Essays on Actions and Events

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'The Logical Form of Action Sentences', Essay 6, was presented at a conference on The Logic of Decision and Action at the University of Pittsburgh in March 1966. Comments were made by E. J. Lemmon, H. N. Castañeda, and R. M. Chisholm, and my paper and their comments, along with replies by me, were published in *The Logic of Decision and Action*, edited by Nicholas Rescher, University of Pittsburgh Press, 1967. The sources of the further material at the end of Essay 6 are identified along with the material.

Essay 7, 'Causal Relations', was presented in a symposium with that title at the American Philosophical Association Eastern Division meeting in December 1967; Zeno Vendler commented. Our two papers were published in the *Journal of Philosophy* 64 (1967), and my essay is reprinted by permission of the editors.

The next Essay, number 8, 'The Individuation of Events', was published in *Essays in Honor of Carl G. Hempel*, edited by Nicholas Rescher, D. Reidel 1969, pp. 216–34. Copyright © 1969 by D. Reidel Publishing Company, Dordrecht-Holland. Reprinted by permission of D. Reidel Publishing Company. David Kaplan commented on an earlier draft read at a colloquium at the University of California at Irvine in April 1967. Some of his wisdom is incorporated in the printed version.

Essays 9 and 10, 'Events as Particulars' and 'Eternal *vs*. Ephemeral Events', were touched off by a symposium on events at the May 1970 meeting of the Western Division of the American Philosophical Association. Roderick Chisholm gave the first paper, 'Events and Propositions', and this paper and Essay 9 were first published in *Noûs* 4 (1970), by Wayne State University, Detroit, Michigan. Presently, Chisholm replied to me in 'States of Affairs Again', *Noûs* 5 (1971), and I came back with Essay 10 in the same volume in *Noûs*.

Essay 11, 'Mental Events', was given as one of a series of lectures by various philosophers at the University of Massachusetts in 1968–9. These lectures were published in *Experience and Theory*, edited by Lawrence Foster and J. W. Swanson, The University of Massachusetts Press and Duckworth, 1970, and are reprinted by permission of the publishers.

Essay 12, 'Psychology as Philosophy', was delivered at a symposium on the Philosophy of Psychology at the University of Kent in 1971. The paper was published, with comments and replies, in *Philosophy of Psychology*, edited by S. C. Brown, The Macmillan

Press and Barnes, Noble, Inc., 1974, and is reprinted by permission of Macmillan, London and Basingstoke, and Barnes & Noble Books, New York.

Essay 13, 'The Material Mind', was written in a café in Vienna and delivered at Section 9, Methodology and Philosophy of Psychological Sciences, at the Fourth International Congress for Logic, Methodology, and Philosophy of Science, Bucharest, 1971. The Proceedings, edited by P. Suppes, L. Henkin, G. C. Moisil, and A. Joja, were published by North-Holland Publishing Company in 1973, and my paper is reprinted by permission of the publishers.

Essay 14, 'Hempel on Explaining Action', was read at a celebration in honour of Professor Carl G. Hempel at Princeton University in November 1975, and published in *Erkenntnis* 10 (1976), pp. 239–53. Copyright © 1976 by D. Reidel Publishing Company, Dordrecht-Holland. Reprinted by permission of D. Reidel Publishing Company.

'Hume's Cognitive Theory of Pride', which is Essay 15, was presented at a symposium during the December 1976 meetings of the Eastern Division of the American Philosophical Association, and published in the *Journal of Philosophy* 73 (1976). It is reprinted by permission of the editors. Annette Baier and Keith Donnellan commented on my paper at the symposium, and Annette Baier subsequently expanded her remarks into a paper, 'Hume's Analysis of Pride', the *Journal of Philosophy* 75 (1978).

Essays 1, 3, 6, 7, 8, 11, and 12 have been previously reprinted in various places and languages.

substantially unchanged is that over the years they have attracted comment and criticism, and it would be mean spirited to try to move the target out of range after the shot has been fired.

Here are some of the connections among the essays.

Essay 1. 'Actions, Reasons, and Causes' was a reaction against a widely accepted doctrine that the explanation of an intentional action in terms of its motives or reasons could not relate reasons and actions as cause and effect. A principal argument was that causal relations are essentially nomological and based on induction while our knowledge that an agent has acted on certain reasons is not usually dependent on induction or knowledge of serious laws. The argument had found influential if brief expression in Wittgenstein's *Blue and Brown Books*, which were widely circulated from the middle thirties onward (though published only in 1958). In Essay 1 I accept the view that teleological explanation of action differs from explanation in the natural sciences in that laws are not essentially involved in the former but hold that both sorts of explanation can, and often must, invoke causal connections.

Essay 2. The explanation of an intentional action in terms of reasons differs from explanation in the natural sciences in another crucial way: the propositional contents of the explaining attitudes and beliefs must bear a certain logical relation to the description under which the action is explained—a description that gives us an intention with which the action was performed. But what is this logical relation? In Essay 2, 'How is Weakness of the Will Possible?', I assume that no answer is acceptable that frustrates a coherent account of moral conflict, weakness of the will, or other forms of intentional, but irrational, action. In Essay 2 I come out against the view, espoused in Essay 1, that the propositional expressions of the reasons for an action are deductively related to the proposition that corresponds to the action as explained by those reasons.

Causal theories of action are challenged by intentional actions that are contrary to the actor's best judgement. For if reasons are causes, it is natural to suppose that the strongest reasons are the strongest causes. I defend the causal view in Essay 2 by arguing that a reason that is causally strongest need not be a reason deemed by the actor to provide the strongest (best) grounds for acting.

Essay 3 on Agency asks what the relation is between an agent and an event that makes the event an action. A number of sugges-

tions are rejected, and several proposals for reducing some cases to others are made: actions that are not intentional are claimed to be intentional under other descriptions, and actions that seem to include consequences of actions are argued to be identical with the causing action. But the central request for an analysis of agency (and hence, by the argument, of action) goes unanswered.

Essay 4. Causal theories have always been vulnerable to the criticism that they cannot give an acceptable account of free action, or of being free to perform an act. In this Essay I try to defuse some arguments that have been taken to show that freedom to act cannot be a causal power. But I also criticize a number of attempts to analyse that power, and conclude that although freedom to act is a causal power, it cannot be analysed or defined, at least without appeal to the notion of intention. Because of the intimate connection between freedom to act and intentional action, the conclusion of this Essay contradicts an optimistic footnote in Essay 1 which looked forward to, but did not provide, a statement of sufficient conditions of intentional (free) action.

Essay 5. When I wrote Essay 1 I believed that of the three main uses of the concept of intention distinguished by Anscombe (acting with an intention, acting intentionally, and intending to act), the first was the most basic. Acting intentionally, I argued in Essay 1, was just acting with some intention. I had left intending, which I somehow thought would be simple to understand in terms of the others. I was wrong. When I finally came to work on it, I found it the hardest of the three; contrary to my original view, it came to seem the basic notion on which the others depend; and what progress I made with it partially undermined an important theme in Essay 1—that 'the intention with which the action was done' does not refer to an entity or state of any kind.

Essay 6. 'The Logical Form of Action Sentences', introduces a group of five papers on the semantics of sentences containing verbs of action or of change generally, and of closely related sentences with noun phrases that seem to refer to events or actions.

In Essay 1 I talked glibly of actions under a description or of two descriptions of the same action, but I was uneasy over the fact that most sentences concerned with actions contained no description or other device that could be taken to refer to an event or action. Some philosophers have regarded this excursion into questions of logical form as extraneous to the theory of action, but this is a risky

attitude. For it is clear, I think, that many theories of action that at first appear attractive reveal underlying confusions when subjected to careful semantic scrutiny. When I wrote Essay 1, it had not yet occurred to me that a sentence like 'Eve ate the apple' should not be taken to contain a singular reference to an event; it is distinct in logical form from 'Eve's eating of the apple occurred', though the latter does imply the former.

I have appended to Essay 6 replies to various suggestions and criticisms relevant to its thesis.

Essay 7 applies the lesson of Essay 6 to causality. Essay 1 depended in large part on the fact that events can be described in logically independent ways, so that reasons and actions, described as they must be to bring out the intention with which the action was performed, may not be described as they must be to suggest serious causal laws. Yet reasons and actions can for all that be cause and effect. But in Essay 1 I had no definite idea of what I meant by the description of an event, and therefore no idea either what the logical form of singular causal sentences might be.

Essay 8. The doctrine of Essay 6 dictated that certain descriptions of actions or events, if they refer at all, must refer to the same thing. Thus most adverbial modifiers cannot change the reference of an expression they modify, and (as one would expect—though this is challenged by some current theories) substituting coreferring singular terms in the description of an action or event cannot (except in special contexts) change the action or event referred to.

But these cases do not touch more interesting problems about the individuation of events where logic alone does not decide the matter. Essay 8 is largely concerned with further criteria of individuation. In particular, it first introduced in print (as far as I know) a puzzle that has since come in for a good deal of discussion: if *A* kills *B* by poisoning him, it seems hard to deny that there must be a killing that is identical with a poisoning. But a killing implies a death, and the death may occur long after the act that caused it. How then can the poisoning be identical with the killing? Essay 8 proposed an answer that has been much criticized and defended. The answer still seems to me better than the radical alternatives, though in some respects I now think it can be improved.

Essays 9 and 10 defend and elaborate on the event ontology proposed in Essay 6. Both Essays were written in response to papers by Roderick Chisholm.

The next four papers explore the role of laws in the explanation of actions and other psychological phenomena.

Essay 11 argues that although psychological and physical phenomena are causally connected, and this implies that there are strict laws that cover the instancing events, nevertheless there are no strict laws that cover events or states described in psychological terms. In the course of explaining how this can be, a version of the identity theory emerges which I call *anomalous monism.*

Essay 12 further develops the arguments against the possibility of strict psychophysical laws, and stresses the central importance of a normative concept of rationality in the attribution of beliefs, intentions, desires, and other such attitudes.

Essay 13 raises the question how much we can hope to learn about the psychology of thought and action from advances in neurophysiology and reaches conclusions closely related to those of Essays 11 and 12.

Essay 14, like Essay 8, was written to celebrate the intellectual and other virtues of Carl Hempel. The present Essay, 'Hempel on Explaining Action', acknowledges him as an early partisan of the causal view of action, but takes issue with him on the role of empirical laws in explaining actions.

Essay 15 on Hume's theory of pride defends an Humean analysis of certain passions and emotions, and in particular defends Hume's claim that a belief that one has a beautiful house (for example) is a causal condition of being proud that one has a beautiful house. As in Essay 1 and subsequent Essays I argue that it may be a necessary truth that an event or state, described in a certain way, has a certain cause. Whether or not this is consistent with Hume's analysis of causality is another question, and, in my opinion, an open one. In any case, if the view of the nature of 'propositional' pride and other such emotions which I argue for here is right, it shows how pride, like the actions for which it may provide a reason, enters the causal chains that help explain and to some extent justify human patterns of feeling, thought, and behaviour.

I have many to thank, among them and in particular Max Black, Michael Bratman, Joel Feinberg, Paul Grice, Stuart Hampshire, Gilbert Harman, Carl Hempel, Merrill Hintikka, Georg Kreisel, Sue Larson, David Lewis, Harry Lewis, Mary Mothersill, David Nivison, David Pears, Richard Reiss, Richard Rorty, Allison Ryan, David Sachs, J. J. C. Smart, P. F. Strawson, Patrick Suppes, Irving

6 *The Logical Form of Action Sentences*

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 Essay 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 'voluntary'; but I am interested in the logical role of both these words. 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 for action sentences alone.

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,[1] points out that most philosophers today would, as a start, analyse 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 analyse '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 relations 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 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

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[1] Anthony Kenny, *Action, Emotion and Will*, Ch. VII.

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 consider a knock-down argument. (A knock-down argument would consist in a method for increasing the number of places indefinitely.)[2]

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' then 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 role in (3). The other is the problem of the 'variable polyadicity' (as Kenny calls it) of action ver's. 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

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[2] 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., 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.

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 ways,' writes Austin.[3] 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 analysed 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 intentionally, but in self-defence. 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-defence), which is excusable. My excuse for doing *b* rests upon my claim that I knew or believed that *b* = *c*.

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

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[3] J. L. Austin, 'A Plea for Excuses', 148.

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 cheque 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 cheque. I am writing a cheque. 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 that each of these sentences is made true by 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'.[4] 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 the logical form 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

4 Kenny, op. cit., 181.

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 analyse 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, the contained sentence is again 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.[5] His favoured 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

5 Roderick Chisholm, 'The Descriptive Element in the Concept of Action'. Also see Chisholm, 'The Ethics of Requirement'.

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 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 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.[6] In effect, von Wright puts action sentences into the following form: '*x* brings it about that a state 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 reflect

[6] Georg Henrik von Wright, *Norm and Action*.

the embarrassment we found to follow if we say that an act is an event, taking agency to be 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.[7] The distinction, as von Wright makes it, is not 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 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'. Our 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 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.[8] 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, for reasons I have urged in detail elsewhere,[9] 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 intensional operator. I shall return to this point.

A discussion of the logical form of action sentences in ordinary language is to be found in the justly famed Chapter VII of Reichenbach's *Elements off Symbolic Logic*.[10] According to Reichenbach's doctrine, we may transform a sentence like

(4) Amundsen flew to the North pole

[8] Israel Scheffler, *The Anatomy of Inquiry*, 104–5.
[9] Donald Davidson, 'Theories of Meaning and Learnable Languages', 390–1.
[10] Hans Reichenbach, *Elements of Symbolic Logic*, sect. 48.

into:

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

The expression 'is an event that consists in the fact that' is 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) Amunsden 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 (7) that (8) does. We do not know of any logical operation on (7) as it would usually be formalised (with a three-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.)

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 colours 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 $\longleftrightarrow$ x consists in the fact that S')

where 'S'' is obtained from 'S' by substituting, in one or more places, a co-referring singular term. 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 $S \longleftrightarrow x$ 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 $S \longleftrightarrow x$ 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 $S \longleftrightarrow x$ 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 to 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 good to have the inference from (19) to (20); it is also good 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? With-

out 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.[11] 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.

[11] See Essay 7 for more on this topic.

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 fought' 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.[12]

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 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.[13] 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.

[12] See Essay 3.   [13] See Essay 1.

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 must be intensional, and the intention must be 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.

CRITICISM, COMMENT, AND DEFENCE

Essay 6 brought in its wake a number of comments and criticisms from other philosophers, and in a few cases I responded. In this appendix to Essay 6 I bring together some of my replies, for although they repeat much that can be found elsewhere in this volume, they often put a point in a new way or modify an old one. I have done some editing to make these replies intelligible without the comments to which they were replies, but of course some readers may want to look up the original work of the critic or commentator.

This Essay was first read at a three-day conference on *The Logic of Decision and Action* held at the University of Pittsburgh in March 1966; the proceedings were published the next year under the editorship of Nicholas Rescher. At the conference, E. J. Lemmon, H.-N. Castañeda, and R. M. Chisholm commented on my paper, and I replied. It is my replies (as rewritten for publication) that appear here (somewhat further edited).

In November of 1966 The University of Western Ontario held a colloquium on *Fact and Existence* at which I replied to a paper 'On Events and Event-Descriptions' by R. M. Martin. Both his paper and my reply were published by Blackwells in 1969 under the editorship of Joseph Margolis. Martin had not seen my Essay 6 when he wrote his paper, and in fairness to him it should be noted that his views on the semantics of sentences about events have been modified subsequently. I reprint my reply to him for the light it throws on my views, not on his.

Finally, the journal *Inquiry* devoted its Summer, 1970, issue to the subject of action, and it contained two criticisms of my work. One was by

Carl G. Hedman, 'On the Individuation of Actions', the other was by James Cargile, 'Davidson's Notion of Logical Form'. My replies were printed under the title 'Action and Reaction', and are reprinted here.

A. *Reply to Lemmon on Tenses*. My goal was to get clear about the logical form of action sentences. By action sentences I mean sentences *in English* about actions. At the level of abstraction on which the discussion moved, little was said that would not apply to sentences about actions in many other languages if it applied to sentences in English. The ideal implicit in the paper is a theory that spells out every element of logical form in every English sentence about actions. I dream of a theory that makes the transition from the ordinary idiom to canonical notation purely mechanical, and a canonical notation rich enough to capture, in its dull and explicit way, every difference and connection legitimately considered the business of a theory of meaning. The point of canonical notation so conceived is not to improve on something left vague and defective in natural language, but to help elicit in a perspicuous and general form the understanding of logical grammar we all have that constitutes (part of) our grasp of our native tongue.

In exploring the logical form of sentences about actions and events, I concentrated on certain features of such sentences and neglected others. One feature I totally neglected was that of tense; Lemmon is absolutely right in pointing out that some of the inferences I consider valid depend (in a standard way we have become hardened to) on fudging with respect to time. The necessity for fudging shows that we have failed to bring out a feature of logical form.

I accept the implication that my own account was incomplete through neglect of the element of tense, and I welcome Lemmon's attempt to remedy the situation. I am very much in sympathy with the methods he apparently thinks appropriate. Logicians have almost always assumed that the demonstrative element in natural languages necessarily resists serious semantic treatment, and they have accordingly tried to show how to replace tensed expressions with others containing no demonstrative feature. What recommends this strategy to logicians (the elimination of sentences with variable truth-values) also serves to show that it is not a strategy for analysing the sentences of English. Lemmon makes no attempt to eliminate the demonstrative element from his canonical notation

(substituting 'before now' for the past tense is a way of *articulating* the relation between the different tenses of the same verb, not of eliminating the demonstrative element). At the same time, he obviously has in mind that the structure he introduces must lend itself to formal semantic treatment. It is simply a mistake, Lemmon correctly assumes, to think that sentences with a demonstrative element resist the application of systematic semantic analysis.

B. *Reply to Lemmon on Identity Conditions for Events.* If we are going to quantify over events and interpret singular terms as referring to events, we need to say something about the conditions under which expressions of the form '$a = b$' are true where 'a' and 'b' refer, or purport to refer, to events. This is a difficult and complex subject, and I do not propose to do more here than comment briefly on some of Lemmon's remarks. But I think he is right to raise the issue; before we decide that our general approach to the analysis of event sentences is correct, there must be much more discussion of the criteria for individuating and identifying events.

Lemmon is surely right that a necessary condition for the identity of events is that they take place over exactly the same period of time. He suggests, very tentatively, that if we add that the events 'take the same place', then we have necessary and sufficient conditions for identity. I am not at all certain this suggestion is wrong, but before we accept it we shall need to remove two doubts. The first centres on the question whether we have adequate criteria for the location of an event. As Lemmon realizes, his principle that if F (a,z) then a is a participant in z, cannot be true for every F (take 'F' as 'took place a thousand miles south of' and 'a' as 'New York'; we would not, presumably, say New York participated in every event that took place a thousand miles south of New York). And how do we deal with examples like this: if a man's arm goes up, the event takes place in the space-time zone occupied by the arm; but if a man raises his arm, doesn't the event fill the zone occupied by the whole man? Yet the events may be identical. If a man drives his car into his garage, how much of the garage does the event occupy? All of it, or only the zone occupied by the car? Finally, if events are to have a location in an interesting sense, we need to see what is wrong with the following argument: if an event is a change in a certain object, then the event occupies at least the zone occupied by the object during the time the event takes place. But if one object is part of

another, a change in the first is a change in the second. Since an object is part of the universe, it follows that every event that is a change in an object takes place everywhere (throughout the universe). This argument is, I believe, faulty, but it must be shown to be so before we can talk intelligibly of the location of events.

The second doubt we must remove if we are to identify events with space-time zones is that there may be two different events in the same zone. Suppose that during exactly the same time interval Jones catches cold, swims the Hellespont, and counts his blessings. Are these all the same event? I suspect there may be a good argument to show they are; but until one is produced, we must suspend judgement on Lemmon's interesting proposal.[14]

C. *Reply to Castañeda on Agent and Patient.* Castañeda very usefully summarizes the main points in my paper, and raises some questions about the principles that are implicit in my examples. My lack of explicitness has perhaps misled him in one respect. It is not part of my programme to make all entailments matters of logical form. '$x > y$' entails '$y < x$', but not as a matter of form. 'x is a grandfather' entails 'x is a father', but not as a matter of form. And I think there are cases where, to use Castañeda's words, 'a larger polyadic action statement entails a shorter one which is a part of it' and yet this is not a matter of logical form. An example, perhaps, is this: 'I flew my spaceship' may entail, 'I flew', but if it does, it is not, I think, because of the logical form of the sentences. My reason for saying this is that I find no reason to believe the logical form of 'I flew my spaceship' differs from that of 'I sank the *Bismarck*', which does not entail 'I sank' though it does happen to entail 'The *Bismarck* sank'. A comparison of these examples ought to go a long way to persuade us that simple sentences containing transitive verbs do not, as a matter of logical form, entail sentences with intransitive verbs. Putting sentences in the passive will not radically change things. If I sank the *Bismarck*, the *Bismarck* was sunk and the *Bismarck* sank. But 'The *Bismarck* was sunk' and 'The *Bismarck* sank' are not equivalent, for the second does not entail the first. Thus even if we were to accept Castaneda's view that 'The *Bismarck* was sunk' has a logically intransitive verb, the passivity of the subject remains a feature of this verb distinguishing it from the verb

14 For more on the individuation of events, see Essay 8.

of 'The *Bismarck* sank'. Thus there is no obvious economy in Castañeda's idea of indicating the distinction between agent and patient by position in verbs of action. There would be real merit, however, in keeping track of the relation between 'The *Bismarck* was sunk' and 'The *Bismarck* sank', which is that the first entails the second; but Castañeda's notation does not help with this.

Castañeda would have us put 'The King insulted the Queen' in this form:

$$(\exists x) \text{ (Insulted (the King, } x) \text{ \& Insulted } (x, \text{ the Queen))}$$

What is this relation, that relates a person and an event or, *in the same way*, an event and a person? What logical feature is preserved by this form that is not as well preserved, and less misleadingly, by

$$(\exists x) \text{ (Insulted (the King, } x) \text{ \& Was insulted (the Queen, } x))$$

(i.e., 'There was an event that was an insulting by the King and of the Queen')? But I remain unconvinced of the advantages in splitting transitive verbs up in this way. The gain is the entailment of 'My spaceship was flown' by 'I flew my spaceship'; the loss becomes apparent when we realize that 'My spaceship was flown' has been interpreted so as not to entail 'Someone flew my spaceship'.[15]

D. *Reply to Castañeda on Prepositions*. My proposal to treat certain prepositions as verbs does seem odd, and perhaps it will turn out to be radically mistaken. But I am not quite convinced of this by what Castañeda says. My analysis of 'I flew my spaceship to the Morning Star' does entail '$(\exists x)$ (To (the Morning Star, x))', and Castañeda turns this into words as 'There was a to the Morning Star'. But I think we can do better: 'There was an event involving motion toward the Morning Star' or 'There was an event characterized by being to (toward) the Morning Star'. Castañeda himself proposes 'flying-to', which shows he understands the *sort* of verb I have in mind. But of course I don't like 'flying-to' as an unstructured predicate, since this breaks the connection with 'walking-to' and its kin. Castañeda complains, of my use of plain 'to', that there are many different senses of 'to', depending on the verb it is coupled with. Let us suppose we understand this difficulty, with its heavy

[15] On the general point raised by Castañeda, whether transitive verbs entail their intransitive counterparts as a matter of logical form, and (a related matter) whether passive transformation is a matter of logical form, I would now side with Castañeda.

dependence on the concept of sameness of relation. I shall meet Castañeda half-way by introducing a special form of 'to' which means, 'motion-toward-and-terminating-at'; this is more general than his 'flying-to' and less general than my former, plain, 'to'. And I assume that if Castañeda understands '$(\exists x)$ (flying-to (the Morning Star, x))' he will understand '$(\exists x)$ (Motion-towards-and-terminating-at (the Morning Star, x))', for this verb differs from his merely in degree of generality.

E. *Reply to Castañeda on Intention*. First Castañeda makes the point, also made by Lemmon, that I would have done well to make basic a notion of intention that does not imply that what is intended is done. I think they are right in this.

Castañeda then goes on to claim that my analysis of 'Oedipus intentionally sought the slayer of Laius' as 'It was intentional of Oedipus that Oedipus sought the slayer of Laius' is faulty because the first sentence might be true and the second false if Oedipus failed to know that he was Oedipus. Castañeda suggests that to correct the analysis, we should put 'he (himself)' for the second occurrence of 'Oedipus'. In my opinion, Castañeda is right both in his criticism and in his correction. There is, as he maintains, an irreducibly demonstrative element in the full analysis of sentences about intentions, and my proposal concealed it.

Perhaps I should remark here that I do not think it *solves* the problem of the analysis of sentences about intention to put them in the form of 'It was intentional of x that p'; such sentences are notoriously hard to bring under a semantical theory. I view putting such sentences in this form as a first step; the problem then looks, even with Castañeda's revision, much like the problem of analysing sentences about other propositional attitudes.

F. *Reply to Chisholm on Making Happen*. I am happy to have Chisholm's careful comments on the section of my paper that deals with his views; he has made me realize that I had not appreciated the subtlety of his analysis. It is not clear to me now whether, on the issues discussed in my paper, there is any disagreement between us. Let me formulate the questions that remain in my mind as I now understand them.

I assume that since he has not attempted an analysis of event

sentences generally, and the '*p*' in, 'He made it happen that *p*' refers to an event, Chisholm does not dispute my claim that he has not solved the main problems with which I deal in my paper. The question is rather whether there are any special problems in his analysis of action and agency. The first difficulty I raised for Chisholm was whether he could produce, in a reasonably mechanical way, for every sentence of the form 'He raised his arm' or 'Alice broke the mirror', another sentence of the form 'He made it happen that *p*' or 'Alice made it happen that *p*' where '*p*' does not have the agent as subject. Chisholm shows, I think, that there is a chance he can handle 'He raised his arm' and 'Alice broke the mirror' except, perhaps, in the case where intention is not involved at all, and this is not under discussion. The cases I would now worry about are rather 'He walked to the corner', 'He carved the roast', 'He fell down', or 'The doctor removed the patient's appendix'. In each of these examples I find I am puzzled as to what the agent makes happen. My problem isn't that I can't imagine that there is some bodily movement that the agent might be said to make happen, but that I see no way *automatically* to produce the right description from the original sentence. No doubt each time a man walks to the corner there is some way he makes his body move; but of course it does not follow that there is some one way he makes his body move every time he walks to the corner.

The second difficulty I raised for Chisholm concerned the question whether his analysis committed him to 'acts of the will', perhaps contrary to his own intentions. It is clear that Chisholm does not *want* to be committed to acts of the will, and that his analysis does not *say* that there are acts of the will but I believe the question can still be raised. It can be raised by asking whether the event said to occur in 'Jones made it happen that his arm went up' is the same event or a different one from the event said to occur in 'Jones's arm went up'. It seems to me Chisholm can avoid acts of the will only by saying the events are the same. He is free to say this, of course, and then the only objection is terminological. And 'Jones's arm went up' would then be, when it was something Jones made happen, a description of an action.

At the end of his reply, Chisholm conjectures that I may not agree with him that agents may be causes. Actually I see no objection to saying that agents are causes, but I think we understand this only when we can reduce it to the case of an event being a cause; and here

I do disagree with Chisholm.[16] He asks how we are to render 'He made it happen that *p*' in terms merely of relations among events. If the problem is that of giving the logical form of action sentences, then I have made a suggestion in the present paper. If the problem is to give an *analysis* of the concept of agency using other concepts, then I am not sure it can be done. Why must it be possible?

G. *Reply to Martin*. There is a more or less innocent sense in which we say that a sentence refers to, describes, or is about, some entity when the sentence contains a singular term that refers to that entity. Speaking in this vein, we declare that, 'The cat has mange' refers to the cat, 'Caesar's death was brought on by a cold' describes Caesar and his death, and 'Jack fell down and broke his crown' is about Jack and Jack's crown. Observing how the reference of a complex singular term like 'Caesar's death' or 'Jack's crown' depends systematically on the reference of the contained singular term ('Caesar' or 'Jack') it is tempting to go on to ask what a sentence *as a whole* is about (or refers to, or describes), since it embraces singular terms like 'Caesar's death' in much the way 'Caesar's death' embraces 'Caesar'. There is now a danger of ambiguity in the phrases 'what a sentence refers to' or 'what a sentence is about'; let us resolve it by using only 'refers to' for the relation between patent singular terms and what they are about, and only 'corresponds to' for the relation between a sentence and what it is about.

Just as a complex singular term like 'Caesar's death' may fail of reference though contained singular terms do not, so a sentence may not correspond to anything, even though its contained singular terms refer; witness 'Caesar's death was brought on by a cold'. Clearly enough, it is just the true sentences that have a corresponding entity; 'The cat has mange' corresponds to the cat's having of mange, which alone can make it true; because there is no entity that is Caesar's death having been brought on by a cold, 'Caesar's death was brought on by a cold' is not true.[17]

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17 For simplicity's sake I speak as if truth were a property of sentences: more properly it is a relation between a sentence, a person and a time. (We could equally think of truth as a property of utterances, of tokens, or of speech acts.) I assume here that when truth is attributed to a sentence, or reference to a singular term, the suppressed relativization to a speaker and a time could always be supplied; if so, the ellipsis is harmless.

These gerunds can get to be a bore, and we have a way around them in 'fact that' clauses. The entity to which 'The cat has mange' corresponds is the cat's having of mange; equivalently, it is the fact that the cat has mange. Quite generally we get a singular term for the entity to which a sentence corresponds by prefixing 'the fact that' to the sentence; assuming, of course, there are such entities.

Philosophical interest in facts springs partly from their promise for explaining truth. It's clear that most sentences would not have the truth value they do if the world were not the way it is, but *what* in the world makes a sentence true? Not just the objects to which a sentence refers (in the sense explained above), but rather the doings and havings of relations and properties of those objects; in two words, the facts. It seems that a fact contains, in appropriate array, just the objects any sentence it verifies is about. No wonder we may not be satisfied with the colourless 'corresponds to' for the relation between a true sentence and its fact; there is something, we may feel, to be said for 'is true to', 'is faithful to', or even 'pictures'.

To specify a fact is, then, a way of explaining what makes a sentence true. On the other hand, simply to say that a sentence is true is to say there is some fact or other to which it corresponds. On this account, '*s* is true to (or corresponds to) the facts' means more literally '*s* corresponds to a fact'. Just as we can say there is a fact to which a sentence corresponds when the sentence is true, we can also say there is a true sentence corresponding to a particular fact; this latter comes down to saying of the fact that it is one. English sentences that perhaps express this idea are 'That the cat has mange is a fact' and 'It is a fact that London is in Canada', and even 'London is in Canada, and that's a fact.' It is evident that we must distinguish here between idioms of at least two sorts, those that attribute facthood to an entity (a fact), and those that say of a sentence that it corresponds to a fact (or 'the facts'). Let us use the following sentences as our samples of the two sorts of idiom:

(1) That the cat has mange is a fact.
(2) The sentence, 'The cat has mange' corresponds to a fact.

Professor Martin says his analysis is intended to apply to sentences of the form 'So-and-so is a fact' where I suppose 'so-and-so' is to be replaced, typically, by a that-clause, and he suggests we interpret such sentences as saying of a sentence that it is true (non-analytically—but I shall ignore this twist). Which of the two

idioms represented by (1) and (2) is Martin analysing? The sentences Martin says he wants to analyse apparently have the form of (1); his analysis, on the other hand, seems suited to sentences like (2).

Suppose we try the second tack. Then Martin's proposal comes to this: where we appear to say of a sentence that there is a fact to which it corresponds we might as well say simply that the sentence is true. There is nothing in this yet to offend the most devoted friend of facts. Martin has not explained away a singular term that ever purported to refer to a fact; on his analysis, as on the one the friend of facts would give, the only singular term in, 'The sentence "The cat has mange" corresponds to the facts' refers to a sentence. Nor would the friend of facts want to deny the equivalence of '*s* is true' and '*s* corresponds to a fact' when '*s*' is replaced by the name or description of a sentence. The friend of facts would, however, balk at the claim that this shows how, *in general*, to eliminate quantification over facts, or singular terms that refer to them. He would contend that it is only sentence (1) with its apparent singular term 'that the cat has mange' which clearly calls for an ontology of facts. Martin may reply that it is sentence (1) he had his eye on from the start. This reply leaves (2) out in the cold unless, of course, (1) and (2) can be given the same analysis. The partisan of facts will resist this idea, and plausibly, I think, on the ground that (2) is merely an existential generalization of the more interesting:

(3) The sentence, 'The cat has mange' corresponds to the fact that the cat has mange.

Here Martin's attempt to treat facts as sentences cannot be made to work without reducing (3) to the statement that the sentence, 'The cat has mange' corresponds to itself, and this cannot be right since (3), like (2), is clearly *semantical* in character; it relates a sentence to the world. Martin recognizes the semantic thrust in talk of facts, but does not notice that it cannot be reconciled with his analysis of (1).

Martin's thesis that we do not need an ontology of facts could still be saved by an argument to show that there is at most one fact, for the interest in taking sentences like (3) as containing singular terms referring to facts depends on the assumption that there is an indefinitely large number of different facts to be referred to: if there were only one, we could submerge reference to it into what might as well

be considered a one-place predicate.[18] And an argument is handy, thanks to Frege, showing that if sentences refer at all, all true sentences must refer to the same thing.[19]

We may then with easy conscience side with Martin in viewing 'corresponds to a fact', when said of a sentence, as conveying no more than 'is true'. What should we say of the sentences like (1) that appear to attribute facthood to entities? As we have seen, such sentences cannot be analysed as being about sentences. Bearing in mind the unity of fact, we might say (1) affirms The Great Fact, or tells The Truth, by way of one of its infinity of tags, 'The cat has mange.' We could equally well accept the universe with 'That London is in Canada is a fact.' Equivalently, we could have simply said, 'London is in Canada.' So, on my account, 'The sentence "The cat has mange" corresponds to the facts' comes out 'The sentence "The cat has mange" is true', but 'That the cat has mange is a fact' comes out just 'The cat has mange'; not at all the same thing.[20]

It is often assumed or argued (though not by Martin) that events are a species of fact. Austin, for example, says, 'Phenomena, events, situations, states of affairs are commonly supposed to be genuinely-in-the-world.... Yet surely of all these we can say that they *are facts*. The collapse of the Germans is an event and is a fact—was an event and was a fact'.[21] Reichenbach even treats the words 'event' and 'fact' as synonyms, or so he says.[22] The pressure to treat events as facts is easy, in a way, to understand: both offer themselves as what sentences—some sentence at least—refer to or are about. Causal laws, we are told, say that every event of a certain sort is followed by an event of another sort. According to Hempel, the sentence, 'The length of copper rod r increased between 9.00 and 9.01 a.m.' describes a particular event.[23] In philosophical discussion of action these days we very often learn such things as that 'Jones raised his arm' and 'Jones signalled' may describe the same action, or that an agent may perform an action intentionally under one description

[18] For a more general treatment of 'ontological reduction' by incorporation of a finite number of singular terms into predicates, see Quine's 'Existence and Quantification' and 'Ontological Reduction and the World of Numbers', 203.

[19] For the argument, see Essay 6. For the argument and discussion, see A. Church, *Introduction to Mathematical Logic*, 24–5.

[20] I think that failure to observe the distinction between these two cases is the cause of some of the endless debate whether attributions of truth are redundant.

[21] J. L. Austin, 'Unfair to Facts', 104.

[22] Hans Reichenbach, *Elements of Symbolic Logic*, 269.

[23] Carl Hempel, *Aspects of Scientific Explanation*, 421.

and not under another. It is obvious that most of the sentences usually said to be about events contain no singular terms that even appear to refer to events, nor are they normally shown to have variables that take events as values when put over into ordinary quantificational notation. The natural conclusion is that sentences as wholes describe or refer to events, just as they were said to correspond as wholes to facts, and this, as we have seen, must be wrong.

Martin does not fall into this common trap, for although he constructs singular terms for events from the material of a sentence, he does not have the sentence itself refer to an event. His procedure is to view an event as an ordered n-tuple made up of the extensions of the $n-1$ singular terms and the $n-1$-place predicate of a true sentence. So, 'Leopold met Stephen on Bloomsday' gives us the singular term, '$\langle M, l, s, b \rangle$' which refers to Leopold's meeting of Stephen on Bloomsday provided Leopold did meet Stephen on Bloomsday. I shall ignore the further step by which Martin eliminates ordered n-tuples in favour of virtual ordered n-tuples; the difficulties about to appear are independent of that idea.[24]

Given the premise that Bloomsday is 16 June 1904, we may infer from, 'Leopold met Stephen on Bloomsday' the sentence, 'Leopold met Stephen on 16 June 1904', and, events being the ordered n-tuples they are, Leopold's meeting of Stephen on Bloomsday is identical with Leopold's meeting of Stephen on 16 June 1904. This is surely as it should be so far; but not, I'm afraid, farther. Not every encounter is a meeting; according to the story, some encounters between Leopold and Stephen are meetings and some are not. But then by Martin's account no meeting is identical with an encounter, though between the same individuals and at the same time. The reason is that if any encounter is not a meeting, $\langle E, l, s, b \rangle$ is not identical with $\langle M, l, s, b \rangle$. Indeed, Leopold's first meeting with Stephen on Bloomsday in Dublin cannot be identical with Leopold's first meeting with Stephen on Bloomsday (since a four-place predicate can't have the same extension as a three-place predicate); nor can a meeting between Stephen and Bloom be identical with a meeting between Bloom and Stephen (since entities will be ordered in a different way). No stabbing can be a killing and

[24] Substantially the same analysis of events as Martin's has been given by Jaegwon Kim, 'On the Psycho-Physical Identity Theory'. Kim does not take the extra step from real to virtual n-tuples.

no killing can be a murder, no arm-raising a signalling, and no birthday party a celebration. I protest.

Martin's conditions on identity of events are clearly not necessary, but are they perhaps sufficient? Again I think the answer is no. Martin correctly remarks that on his analysis the expressions that are supposed to refer to events refer to one entity at most; but are these entities the events they should be? Suppose Leopold met Stephen more than once on Bloomsday; what unique meeting does Martin's ordered *n*-tuple pick out? 'Leopold's meeting with Stephen on Bloomsday', like Martin's '⟨*M, l, s, b*⟩', is a true singular term. But there is this difference, that the first refers to a meeting if it refers to anything, while the second does not. Being more specific about time will not really mend matters: John's kissing of a girl at precisely noon is not a unique kissing if he kissed two girls simultaneously. Martin's method cannot be systematically applied to form singular terms guaranteed to pick out a particular kissing, marriage, or meeting if anything; but this is easy, with gerund phrases, in English.

Martin's mistake is natural, and it is connected with a basic confusion about the relation between a sentence like 'Leopold met Stephen on Bloomsday' or 'Caesar died' and particular events like Leopold's meeting with Stephen on Bloomsday or Caesar's death. The mistake may be encapsulated in the idea (common to Martin and many others) that 'Leopold met Stephen on Bloomsday' comes to the same as 'Leopold's meeting with Stephen on Bloomsday occurred' or that 'Caesar died' may be rendered 'Caesar's death took place'. 'Caesar's death', like 'Leopold's meeting with Stephen', is a true singular term, and so 'Caesar's death took place' and 'Leopold's meeting with Stephen occurred' are true only if there was just one such meeting or death. But 'Caesar died' is true even if Caesar died a thousand deaths, and Leopold and Stephen may meet as often as they please on Bloomsday without falsifying 'Leopold met Stephen on Bloomsday.'

A sentence such as 'Vesuvius erupted in A.D. 79' no more refers to an individual event than 'There's a fly in here' refers to an individual fly. Of course there may be just one eruption that verifies the first sentence and just one fly that verifies the second; but that is beside the point. The point is that neither sentence can properly be interpreted as referring or describing, or being about, a particular eruption or fly. No singular term for such is in the offing. 'There's a fly in here' is existential and general with respect to flies in here;

'Vesuvius erupted in A.D. 79' is existential and general with respect to eruptions of Vesuvius in A.D. 79—if there are such things as eruptions, of course.

Here I am going along with Ramsey who, in a passage quoted by Martin, wrote, '"That Caesar died" is really an existential proposition, asserting the existence of an event of a certain sort, thus resembling "Italy has a King", which asserts the existence of a man of a certain sort. The event which is of that sort is called the death of Caesar, and should no more be confused with the fact that Caesar died than the King of Italy should be confused with the fact that Italy has a King.'[25] This seems to me nearly exactly right: facts, if such there are, correspond to whole sentences, while events, if such there are, correspond to singular terms like 'Caesar's death', and are quantified over in sentences such as 'Caesar died.'[26]

Martin says he doubts that 'Caesar died' must, or perhaps even can, be construed as asserting the existence of an event of a certain sort. I want to demonstrate briefly first that it can, and then, even more briefly, why I think it must.

It can be done by providing event-verbs with one more place than we generally think necessary, a place for events. I propose that 'died' in 'Caesar died' be taken as a two-place predicate, one place for 'Caesar' and another for a variable ranging over events. The sentence as a whole then becomes '$(\exists x)$ (Died (Caesar, x))', that is, there exists a Caesar-dying event, or there exists an event that is a dying of Caesar. There is no problem in forming a singular term like 'Caesar's death' from these materials: it is '$(\imath x)$ (Died (Caesar, x))'. We may then say truly, though this is not equivalent to 'Caesar died', that Caesar died just once: '$(\exists y)$ (y = $(\imath x)$ (Died (Caesar, x)))'; we may even say Caesar died Caesar's death: 'Died (Caesar, $(\imath x)$ (Died (Caesar, x)))'.

This gives us some idea what it would be like to treat events seriously as individuals, with variables ranging over them, and with corresponding singular terms. It is clear, I think, that none of the

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[25] Ramsey, *Foundations of Mathematics*, 138ff.

[26] Austin blundered when he thought a phrase like 'the collapse of the Germans' could unambiguously refer to a fact and to an event. Zeno Vendler very shrewdly uncovers the error, remarking that 'in as much as the collapse of the Germans is a fact, it can be mentioned or denied, it can be unlikely or probable, it can shock or surprise us; in as much as it is an event, however, and not a fact, it can be observed and followed, it can be sudden, violent, or prolonged, it can occur, begin, last and end.' This is from 'Comments' by Vendler (on a paper by Jerrold Katz).

objections I have considered to Reichenbach's, Kim's, or Martin's analyses apply to the present suggestion. We *could* introduce an ontology of events in this way, but of course the question remains whether there is any good reason to do so. I have already mentioned some of the contexts, in the analysis of action, of explanation, and of causality in which we seem to need to talk of events; still, faced with a basic ontological decision, we might well try to explain the need as merely seeming. There remains however a clear problem that is solved by admitting events, and that has no other solution I know of.

The problem is simple, and ubiquitious. It can be illustrated by pointing out that 'Brutus stabbed Caesar in the back in the Forum with a knife' entails 'Brutus stabbed Caesar in the back in the Forum' and both these entail 'Brutus stabbed Caesar in the back' and all these entail 'Brutus stabbed Caesar'; and yet our common way of symbolizing these sentences reveals no logical connection. It may be thought the needed entailments could be supplied by interpreting 'Brutus stabbed Caesar' as elliptical for 'Brutus stabbed Caesar somewhere (in Caesar) somewhere (in the world) with something', but this is a general solution only if we know some fixed number of places for the predicate 'stabbed' large enough to accommodate all eventualities. It's unlikely we shall succeed, for a phrase like 'by' can introduce an indefinitely large number of modifications, as in 'He hung the picture by putting a nail in the wall, which in turn he did by hitting the nail with a hammer, which in turn he did by ...'.[27] Intuitively, there is no end to what we can say about the causes and consequences of events; our theory of language has gone badly astray if we must treat each adverbial modification as introducing a new place into a predicate. The problem, you can easily persuade yourself, is not peculiar to verbs of action.

My proposed analysis of sentences with event-verbs solves this difficulty, for once we have events to talk about, we can say as much or as little as we please about them. Thus the troublesome sentence becomes (not in symbols, and not quite in English): 'There exists an event that is a stabbing of Caesar by Brutus event, it is an into the back of Caesar event, it took place in the Forum, and Brutus did it with a knife.' The wanted entailments now go through as a matter of form.

Before we enthusiastically embrace an ontology of events we will

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[27] I am indebted to Daniel Bennett for the example.

want to think long and hard about the critieria for individuating them. I am myself inclined to think we can do as well for events generally as we can for physical objects generally (which is not very well), and can do much better for sorts of events, like deaths and meetings, just as we can for sorts of physical objects, like tables and people. But all this must wait.[28] Meanwhile the situation seems to me to be this: there is a lot of language we can make systematic sense of if we suppose events exist, and we know no promising alternative. The presumption lies with events.

H. *Reply to Cargile*. I suggested that sentences about events and actions be construed as requiring an ontology of particular, unrepeatable, dated events. For example, I argued that a sentence like 'Lucifer fell' has the logical form of an existential quantification of an open sentence true of falls of Lucifer, the open sentence in turn consisting of a two-place predicate true of ordered pairs of things and their falls, and the predicate places filled with a proper name ('Lucifer') and a free variable (bound by the quantifier). I did not explain in detail what I meant by logical form, though I did devote some paragraphs to the subject. I suppose I thought the problems set, the examples and counterexamples offered, the arguments given and the answers entertained would, taken with the tradition and my hints, make the idea clear enough. I was wrong; and in retrospect I sympathize with my misunderstanders. I will try to do better.

Logical form was invented to contrast with something else that is held to be apparent but mere: the form we are led to assign to sentences by superficial analogy or traditional grammar. What meets the eye or ear in language has the charm, complexity, convenience, and deceit of other conventions of the market place, but underlying it is the solid currency of a plainer, duller structure, without wit but also without pretence. This true coin, the deep structure, need never feature directly in the transactions of real life. As long as we know how to redeem our paper we can enjoy the benefits of credit.

The image may help explain why the distinction between logical form and surface grammar can flourish without anyone ever quite explaining it. But what can we say to someone who wonders

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[28] See Essay 8.

whether there is really any gold in the vaults? I think the concept of logical form can be clarified and thus defended; but the account I shall offer disclaims some of what is implied by the previous paragraph.

What do we mean when we say that 'Whales are mammals' is a quantified sentence? James Cargile suggests that the sentence is elliptical for 'All whales are mammals' (or 'Some whales are mammals') and once the ellipsis is mended we see that the sentence is quantified. Someone interested in logical form would, of course, go much further: he would maintain that 'All whales are mammals' is a universally quantified conditional whose antecedent is an open sentence true of whales and whose consequent is an open sentence true of mammals. The contrast with surface grammar is striking. The subject-predicate analysis goes by the board, 'all whales' is no longer treated as a unit, and the role of 'whales' and of 'mammals' is seen, or claimed, to be predicative.

What can justify this astonishing theory? Part of the answer—the part with which we are most familiar—is that inference is simplified and mechanized when we rewrite sentences in some standardized notation. If we want to deduce 'Moby Dick is a mammal' from 'All whales are mammals' and 'Moby Dick is a whale', we need to connect the predicate 'is a whale' in some systematic way with a suitable feature of 'All whales are mammals'. The theory of the logical form of this sentence tells us how.

Words for temporal precedence, like 'before' and 'after', provide another example. 'The inflation came after the war' is simple enough, at least if we accept events as entities, but how about 'Earwicker slept before Shem kicked Shaun'? Here 'before' connects expressions with the grammatical form of sentences. How is this 'before' related to the one that stands between descriptions of events? Is it a sentential connective, like 'and'? 'Earwicker slept before Shem kicked Shaun' does entail both 'Earwicker slept' and 'Shem kicked Shaun'. Yet clearly 'before' is not truth-functional, since reversing the order of the sentences does not preserve truth.

The solution proposed by Frege has been widely (if not universally) accepted; it is, as we all know, to think of our sentence as doubly quantified by existential quantifiers, to introduce extra places into the predicates to accommodate variables ranging over times, and to interpret 'before' as a two-place predicate. The result, roughly, is: 'There exist two times, t and u, such that Earwicker slept

at t, Shem kicked Shaun at u, and t was before u.' This analysis relates the two uses of 'before', and it explains why 'Earwicker slept before Shem kicked Shaun' entails 'Shem kicked Shaun'. It does this, however, only by attributing to 'Shem kicked Shaun' the following form: 'There exists a t such that Shem kicked Shaun at t.' According to Cargile, not even Russell would have denied that 'x kicked y' is a two-place relation form; but Russell had the same motive Frege did for holding that 'kicked' has the logical form of a three-place predicate.

The logical form that the problem of 'before' prompts us to assign to 'Shem kicked Shaun' and to its parts is the very form I suggested, though my reasons were somewhat different, and the ontology was different. So far as ontology is concerned, the two proposals may to advantage be merged, for we may think of 'before' and 'after' as relating events as easily as times. For most purposes, if not all, times are like lengths—convenient abstractions with which we can dispense in favour of the concreta that have them. A significant bonus from this analysis of sentences of temporal priority is that singular causal sentences can then be naturally related to them. According to Hume, if x caused y, then x preceded y. What are the entities these variables range over? Events, to be sure. But if this answer is to be taken seriously, then a sentence like 'Sandy's rocking the boat caused it to sink' must somehow refer to events. It does, if we analyse it along these lines: 'There exist two events, e and f, such that e is a rocking of the boat by Sandy, f is a sinking of the boat, and e caused f.'[29]

Let us suppose, as Cargile seems willing to do, that I am right to this extent: by rewriting or rephrasing certain sentences into sentences that explicitly refer to or quantify over events, we can conveniently represent the entailment relations between the original sentences. The entailments we preanalytically recognize to hold between the original sentences become matters of quantificational logic applied to their rephrasals. And now Cargile asks: how can this project, assuming it to be successfully carried out, justify the claim that the original sentences have the logical form of their rewrites? Why not admit that the rewrites show, in many cases, a different form?

Here we have, I hope, the makings of a reconciliation, for I am

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[29] I discuss this analysis of singular causal sentences in Essay 7.

happy to admit that much of the interest in logical form comes from an interest in logical geography: to give the logical form of a sentence is to give its logical location in the totality of sentences, to describe it in a way that explicitly determines what sentences it entails and what sentences it is entailed by. The location must be given relative to a specific deductive theory; so logical form itself is relative to a theory. The relativity does not stop here, either, since even given a theory of deduction there may be more than one total scheme for interpreting the sentences we are interested in and that preserves the pattern of entailments. The logical form of a particular sentence is, then, relative both to a theory of deduction and to some prior determinations as to how to render sentences in the language of the theory.

Seen in this light, to call the paraphrase of a sentence into some standard first-order quantificational form *the* logical form of the sentence seems arbitrary indeed. Quantification theory has its celebrated merits, to be sure: it is powerful, simple, consistent, and complete in its way. Not least, there are more or less standard techniques for paraphrasing many sentences of natural languages into quantificational languages, which helps excuse not making the relativity to a theory explicit. Still, the relativity remains.

Since there is no eliminating the relativity of logical form to a background theory, the only way to justify particular claims about logical form is by showing that they fit sentences into a *good* theory, at least a theory better than known alternatives. In calling quantificational form logical form I was assuming, like many others before me, that quantification theory is a good theory. What's so good about it?

Well, we should not sneeze at the virtues mentioned above, its known consistency and completeness (in the sense that all quantificational truths are provable). Cargile takes me to task for criticizing Reichenbach's analysis of sentences about events, which introduces an operator that, when prefixed to a sentence, results in a singular term referring to an event. I give a standard argument to show that on this analysis, if one keeps substitutivity of identity and a simple form of extensionality, all events collapse into one. I concluded, 'This demonstrates, I think, that Reichenbach's analysis is radically defective'. Cargile protests that Reichenbach gets in no trouble if the assumption of extensionality is abandoned; and the assumption is mine, not Reichenbach's. Fair enough; I ought not to have said

the analysis was defective, but rather that on a natural assumption there was a calamitous consequence. Without the assumption there is no such consequence; but also no theory. Standard quantification theory plus Reichenbach's theory of event sentences plus substitutivity of identity in the new contexts leads to collapse of all events into one. Reichenbach indirectly commits himself to the principle of substitutivity, and Cargile goes along explicitly. So they are apparently committed to giving up standard quantification theory. Since neither offers a substitute, it is impossible to evaluate the position.[30]

Cargile has another idea, which is not to tamper with quantification theory, but simply to add some extra rules to it. If we give the quantificational form of 'Jones buttered the toast in the bathroom' as 'Buttered$_3$ (Jones, the toast, the bathroom)' and of 'Jones buttered the toast' as 'Buttered$_2$ (Jones, the toast)' then the inference from the first to the second is no longer a matter of quantificational logic; but why not interpret this as showing that quantificational form isn't logical form, and quantificational logic isn't all of logic? Cargile suggests that we might be able to give a purely formal (syntactical) rule that would systematize these inferences. I think Cargile underestimates the difficuties in doing this, particularly if, as I have argued, such an approach forces us to admit predicates with indefinitely large numbers of predicate places. I also think he slights the difference, in his remark that 'the standard symbolism of quantification theory is not good at keeping track of entailments between relational forms in English', between simple axioms (which are all that are needed to keep track of the entailments between relational forms in, say, a theory of measurement) and new rules of inference (or axiom schemata). But harping on the difficulties, unless they can be proven to be impossibilities, is inconclusive. It will be more instructive to assume that we are presented with a satisfactory deductive system that adds to quantification theory rules adequate to implement the entailments between event sentences of the sort under consideration. What could then be said in defence of my analysis?

What can be said comes down to this: it explains more, and it explains better. It explains more in the obvious sense of bringing more data under fewer rules. Given my account of the form of

[30] For a discussion of the difficulties of combining substitutivity of identity and non-extensionality, see Dagfinn Føllesdal, 'Quine on Modality'.

sentences about events and actions, certain entailments are a matter of quantificational logic; an account of the kind Cargile hopes to give requires quantificational logic, and then some. But there is a deeper difference.

We catch sight of the further difference if we ask ourselves why 'Jones buttered the toast in the bathroom' entails 'Jones buttered the toast'. So far, Cargile's only answer is, because 'buttered' and some other verbs (listed or characterized somehow) work that way; and my only answer is, because (given my paraphrases) it follows from the rules of quantification theory. But now suppose we ask, *why* do the rules endorse this inference? Surely it has something to do with the fact that 'buttered' turns up in both sentences? There must be a common conceptual element represented by this repeated syntactic feature; we would have a clue to it, and hence a better understanding of the meaning of the two sentences, if we could say what common role 'buttered' has in the two sentences. But here it is evident that Cargile's rules, if they were formulated, would be no help. These rules treat the fact that the word 'buttered' turns up in both sentences as an accident: the rule would work as well if unrelated words were used for the two- and for the three-place predicates. In the analysis I have proposed, the word 'buttered' is discovered to have a common role in the two sentences: in both cases it is a predicate satisfied by certain ordered triples of agents, things buttered, and events. So now we have the beginnings of a new sort of answer to the question why one of our sentences entails the other: it depends on the fact that the word 'buttered' is playing a certain common role in both sentences. By saying exactly what the role is, and what the roles of the other significant features of the sentences are, we will have a deep explanation of why one sentence entails the other, an explanation that draws on a systematic account of how the meaning of each sentence is a function of its structure.

To exhibit an entailment as a matter of quantificational form is to explain it better because we do not need to take the rules of quantificational logic on faith; we can show that they are *valid*, i.e. truth-preserving, by giving an account of the conditions under which sentences in quantificational form are true. From such an account (a theory of truth satisfying Tarski's criteria) it can be seen that if certain sentences are true, others must be. The rules of quantificational logic are justified when we demonstrate that from truths they can lead only to truths.

Plenty of inferences that some might call logical cannot be shown to be valid in any interesting way by appeal to a theory of truth, for example the inference to 'a is larger than c' from 'a is larger than b and b is larger than c' or to 'Henry is not a man' from 'Henry is a frog'. Clearly a recursive account of truth can ignore these entailments simply by ignoring the logical features of the particular predicates involved. But if I am right, it may not be possible to give a coherent theory of truth that applies to sentences about events and that does not validate the adverbial inferences we have been discussing.

Let me state in more detail how I think our sample inference can be shown to be valid. On my view, a theory of truth would entail that 'Jones buttered the toast in the bathroom' is true if and only if there exists an event satisfying these two conditions: it is a buttering of the toast by Jones, and it occurred in the bathroom. But if these conditions are satisfied, then there is an event that is a buttering of the toast by Jones, and this is just what must be the case, according to the theory, if 'Jones buttered the toast' is true. I put the matter this way because it seems to me possible that Cargile may agree with what I say, then adding, 'But how does this show that "Jones buttered the toast" is a three-place predicate?' If this is his response, our troubles are over, or anyway are merely verbal, for all I *mean* by saying that 'Jones buttered the toast' has the logical form of an existentially quantified sentence, and that 'buttered' is a three-place predicate, is that a theory of truth meeting Tarski's criteria would entail that this sentence is true if and only if there exists ... etc. By my lights, we have given the logical form of a sentence when we have given the truth-conditions of the sentence in the context of a theory of truth that applies to the language as a whole. Such a theory must identify some finite stock of truth-relevant elements, and explicitly account for the truth-conditions of each sentence by how these elements feature in it; so to give the logical form of a sentence is to describe it as composed of the elements the theory isolates.

These remarks will help, I hope, to put talk of 'paraphrasing' or 'translating' in its place. A theory of truth entails, for each sentence *s* of the object language, a theorem of the form '*s* is true if and only if *p*'. Since the sentence that replaces '*p*' must be true (in the metalanguage) if and only if *s* is true (in the object language), there is a sense in which the sentence that replaces '*p*' may be called a translation of *s*; and if the metalanguage contains the object language, it may be

called a paraphrase. (These claims must be modified in important ways in a theory of truth for a natural language.) But it should be emphasized that paraphrasis or translation serves no purpose here except that of giving a systematic account of truth-conditions. There is no further claim to synonymy, nor interest in regimentation or improvement. A theory of truth gives a point to such concepts as meaning, translation, and logical form; it does not depend on them.[31]

It should now be clear that my only reason for 'rendering' or 'paraphrasing' event sentences into quantificational form was as a way of giving the truth-conditions for those sentences within a going theory of truth. We have a clear semantics for first-order quantificational languages, and so if we can see how to paraphrase sentences in a natural language into quantificational form, we see how to extend a theory of truth to those sentences. Since the entailments that depend on quantificational form can be completely formalized, it is an easy test of our success in capturing logical form within a theory of truth to see whether our paraphrases articulate the entailments we independently recognize as due to form.

To give the logical form of a sentence is, then, for me, to describe it in terms that bring it within the scope of a semantic theory that meets clear requirements. Merely providing formal rules of inference, as Cargile suggests, thus fails to touch the question of logical form (except by generalizing some of the data a theory must explain); showing how to put sentences into quantificational form, on the other hand, does place them in the context of a semantic theory. The contrast is stark, for it is the contrast between having a theory, and hence a hypothesis about logical form, and having no theory, and hence no way of making sense of claims about form. But of course this does not show that a theory based on first-order quantificational structure and its semantics is all we need or can have. Many philosophers and logicians who have worked on the problem of event sentences (not to mention modalities, sentences about propositional attitudes, and so on) have come to the conclusion that a richer semantics is required, and can be provided. In Essay 6 I explicitly put to one side several obvious problems that invite appeal to such richer schemes. For various reasons I thought, or hoped, that the problem I isolated could be handled within a

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[31] These claims and others made here are expanded and defended in my 'Truth and Meaning' and 'True to the Facts'.

fairly austere scheme. But when other problems are also emphasized, it may well be that my simple proposal loses its initial appeal; at least the theory must be augmented, and perhaps it will have to be abandoned.

Cargile thinks that instead of suggesting that 'Shem kicked Shaun' has a logical form that is made more explicit by '$(\exists x)$ (Kicked (Shem, Shaun, x))' I ought (at most) to have said that the two sentences are logically equivalent (but have different logical forms). He makes an analogous point in defending Reichenbach against my strictures. I want to explain why I resist this adjustment.

Of course it can happen that two sentences are logically equivalent, yet have different logical forms; for example a sentence with the logical form of a conjunction is logically equivalent to the conjunction which takes the conjuncts in reverse order. Here we assume the theory gives the truth-conditions of each sentence, and it will be possible to prove that one sentence is true if and only if the other is. But the theory doesn't independently supply truth-conditions for 'Shem kicked Shaun' and its canonical counterpart; rather the latter gives (or, in the present discussion, is used to suggest) the truth conditions of the former. If the theory were turned on itself, as well it might be, the sentence used to give the truth-conditions of '$(\exists x)$ (Kicked (Shem, Shaun, x))' would have the same form as this sentence; under some natural conditions, it would be this sentence. So there is no way within the theory of assigning different logical forms to 'Shem kicked Shaun' and its explicitly quantificational stand-in. Outside a theory, the notion of logical form has no clear application, as we have noted. That the two sentences have very different syntactical structures is evident; that is why the claim that the logical form is the same is interesting and, if correct, revealing.

Suppose that a rule of inference is added to our logic, making each of the two sentences deducible from the other. (Reichenbach may have had this in mind: see *Elements of Symbolic Logic*, sect. 48.) Will this then make it possible to hold that the sentences have different logical forms? The answer is as before: rules of inference that are not backed by a semantic theory are irrelevant to logical form.

I would like to mention very briefly another point on which Cargile may have misunderstood me. He says that, 'The idea that philosophical "analysis" consists in this revealing of logical form is a

popular one . . .' and he may think I share this notion. I don't, and I said that I didn't on the first page of the article he discusses. Even if philosophical analysis were concerned only with language (which I do not believe), revealing logical form would be only part of the enterprise. To know the logical form of a sentence is to know, in the context of a comprehensive theory, the semantic roles of the significant features of the sentence. Aside from the logical constants, this knowledge leaves us ignorant of the relations between predicates, and of their logical properties. To know the logical form of 'The rain caused the flood' is to know whether 'caused' is a sentential connective or a two-place predicate (or something else), but it hardly begins to be knowledge of an analysis of the concept of causality (or the word 'caused'). Or perhaps it is the beginning; but that is all.

On the score of ontology, too, the study of logical form can carry us only a certain distance. If I am right, we cannot give a satisfactory account of the semantics of certain sentences without recognizing that if any of those sentences are true, there must exist such things as events and actions. Given this much, a study of event sentences will show a great deal about what we assume to be true concerning events. But deep metaphysical problems will remain as to the nature of these entities, their mode of individuation, their relations to other categories. Perhaps we will find a way of reducing events to entities of other kinds, for example, sets of points in space-time, or ordered n-tuples of times, physical objects, and classes of ordered n-tuples of such. Successful reductions along these lines may, in an honoured tradition, be advertised as showing that there are no such things as events. As long as the quantifiers and variables remain in the same places, however, the analysis of logical form will stick.

I. *Reply to Hedman*. If we are committed to events, we are committed to making sense of identity-sentences, like '$a = b$', where the terms flanking the identity sign refer to events. I think in fact we use sentences in this form constantly: 'The third round of the fight was (identical with) the one in which he took a dive', 'Our worst accident was (identical with) the one where we hit four other cars', 'Falling off the tower was (identical with) the cause of his death'. The problem of individuation for events is the problem of giving criteria saying when such sentences are true. Carl Hedman raises a tricky question about these criteria as applied to actions.

In Essay 6 I asserted, as Hedman says, that 'intentional actions are not a class of actions'. I said this to protect my theory against an obvious objection. If 'intentional' modifies actions the way 'in the kitchen' does, then intentional actions *are* a class of actions. Does Oedipus's striking of the rude old man belong in this class or not? Oedipus struck the rude old man intentionally, but he did not strike his father intentionally. But on my theory, these strikings were one, since the rude old man was Oedipus's father. The obvious solution, which I endorsed, is to take 'intentionally' as creating a semantically opaque context in which one would expect substitutivity of identity to seem to fail.

I did not argue for this view in the article Hedman discusses; in the long passage he quotes I say only that it is 'the natural and, I think, correct answer'. In that passage I was surveying a number of topics, such as causality, theory of action, explanations, and the identity theory of mind, where philosophers tend to say things which take for granted an ontology of events and actions. My point was that if they do make this assumption, they ought to come up with a serious theory about how reference to events occurs; my intention was to soften up potential opposition to the analysis which (I argued) is forced on us anyway when we try to give a systematic semantics for natural language.

Elsewhere I have argued for the view that one and the same action may be correctly said to be intentional (when described in one way) and not intentional (when described in another). The position is hardly new with me; it was expounded at length by Anscombe,[12] and has been accepted by many other writers on action. It is harder to avoid taking this position than one might think. I suppose no one wants to deny that if the rude old man was Oedipus's father, then 'Oedipus struck the rude old man' and 'Oedipus struck his father' entail one another. If one accepts, as Hedman apparently does, an ontology of events, one will also presumably want to infer 'The striking of the rude old man by Oedipus occurred at the crossroads' from 'The striking of Oedipus's father by Oedipus occurred at the crossroads' and vice versa. But how can these entailments be shown (by a semantical theory) to be valid without also proving the following to be true: 'The striking of the rude old man by Oedipus was identical with the striking of

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[12] G. E. M. Anscombe, *Intention*.

Oedipus's father by Oedipus'? Yet one of these actions was intentional and the other not. I don't say no theory could be contrived to validate the wanted inferences while not endorsing the identity; but we don't now have such a theory.

The only intelligible way to state the argument, I think, is to ask how someone can speak with special authority when he attributes propositional pride to himself. For when he says, 'I am proud that I have a beautiful house' he is making a causal claim, and what he implies caused his state of pride, namely a belief, is certainly distinct from what it is supposed to have caused. Just as the right question to ask is not, 'How do you know that the snowblink we now see is caused by the reflection of light from snow?' but rather, 'How do you know that what we now see is snowblink?' This last is a question whose answer calls for general causal knowledge, an answer that can be questioned or supported by pointing to parallel negative or positive instances. Why can't the same sort of doubt arise with pride?

The same *sort* of doubt can arise. A person can easily be wrong about exactly what it is that he is proud of; whether it is the cost or the cut of his clothes, say, or his skill at tennis rather than his score. If we suppose he knows he is proud of something, and he knows (or has special authority with respect to) what he believes, the question which of several related beliefs was the cause can not only be troubling, but it also can be questioned by reference to parallel cases. Still, the fact that claims to know what one is proud of can be wrong, and can be questioned, does not show that we do not have special authority with respect to them. The source of this authority springs from the nature of human interpretation of human thoughts, speech, intentions, motives, and actions. If we are to understand any of these, make sense of them *as* thoughts and speech and actions, we must find a way to read into them a pattern subject to complex constraints. Some of these constraints are logical, and some are causal; some are both. What operates as a constraint on the interpreter amounts to a bestowal of authority on the person interpreted; when he honestly expresses his motives, beliefs, intentions, and desires an interpreter must, if he wants to understand, interpret the speech in a way that makes sense not only of what the speaker says but also of what he believes and wants and does. Making such sense requires that causality and rationality go hand in hand in important cases: perception, intentional action, and the indirect passions are examples. People are in general right about the mental causes of their emotions, intentions, and actions because as interpreters we interpret them so as to make them so. We must, if we are to interpret at all.

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