere,[10] be considered a finally satisfying form for such sentences because it contains the logically unstructured predicate "is a that Jones-buttered-the-toast inscription," and there are an infinite number of such semantical primitives in the language. But in one respect, I believe Scheffler's analysis is clearly superior to the others, for it implies that introducing the element of intentionality does not call for a reduction in the content of the sentence that expresses *what* was done intentionally. This brings out a fact otherwise suppressed, that, to use our example, "Jones" turns up twice, once inside and once outside the scope of the international operator. I shall return briefly to this point.

A discussion of the logical form of action sentences in ordinary language is to be found in the justly famed ch. VII of Reichenbach's *Elements of Symbolic Logic*.[11] According to Reichenbach's doctrine, we may transform a sentence like

(4) Amundsen flew to the North pole

into:

(5) $(\exists x)$(x consists in the fact that Amundsen flew to the North Pole).

The words "is an event that consists in the fact that" are to be viewed as an operator which, when prefixed to a sentence, forms a predicate of events. Reichenbach does not think of (5) as showing or revealing the logical form of (4), for he thinks (4) is unproblematic. Rather he says (5) is logically equivalent to (4). (5) has its counterpart in a more ordinary idiom:

(6) A flight by Amundsen to the North Pole took place.

Thus Reichenbach seems to hold that we have two ways of expressing the same idea, (4) and (6); they have quite different logical forms, but they are logically equivalent; one speaks literally of events while the other does not. I believe this view spoils much of the merit in Reichenbach's proposal, and that we must abandon the idea that (4) has an unproblematic logical form distinct from that of (5) or (6). Following Reichenbach's formula for putting any action sentence into the form of (5) we translate

(7) Amundsen flew to the North Pole in May 1926

into:

(8) $(\exists x)$(x consists in the fact that Amundsen flew to the North Pole in May 1926).

The fact that (8) entails (5) is no more obvious than that (7) entails (4); what was obscure remains obscure. The correct way to render (7) is:

(9) $(\exists x)$(x consists in the fact that Amundsen flew to the North Pole and x took place in May 1926).

But (9) does not bear the simple relation to the standard way of interpreting

[10] Donald Davidson, "Theories of Meaning and Learnable Languages" in *Proceedings of the 1964 International Congress for Logic, Methodology and Philosophy of Science* (Amsterdam, 1965), pp. 390–391.

[11] Hans Reichenbach, *Elements of Symbolic Logic* (New York, 1947), §48.

(7) that (8) does. We do not know of any logical operation on (7) as it would usually be formalized (with a 3-place predicate) that would make it logically equivalent to (9). This is why I suggest that we treat (9) alone as giving the logical form of (7). If we follow this strategy, Kenny's problem of the "variable polyadicity" of action verbs is on the way to solution; there is, of course, no variable polyadicity. The problem is solved in the natural way, by introducing events as entities about which an indefinite number of things can be said.

Reichenbach's proposal has another attractive feature: it eliminates a peculiar confusion that seemed to attach to the idea that sentences like (7) "describe an event." The difficulty was that one wavered between thinking of the sentence as describing or referring to that one flight Amundsen made in May 1926, or as describing a kind of event, or perhaps as describing (potentially?) several. As von Wright pointed out, any number of events might be described by a sentence like "Brutus kissed Caesar." This fog is dispelled in a way I find entirely persuasive by Reichenbach's proposal that ordinary action sentences have, in effect, an existential quantifier binding the action-variable. When we were tempted into thinking a sentence like (7) describes a single event we were misled: it does not describe any event at all. But if (7) is true, then there is an event that makes it true. This unrecognized element of generality in action sentences is, I think, of the utmost importance in understanding the relation between actions and desires; this, however, is a subject for another occasion.

There are two objections to Reichenbach's analysis of action sentences. The first may not be fatal. It is that as matters stand the analysis may be applied to any sentence whatsoever, whether it deals with actions, events, or anything else. Even "$2 + 3 = 5$" becomes "$(\exists x)$(x consists in the fact that $2 + 3 = 5$)." Why not say "$2 + 3 = 5$" does not show its true colors until put through the machine? For that matter, are we finished when we get to the first step? Shouldn't we go on to "$(\exists y)$(y consists in the fact that $(\exists x)$(x consists in the fact that $2 + 3 = 5$)"? And so on. It isn't clear on what principle the decision to apply the analysis is based.

The second objection is worse. We have:

(10) $(\exists x)$(x consists in the fact that I flew my spaceship to the Morning Star)

and

(11) the Morning Star = the Evening Star

and we want to make the inference to

(12) $(\exists x)$(x consists in the fact that I flew my spaceship to the Evening Star).

The likely principle to justify the inference would be:

(13) (x) (x consists in the fact that $S \leftrightarrow x$ consists in the fact that S')

where 'S'' differs from 'S' only in containing in one or more places some

singular term where 'S' contains another singular term that refers to the same thing. It is plausible to add that (13) holds if 'S' and 'S''' are logically equivalent. But (13) and the last assumption lead to trouble. For observing that 'S' is logically equivalent to "$\hat{y}(y = y \,\&\, S) = \hat{y}(y = y)$" we get

(14) $(x)(x$ consists in the fact that $S \leftrightarrow x$ consists in the fact that $(\hat{y}(y = y \,\&\, S) = \hat{y}(y = y)))$.

Now suppose 'R' is any sentence materially equivalent to 'S': then "$\hat{y}(y = y \,\&\, S)$" and "$\hat{y}(y = y \,\&\, R)$" will refer to the same thing. Substituting in (14) we obtain

(15) $(x)(x$ consists in the fact that $S \leftrightarrow x$ consists in the fact that $(\hat{y}(y = y \,\&\, R) = \hat{y}(y = y))$,

which leads to

(16) $(x)(x$ consists in the fact that $S \leftrightarrow x$ consists in the fact that $R)$

when we observe the logical equivalence of 'R' and "$\hat{y}(y = y \,\&\, R) = \hat{y}(y = y)$." (16) may be interpreted as saying (considering that the sole assumption is that 'R' and 'S' are materially equivalent) that all events that occur (= all events) are identical. This demonstrates, I think, that Reichenbach's analysis is radically defective.

Now I would like to put forward an analysis of action sentences that seems to me to combine most of the merits of the alternatives already discussed, and to avoid the difficulties. The basic idea is that verbs of action – verbs that say "what someone did" – should be construed as containing a place, for singular terms or variables, that they do not appear to. For example, we would normally suppose that "Shem kicked Shaun" consisted in two names and a two-place predicate. I suggest, though, that we think of "kicked" as a *three*-place predicate, and that the sentence be given in this form:

(17) $(\exists x)$(Kicked(Shem, Shaun, x)).

If we try for an English sentence that directly reflects this form, we run into difficulties. "There is an event x such that x is a kicking of Shaun by Shem" is about the best I can do, but we must remember "a kicking" is not a singular term. Given this English reading, my proposal may sound very like Reichenbach's; but of course it has quite different logical properties. The *sentence* "Shem kicked Shaun" nowhere appears inside my analytic sentence, and this makes it differ from all the theories we have considered.

The principles that license the Morning Star-Evening Star inference now make no trouble: they are the usual principles of extensionality. As a result, nothing now stands in the way of giving a standard theory of meaning for action sentences, in the form of a Tarski-type truth definition; nothing stands in the way, that is, of giving a coherent and constructive account of how the meanings (truth conditions) of these sentences depend upon their structure. To see how one of the troublesome inferences now goes through, consider (10) rewritten as

(18) $(\exists x)$(Flew(I, my spaceship, x) & To(the Morning Star, x)).

which, along with (11), entails

(19) $(\exists x)$(Flew(I, my spaceship, x) & To(the Evening Star, x)).

It is not necessary, in representing this argument, to separate off the To-relation; instead we could have taken "Flew" as a four-place predicate. But that would have obscured *another* inference, namely that from (19) to

(20) $(\exists x)$(Flew(I, my spaceship, x)).

In general, we conceal logical structure when we treat prepositions as integral parts of verbs; it is a merit of the present proposal that it suggests a way of treating prepositions as contributing structure. Not only is it nice to have the inference from (19) to (20); it is also nice to be able to keep track of the common element in "fly to" and "fly away from" and this of course we cannot do if we treat these as unstructured predicates.

The problem that threatened in Reichenbach's analysis, that there seemed no clear principle on which to refrain from applying the analysis to every sentence, has a natural solution if my suggestion is accepted. Part of what we must learn when we learn the meaning of any predicate is how many places it has, and what sorts of entities the variables that hold these places range over. Some predicates have an event-place, some do not.

In general, what kinds of predicates do have event-places? Without pursuing this question very far, I think it is evident that if action predicates do, many predicates that have little relation to action do. Indeed, the problems we have been mainly concerned with are not at all unique to talk of actions: they are common to talk of events of any kind. An action of flying to the Morning Star is identical with an action of flying to the Evening Star; but equally, an eclipse of the Morning Star is an eclipse of the Evening Star. Our ordinary talk of events, of causes and effects, requires constant use of the idea of different descriptions of the same event. When it is pointed out that striking the match was not sufficient to light it, what is not sufficient is not the event, but the description of it – it was a *dry* match, and so on. And of course Kenny's problem of "variable polyadicity," though he takes it to be a mark of verbs of action, is common to all verbs that describe events.

It may now appear that the apparent success of the analysis proposed here is due to the fact that it has simply omitted what is peculiar to action sentences as contrasted with other sentences about events. But I do not think so. The concept of agency contains two elements, and when we separate them clearly, I think we shall see that the present analysis has not left anything out. The first of these two elements we try, rather feebly, to elicit by saying that the agent acts, or does something, instead of being acted upon, or having something happen to him. Or we say that the agent is active rather than passive; and perhaps try to make use of the moods of the verb as a grammatical clue. And we may try to depend upon some fixed phrase like "brings it about that" or "makes it the case that." But only a little

thought will make it clear that there is no satisfactory grammatical test for verbs where we want to say there is agency. Perhaps it is a *necessary* condition of attributing agency that one argument-place in the verb is filled with a reference to the agent as a person; it will not do to refer to his body, or his members, or to anyone else. But beyond that it is hard to go. I sleep, I snore, I push buttons, I recite verses, I catch cold. Also others are insulted by me, struck by me, admired by me, and so on. No grammatical test I know of, in terms of the things we may be said to do, of active or passive mood, or of any other sort, will separate out the cases here where we want to speak of agency. Perhaps it is true that "brings it about that" guarantees agency; but as we have seen, many sentences that do attribute agency cannot be cast in this grammatical form.

I believe the correct thing to say about *this* element in the concept of agency is that it is simply introduced by certain verbs and not by others; when we understand the verb we recognize whether or not it includes the idea of an agent. Thus "I coughed" and "I insulted him" *do* impute agency to the person referred to by the first singular term, "I caught cold" and "I had my thirteenth birthday" do not. In these cases, we do seem to have the following test: we impute agency only where it makes sense to ask whether the agent acted intentionally. But there are other cases, or so it seems to me, where we impute agency only when the answer to the question whether the agent acted intentionally is "yes." If a man falls down by accident or because a truck knocks him down, we do not impute agency; but we do if he fell down on purpose.

This introduces the second element in the concept of agency, for we surely impute agency when we say or imply that the act is intentional. Instead of speaking of two elements in the concept of agency, perhaps it would be better to say there are two ways we can imply that a person acted as an agent: we may use a verb that implies it directly, or we may use a verb that is non-committal, and add that the act was intentional. But when we take the second course, it is important not to think of the intentionality as adding an extra doing of the agent; we must not make the expression that introduces intention a verb of action. In particular, we cannot use "intentionally brings it about that" as the expression that introduces intention for, "brings it about that" is in itself a verb of action, and imputes agency, but it is neutral with respect to the question whether the action was intentional as described.

This leaves the question what logical form the expression that introduces intention should (must) have. It is obvious, I hope, that the adverbial form must be in some way deceptive; intentional actions are not a class of actions, or, to put the point a little differently, doing something intentionally is not a manner of doing it. To say someone did something intentionally is to describe the action in a way that bears a special relation to the beliefs and attitudes of the agent; and perhaps further to describe the action as having

been caused by those beliefs and attitudes.[12] But of course to describe the action of the agent as having been caused in a certain way does not mean that the agent is described as performing any further action. From a logical point of view, there are thus these important conditions governing the expression that introduces intention: it must not be interpreted as a verb of action, it is intentional, and the intentionality is tied to a person. I propose then that we use some form of words like "It was intentional of x that p" where 'x' names the agent, and 'p' is a sentence that says the agent did something. It is useful, perhaps necessary, that the agent be named twice when we try to make logical form explicit. It is useful, because it reminds us that to describe an action as intentional is to describe the action in the light of certain attitudes and beliefs of a particular person; it may be necessary in order to illuminate what goes on in those cases in which the agent makes a mistake about who he is. It was intentional of Oedipus, and hence of the slayer of Laius, that Oedipus sought the slayer of Laius, but it was not intentional of Oedipus (the slayer of Laius) that the slayer of Laius sought the slayer of Laius.

[12] These, and other matters directly related to the present paper, are discussed in my "Actions, Reasons and Causes," *Journal of Philosophy*, vol. 60 (1963), pp. 685–700.