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SEEING AND OTHER COMPLEX EVENTS

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By

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* * * * *

The Ohio State University

1981

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I am indebted to my adviser Professor Marshall Swain for many helpful discussions, and valuable criticisms and suggestions. I have tried to identify those points in the text where Professor Swain's specific suggestions have surfaced; but I have undoubtedly missed some, and his influence pervades the entire work. I am perhaps even more indebted to Professor Swain for having first sparked my interest in metaphysics, and in the particular problems forming the core of this work. I have also received helpful criticism and advice from Professors Alan Hausman, George Pappas, and George Schumm, and from my colleague Michael Perkins. Finally, I wish to thank my wife Linda for her efforts in typing this manuscript, and for her encouragement, understanding, and patience throughout my research.
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INTRODUCTION

Many traditional philosophic problems have both a conceptual and a metaphysical dimension. For example, one can ask, What is the correct analysis of such concepts as causation, action and perception?; or one can ask, What is a causing, an action or a perceiving? Lately philosophers have concentrated attention on the conceptual dimension of these problems. Much progress has been made in providing plausible analyses of the appropriate concepts. But little attention has been paid to the metaphysical dimension of these problems, and even less to the connection between the dimensions.¹

There are any number of general questions that one might ask about the connection between the dimensions. For example, given that the concept of action can be analysed in a certain way, what does that tell us about the nature of an action? How can information about concepts tell us anything about the non-conceptual world? If we can gain information about the non-conceptual world in this way, how does that information fit into the body of scientific knowledge about the world?

This work concentrates on the metaphysical dimension of certain philosophic problems within the areas of causation, action and perception. It is hoped that the approach followed here will not only prove helpful in resolving the particular problems addressed, but that it will also provide the theoretical framework needed to shed light on
the answers to general questions of the type posed above.

In general outline, the procedure that I will adopt is as follows: First, I shall ask what kind of entity is centrally involved in the philosophical problems concerning causation, action, and perception. Next, I shall examine the nature of that kind of entity in some detail. Finally, I shall use the information we have gained in this process to examine certain problems in these areas. In particular, I shall examine the problems of the nature of object causation, agent causation, action, intentional action, and seeing an object.

The answers that will be proposed to each of these problems will have some unique aspects that derive from the nature of the approach that we have taken. Other aspects of the answers will be thoroughly familiar to anyone cognizant of the philosophical literature in these areas. That, I think, is as it should be. Philosophers have devoted considerable attention to the conceptual dimension of these problems, and it would be odd indeed if our approach should reveal that the conceptual dimension is so unrelated to the metaphysical dimension that all of this attention has come to nought.

No doubt it is also the case that each of these problems deserves more individual attention than I devote to it here. My purpose in addressing a number of problems, rather than concentrating on one, is to reveal the quite general application of the approach taken here and the scope and potential fruitfulness of the theoretical apparatus developed in the process of adopting that approach. The wide scope of my project leaves my resolutions to the various problems especially vulnerable to charges of committing errors of detail or
needing further development or refinement. I trust, however, that any such errors or inadequacies in the particular accounts I have offered are not of the type to draw into question the value of the general methodology and apparatus that was used to develop those accounts.

Notes

1. Some of the authors that I reference in this work (notably, Myles Brand, Donald Davidson, Alvin Goldman, Jaegwon Kim, and Judith Thomson) are at least partial exceptions to this claim. None of these authors, however, has attempted explicitly to tie together the conceptual and metaphysical dimensions as I have done in this work.
1. EVENTS

In order to look at the metaphysical dimension of problems in the areas of causation, action, and perception, it is advisable first to determine the metaphysical category or categories of the entities involved in the problems. Now if we state the problems as metaphysical problems, i.e., if we ask, What is a causing, an action, or a perceiving?, an answer immediately suggests itself. Surely, causings, actions, and perceivings are events, in some suitably broad sense of 'event'. Our attention, then, should be directed to examining the general nature of events. Whatever we uncover in this examination will have to shed some light on the nature of the particular kinds of entities in which we have an interest.

Suppose that instead of being interested in causings, actions, and perceivings, we were interested in poodles, cocker spaniels, and chihuahuas. The natural first step would be to examine the nature of dogs. No doubt, even after we had learned all there was to learn about dogs in general, we would have to conduct an additional investigation into the natures of the particular species in which we had an interest. But we would have placed ourselves in an excellent position to undertake this additional investigation, and other investigations as well, e.g., into the nature of bassets, fox terriers, and malamutes. Moreover, we may find that investigating the nature of dogs
in general has some intrinsic interest of its own.

One might suggest that my attempted analogy works too well. Everyone knows enough about dogs in general to be able to conduct investigations into particular species, and everyone knows enough about events to be able to charge right in to looking at causings, actions, and perceivings.

Whether or not this is true for dogs, we shall see that it definitely is not the case for events. Pre-theoretical data leaves the boundaries of the category of event rather vague and open-ended. There is considerable difference of opinion over that question of central interest to one concerned about the nature of events, namely, What are the correct identity conditions for events? Finally, with one notable exception (Thomson, 1977), woefully little attention has been given to the question of what it is for one event to be a part of another. We shall address these three items in order in the next few chapters. At the end of our investigation, we will find that we have a much improved picture of the nature of events, and we shall be in an excellent position to address our questions about causings, actions, and perceivings.

What are some of the things that we want the category of event to include? Ordinary language provides us with an intimidating array of event-like things. In addition to talking about events, we also talk about occasions, occurrences, happenings, affairs, episodes, incidents, circumstances, outcomes, experiences, conditions, states, situations, processes, developments, proceedings, etc. I have no doubt that there are interesting differences among at least some of these things, nor that an examination of the differences and the interrelations would
constitute an important project. However, I do not intend to embark on such an enterprise here. Except where otherwise noted, I shall use the term 'event' in a very broad sense to apply indiscriminately to any member of the broad class of things adumbrated above. My account of events is intended to be an account of all such things.

Given the overall goal of our developing a theory of events, namely, providing an account that will bear fruitful consequences for addressing a wide range of philosophic problems, I do not think that we have any choice but to attempt to give an account of events in a broad sense. The philosophic problems concern just about all of the sorts of things in the broad grouping. Now one might object that a single, general account of all of these types of things is not possible. As evidence, one might cite certain linguistic and non-linguistic facts that seem to show that there are at least two major subgroups to the above general grouping. First, there are events in the narrow sense (henceforth identified as 'events_n'), including episodes, processes, incidents, and all such things that can be said to happen, occur, or take place. Second, there are states, conditions, and all such things that can be said to hold or obtain. It is a misuse of language, one might say, to speak of an event's obtaining or of a state's occurring. Moreover, things in the first subgroup all seem to involve changes; whereas things in the second subgroup may or may not involve changes. Everything that changes can be said to be in a state of changing while the change is occurring. But things are also in states at times when they are not undergoing change.
I do not question the existence of such differences between events and states; but I do not see that they preclude the possibility that events and states are enough alike to have the same identity and part conditions. After all, a number of important metaphysical relations are characteristic of events and states alike. The temporal relations of being before, after, or coincident in time hold among all events and states. Causality is a relation that seems to hold among states and conditions as well as events. Something's being in a certain state or condition can be a cause of it's being in a different state or condition at some later time.

Now, one could argue that it is only events, not states, that enter directly into causal relations. Perhaps states, conditions, etc. enter into causal relations only by being intimately (but noncausally) related to events. For example, one might argue that, strictly speaking, states of affairs are not caused, only the beginnings or onsets of states of affairs are caused; and the beginnings of states of affairs are events. This, however, does not seem plausible. My dropping of a pencil into a bucket of blue paint not only causes the pencil's becoming blue, it causes (in the same sense) the pencil's being blue (thereafter). Moreover, it seems clear that in at least some cases where states, conditions, etc. enter into causal relations, there is no plausible candidate for an event-proxy for the state or condition. For example, the dry condition of the kindling and the presence of oxygen are causes, we may suppose, of a fire. What are the events that stand proxy for the condition of the kindling or the state of oxygen's being present? Certainly it need not be the onset.
of dryness in the kindling nor the onset of oxygen's being present that cause the fire.

At best, the pre-theoretic considerations are inconclusive. The most effective way to argue that events and states comprise a single metaphysical category is to provide existence, identity and part conditions that hold, across-the-board, for events, states, conditions, etc., but that do not hold for other kinds of things. This is what we shall attempt in the next three chapters.

Be this as it may, one still might object to my appropriation of the term 'event' to talk about this purported category of all things that either occur or obtain. I have two things to say in response. First, I am not using the term 'event' in a totally new or unprecedented way. There are uses of the term 'event' in English, such as in the phrase 'in any event...', where it is clear that one is talking about cases or circumstances in general and not merely changes. Second, if the reader is adamant on this point, he may read my term 'event' as playing the role of a technical term, say 'Event'.

As a final word of caution, I should note that some of the other accounts of events that I have occasion to mention may view themselves as talking about events in the narrow sense. So far as I can tell, this consideration does not affect the status of any of the things that I have to say with respect to them; and I shall therefore ignore it.

Now that we have talked about what events are, it may be helpful to say something about what events are not. I shall assume that events are not physical objects, numbers, sets, or properties (although
some would say that some properties are event-types or generic events\(^3\). It is not so clear whether events can be distinguished from facts or propositions, possibly because it is not clear what facts or propositions are. Indeed, some have claimed that events are abstract (proposition-like) entities, which obtain or occur.\(^4\) Even those who take such a position, however, would agree that such "things" as two's being equal to the square root of four or all triangles' having three sides are not events. One reason why they are not events is that they do not take place or occur at a particular time. (At best it might be said that they obtain at all times.)

All of these considerations taken together suggest to me that something like Jaegwon Kim's view of events is correct. Kim characterizes events as property exemplifications at times.\(^5\) This characterization seems broad enough to include all that we want to include, e.g., events, states, conditions, etc., and narrow enough to distinguish events from at least physical objects, numbers, sets and properties. The relationship between property exemplifications at times and propositions and facts is something that will have to be explored in greater detail. Let us, then, start, in the next chapter, by taking a closer look at Kim's account of events.

Notes

1. Judith Thomson (1977) hints at an argument like this. See her discussion of the "onset" of a state of affairs, pp. 185 ff. She does not commit herself to the general thesis that only events enter directly into causal relations.
2. Kim clearly takes events in the broad sense, and Thomson clearly takes events in the narrow sense. Davidson and Anscombe probably take events in the narrow sense. It is not clear to me what Brand and Goldman's positions are.


4. See, e.g., Chisholm (1976), ch. IV. More precisely, Chisholm takes both events and propositions to be subspecies of states of affairs. States of affairs, in turn, are viewed as abstract entities which exist necessarily and which are the type of thing that can be "considered" or "entertained" (pp. 114, 117 respectively). I think that Thalberg's (1978) criticism of Chisholm's view is pretty much on target.

5. Kim has developed his account over a number of years in a series of articles, the most relevant of which are (1966), (1969), (1973), (1976), (1977), and Brandt and Kim (1967). A very similar view is developed by Alvin Goldman (1970), (1971) and (1979). I concentrate on Kim's account here, since Goldman has devoted most of his attention to the special case of actions and has not developed a general theory of events to the extent that Kim has. We will have much occasion to refer to Goldman's work later, when we are dealing with the nature of actions.
2. KIM'S THEORY OF EVENTS

According to Kim, events are structurally complex entities with three constituent elements. These are the thing or things (the object constituents(s)) which exemplify the property, the property which is exemplified (the property constituent of the event), and the time at or during which the property is exemplified (the time constituent of the event). All three elements deserve a closer look.

What kinds of things can be object constituents of events? Kim gives no precise characterization of the types of things that can be object constituents. He calls them variously, "particulars", "locations", "concrete objects", "substances", and simply "objects".\(^1\) It may be that Kim has the same type of thing in mind throughout. If so, his failure to settle on a single locution is unfortunate. The terms 'particulars', 'locations', and 'substances' seem to have a broader extension than the terms 'concrete object' or even 'object'. A force field or disembodied mind might be a particular, "location," or substance, but not, I would think, a concrete object, or even an object in any ordinary sense. Certainly, we wish to leave room for events involving force fields; and it would be wise, I think, to leave room for the logical possibility of events involving disembodied minds.\(^2\)
Perhaps we can achieve the desired generality simply by allowing that any entity which can exemplify a property at a time is eligible to be an object constituent of an event. This criterion has the advantage of being relatively simple and straightforward. Unfortunately, it is subject to a problem. Consider a case of some physical object x exemplifying a property F at a time t. Is it not the case that the property F exemplifies the property of being exemplified by x at t? If so, it would seem that our proposed criterion would allow properties to be object constituents of events.

Now one might claim, I suppose, that properties do not exemplify other properties (perhaps, because, strictly speaking, there are no properties); or one could claim that there is nothing wrong with a property's being an object constituent of an event. Whatever the relative merits of these answers, I shall propose to forestall the problem by requiring that nothing which can itself be exemplified by an entity at a time can be an object constituent of an event. I shall use the term 'particular' to refer to anything which is a candidate for being an object constituent of an event under this criterion. That is, a "particular" is, for my purposes, any entity which exists and which can exemplify a property at a time, but which cannot itself be exemplified by any entity (entities) at a time.3

The next question to address is: What kind of properties are candidates for being property constituents of events? Kim feels that only certain properties are eligible for being property constituents, but he does not attempt to delimit this class, except, roughly, by calling it the class of "empirical" or "contingent" properties. Now, I
think that the class of empirical or contingent properties is both too narrow and too broad. It is too narrow, since it suggests that valuative properties are excluded. But, surely, we want to leave room for events such as acting morally (or immorally) at t. The class is too broad in that it presumably includes "temporally-tagged" properties such as sneezes-at-9:00 A.M.-on-August 22, 1979. (I shall in general use hyphenated, underlined expressions to refer to properties.) The problem here is that if, e.g., Jones exemplifies this property at 9:00 A.M. on August 22, 1979, he also exemplifies this property at all prior and subsequent times. Jones' exemplifying of this property is not an event, and in general we must exclude such "temporally-tagged" or "eternal" properties as candidates for being property constituents.

Part of Kim's rationale for limiting the class of property constituents to "empirical" or "contingent" properties is the idea that logically necessary or logically impossible properties cannot be property constituents of events. But I do not see why this fact is not accommodated by noting that such properties are either exemplified at no times or (perhaps) at all times. Why not just say that the properties eligible for being property constituents of events are those that can be exemplified at some times and not at others? This allows us to exclude both logically necessary (or logically impossible) properties and eternal properties. It may be that further restrictions are needed; however, I think we can ignore this possibility for our present purposes.
Finally, let us consider the time element of events. Some events, e.g., an electronic flash's firing, take place in a very short interval of time; while others, e.g., the Hundred Years War, are rather long-lasting; and some, e.g., writing a book, involve temporally discontinuous intervals. Also, the time constituent of an event can, in some cases, be a subinterval of the time during which the exemplifying of the constituent property was occurring; but it cannot contain any time at which the exemplifying was not occurring. For example, if a particular light was red from $t_1$ to $t_4$, its being red from $t_1$ to $t_2$ would be an event. Suppose, however, that the light was red from $t_1$ to $t_2$ and from $t_3$ to $t_4$, but not from $t_2$ to $t_3$. In such a case, there is no event of the light's being red from $t_1$ to $t_4$.

I shall adopt Kim's bracket notation for events. For example, Jones' sneezing at $t$ will be expressed as '[$J, \text{sneezes}, t]$', where 'J' abbreviates 'Jones'. In general, particulars $x_1, \ldots, x_n$ exemplifying the property $F$ (or standing in the $n$-adic relation $F$) at (or during) $t$ is represented as '[$x_1, \ldots, x_n; F; t]$'. When necessary, I shall use circled numbers to mark the order of positions within a property or relation. Thus, John's standing between Mary and George at $t$ would be expressed as '[$J, M, G; \circled{1}-\text{stands-between}-\circled{2}-\text{and}-\circled{3}; t]$'; and John hates himself at $t$ would be represented as '[$J, \circled{1}-\text{hates}-\circled{1}, t]$'. I shall follow Kim in saying that such bracketed expressions are the canonical names of the respective events.

It is not easy to say explicitly what the nature of the relationship is between the canonical bracketed expression and the event that it names. Kim is very cautious here. He indicates that he thinks
that events share the same structure with their canonical names, but
the closest he comes to explaining this is in his statement of
existence and identity conditions for events. In the case of events
involving monadic property constituents, these conditions are as
follows:

Existence Condition (KEC): Event \([x, F, t]\) exists iff
\(x\) has (or exemplifies) \(F\) at \(t\).

Identity Condition (KIC): \([x, F, t] = [y, G, t']\) iff
\(x = y\), and \(F = G\), and \(t = t'\).

(KEC) provides that events are not just ordered triples of
particulars, properties and times. The ordered triple \(\langle x, F, t \rangle\) exists
just in case \(x, F\) and \(t\) exist; but the event \([x, F, t]\) exists just
in case \(x\) has \(F\) at \(t\). Kim at one point notes that one might use his
bracketed expressions to provide a reductionist account of events by
claiming that events comprise ordered triples, namely, those ordered
triples \(\langle x, F, t \rangle\) such that \(x\) has \(F\) at \(t\). But Kim makes it clear
that his account makes no such reductionist claims (1976, pp. 161-2).

(KIC) might incline one to think that the object, property and
time constituents of an event are essential to that event. (I will
call this the "essentialist" claim.) After all, if the event had had
one or more different constituents, (KIC) seems to say quite clearly
that it would not have been the same event. Kim denies, however, that
he is committed to the essentialist view (1976, pp. 171-3). I think
we can see how he might escape such commitment. (KIC) presumably
applies only to existent events. If, e.g., my writing this sentence
had occurred a split-second later than it did, there would have been
only one event to consider, and one set of object, property and time
constituents. Kim's conditions are formally neutral on the question of whether that (non-existent) event would have been a different event than the one that in fact occurred.

I shall follow Kim both in making no reductionist claims and in denying commitment to the essentialist view. I think, in fact, that a reductionist program regarding events is misguided. It seems to me that events and physical objects are complementary features of the world. The best that one can do is to illuminate the relationship between them. Reducing one to the other is not feasible. I have, however, no developed argument to this effect, so I shall be satisfied at this point simply in not making any reductionist claims. On the other hand, I do think that the essentialist view with regard to event constituents is correct. Incorporating the essentialist position into the account, however, would involve a number of complications (such as, perhaps, quantifying over intermundane events rather than intramundane events) that I would prefer to avoid in this paper. Therefore, I shall also be satisfied, for present purposes, simply to deny commitment to the essentialist view.

Kim does not have a great deal to say about the logical status of the brackets or the bracketed expressions. From (KEC) and (KIC), it is evident that bracketed expressions are being treated as singular terms. Kim at one point (1976, p. 161) suggests that the brackets might be viewed as a special cases of the definite description operator, but he does not make clear what he has in mind. Let us see if we can profitably develop this suggestion.
Let us introduce a quadratic predicate 'C_{1}^{2}3_{4}' to be read as '1-consists-in-2's-exemplifying-3-at-4'. Then we can view '[x, F, t]' as an abbreviation for '(\forall e)C_{exFt}'. (KEC) and (KIC) emerge as a partial interpretation of the predicate 'C_{1}^{2}3_{4}'.

Suppressing initial quantifiers, we can read (KEC) and (KIC) as saying, respectively:

\[(\exists e)C_{exFt} \equiv F_{x} \text{ at } t\]
\[(\forall e)C_{exFt} = (\forall f)C_{fyt} \equiv (x=y \& F=G \& t=t')\]

If this is not enlightening, then the brackets can, alternatively, be looked upon simply as naming a certain function from an ordered triple of an ordered n-tuple of particulars, a property, and a time, to an event. (KEC) and (KIC), then, illustrate important properties of that function.

Let us now try to formulate more general existence and identity conditions. Actually, I think it is best to introduce the general form of the existence condition as an occurrence condition as follows (again suppressing initial quantifiers):

\[(OC): e = [x_{1},...,x_{n}; F; t] \Rightarrow \]
\[\Box(t')(O_{e} \text{ at } t' \equiv (F_{x_{1}}...x_{n} \text{ at } t' \& t' \text{ is part of } t))\]

(OC) says that necessarily the event \([x_{1},...,x_{n}; F; t]\) occurs at a time \(t'\) just in case \(x_{1},...,x_{n}\) exemplify property \(F\) at \(t'\) and \(t'\) is a part of \(t\).

Kim recognizes that the generalization of his identity conditions to the case of n-adic properties cannot be accomplished in quite so straightforward a manner. For example, it seems that the state of affairs of \(x\) being to the right of \(y\) is the same state of affairs as
y being to the left of x; but a straightforward generalization of (KIC) would not produce this result. Kim, therefore, introduces the notion of a "permutation" (1973, pp. 224-5). A permutation is an operation that takes ordered n-tuples into ordered m-tuples and n-adic properties into m-adic properties. I shall follow Kim in using the letter 'k' as a variable ranging over permutations. It is required of any permutation k that k(x₁,...,xₙ) exemplifies k(F) just in case x₁,...,xₙ exemplifies F.

In the case of the example cited above, there exists a permutation k such that k(x,y) = y,x and k(1-is-to-the-right-of-2) = 2-is-to-the-left-of-1. In this case, n = m, but there are cases of permutations where this is not so. For example, I shall consider cases like the following to be cases of permutations as well:

1) k(x,y) = x  
   k(1-is-to-the-left-of-2) = 1-is-to-the-left-of-y

2) k(x,x) = x  
   k(1-is-the-same-size-as-2) = 1-is-the-same-size-as-1

Given his notion of a permutation, Kim generalizes his identity conditions as follows:\^11

(KIC*): [x₁,...,xₙ; F; t] = [y₁,...,yₘ; G; t'] iff there exists a permutation k such that k(x₁,...,xₙ) = y₁,...,yₘ and k(F) = G and t=t'.

As a final clarificatory (and amendatory) comment on the bracket notation, I want to say something about the special role of the predicate expression that identifies the property constituent of the
event. I intend there to be an important difference between the ways that objects and times are identified by their respective expressions in the canonical notation and the way that the property is identified. I am inclined to think that any expression that can be used to refer to a particular object or time can be used to name that object or time in the canonical description of an event having that object or time constituent. Thus, given that Jones is the oldest person in the room, the event of Jones' running at \( t \) is identical with the event of the oldest person in the room's running at \( t \). Likewise, Jones' running at 1:00 P.M. is identical with Jones' running exactly one hour after Smith ran, given that Smith ran at 12:00 P.M.

One might think that the same should apply for the expression that refers to the property constituent. Given that the sky is blue, for example, shouldn't it be the case that the event of this pencil's being blue is identical with the event of this pencil's being the color of the sky? Kim thinks that it should (1969, p. 206); but I think that there is good reason to distinguish between these events, at least as they are expressed in canonical notation. The event of the pencil's being blue at \( t \) would be expressed canonically as \([p, \text{is-blue}, t]\), whereas the event of the pencil's being the color of the sky at \( t \) would be expressed as \([p, \text{is-the-color-of-the-sky}, t]\). I have no doubt that we can use the expression 'is the color of the sky' to make reference to the property \text{is-blue}, given a suitable background understanding that one is speaking about the daytime sky on a clear, unpolluted day, etc. But I want to distinguish between the properties \text{is-blue} and \text{is-the-color-of-the-sky}, and, thus, between events having
these properties as their respective property constituents.

There are possible cases where such events might not even co-occur. Suppose that there were a certain kind of animal, let's call it a "sky-chameleon," that changes color in matching response to any change in color of the sky. Such an animal would exemplify the property of being the color of the sky at all times, but it would exemplify the property of being blue only on clear, pollution-free days. Even given that the sky is blue, I would want to distinguish between the respective events (i.e., property exemplifications) involving the sky chameleon.

We can distinguish between such events by holding that the properties to which different property naming expressions in canonical notation refer are identical if and only if the property naming expressions are synonomous, paraphrastic equivalents, or bear some similar type of linguistic relation to each other. In the case of objects, we are free to use any referring expression that succeeds in picking out the proper object, since the identity conditions for objects are, presumably, independent of the particular expressions we use to refer to them. Such is not the case for properties. At least I know of no viable property identity condition that is independent of the particular expressions that we use to pick out properties. It seems to me that the determination of property identities has to involve the notion of synonymy in some central way.

Now, of course, there are notorious and serious problems concerning the notion of synonymy. I cannot address these problems here, but I do wish to make two remarks concerning them. The first is that I
see no reason why a Sellars-Harman type account of synonomy in terms of playing the same conceptual roles would not prove adequate for the use of synonomy as a criterion for property identity. The second is that I do not think that the standard criticisms of synonomy are very forceful. Usually, synonomy is criticised as a criterion on the basis that decisions about synonomy can only be made in a context of certain background beliefs, purposes and interests. In reply, I wish to challenge objectors to supply a set of examples of decisions that can be made independently of a background of beliefs, purposes and interests. Furthermore, there is this additional consideration. Suppose that it is true that for any two expressions "F' 1 and "G' 1, alleged to be synonomous, one could provide a context in which it would be questionable whether "F' and "G' were intersubstitutable. I think it likely that that very same context would be one in which one would question whether the event [x, F, t] was the same event as [x, G, t]. In general, it seems likely to me that contextual considerations bear in exactly the same way on matters of synonomy and event identity. If so, that seems to be a good reason for thinking that synonomy and event identity are closely related.

Let us take the account of events that we have sketched so far and see what it suggests about the nature of events. First, it suggests that events are not linguistic or conventional entities in the following sense: exemplifyings of properties by (non-linguistic) particulars at times would take place whether or not any linguistic expressions existed which named those exemplifyings, particulars, properties or times. This is not in conflict with the idea that
questions of event identity involve questions about certain properties of linguistic expressions. Events are parts of the passing show that we pick out by means of linguistic expressions. Properties of those expressions are naturally relevant to questions of whether different expressions pick out the same part of the passing show. This does not make those parts of the passing show linguistic entities.

Second, the account provides that events are in-the-world, in at least the sense of occupying (i.e., existing during) portions of time.

This last characteristic serves to distinguish between events and propositions, facts and truths. I do not have a general theory of propositions, facts or truths to offer here, but I think it is clear that, on most ordinary construals, propositions, facts and truths do not occupy certain portions of time. Propositions are usually viewed as eternal, abstract objects, and truths are typically construed as a subset of propositions (the true ones); so there is little concern about confusing events with propositions or truths. Distinguishing events from facts may seem to present a greater problem. Facts have been viewed as in-the-world things, the things which make propositions true or false. Also our condition (OC) reveals that there is an intimate relation between certain facts and events. For example, the event of Jones running at \( t \) occurs if and only if it is a fact that Jones ran at \( t \). Still, there is the difference that facts exist at all times or at none. (If it is a fact that Jones ran at \( t \), then it is always a fact that Jones ran at \( t \).) Moreover, there are facts, such as the fact that \( 2 + 2 = 4 \), which are not interdependent with any event.
So events are non-linguistic, non-conventional entities which occupy time. Are events concrete objects? Well, this depends on how "concrete" an object has to be to be a concrete object. Events, as we have characterized them, certainly are not abstract objects. Abstract objects do not occupy time. Yet, I hesitate to say that events are concrete objects. My preference is to restrict the term 'concrete object' to things the nature of which is to occupy both space and time. Now, it may be true that all events occupy space. But I think there are good reasons for thinking that occupying space, unlike occupying time, is not an essential feature of events.

For one thing, there is the long-standing Cartesian tradition, which holds that minds and mental events, states, etc. are not located in space. I do not think that we want an account of events to preclude the intelligibility of the Cartesian thesis. It may be that the Cartesian thesis is false. It may be that the Cartesian thesis is unintelligible. But if such substantive claims are to be made, they should be supported by a theory of mind and the mental. They should not simply "fall out" of a theory of events. On the face of it, I see nothing unintelligible or self-contradictory about the notion of a non-spatially located event (as there is, I think, about the notion of a non-temporally located event).

The second thing that leads me to think that spatial location is not essential to events is the fact that events seem to derive their spatial location from the spatial location of their object constituents. Locating an event in space is a matter of determining the spatial location of the object constituent(s) of that event. It is unlikely
that such a derivative property of events is fundamental to them. If all events have spatial location, it is because all object constituents of events have spatial location.

There are a number of accounts of events that agree with the account that we have sketched so far - that events are non-linguistic, non-abstract entities that are in-the-world, at least in the sense of occupying time - but which dispute even the approximate correctness of Kim's identity conditions. I shall briefly consider four such accounts, viz., those of Brand, Davidson, Thomson and Anscombe. There is no better argument for the relevance of identity conditions (or the lack thereof) to the question of the intrinsic nature of events than seeing what differences result in accounts that take the same basic view of events, but take different stands on identity conditions.

Given that events are non-abstract, in-the-world objects, a necessary condition for event identity is obvious. None of the authors (presumably), nor myself, would deny that Leibniz's Law applies to events. Events are identical only if they have all the same properties. It can be argued, however, whether having all and only the same properties is a sufficient condition for identity; and even if it is, the conditions would not distinguish events as a type of entity from other types of entities. As Myles Brand points out, ideally an identity criterion will specify some subset of properties which is both sufficient for identity and maximal (there is no narrower set of properties that is sufficient for identity).\(^{14}\) Kim's conditions, for example, can be viewed as making the claim that the maximally sufficient set of properties for events is (roughly) having
the same object, property and time constituents.

Brand, himself, suggests that the maximally sufficient set of properties for events is necessarily occupying the same spatio-temporal regions. His identity condition may be expressed as follows:

\[(\text{BIC}): e = f \text{ iff } \Box (r)(e^+ Wr \equiv f^+ Wr)\]

where 'r' ranges over spatio-temporal regions, '...W_' is '...occurs within__', 'e' and 'f' are variables which range over events and which are such that only expressions of Kim's canonical form '[[x, F, t]]' can be substituted for them, and '+' is a "D-that" operator that makes any definite description of an object or time in the event expression into a rigid designator.15

Brand's conditions are designed to emphasize the close analogy between events and physical objects. Physical objects are identical just in case they occupy the same spatio-temporal regions, whereas events are identical just in case they necessarily occupy the same spatio-temporal regions. My earlier remarks should make it clear why I do not think that (BIC) can be correct. (BIC) makes events too much like physical objects. If there are events (say Cartesian mental events) which do not occupy spatial regions, then (BIC) produces the untoward result that all such events that are cotemporal are identical. (BIC) is plausible only if events necessarily occupy spatial regions, and I see no reason to think that spatial location is an essential feature of events.

But perhaps Brand's conditions can be revised so as to eliminate this undesirable feature. Suppose we changed the predicate 'W' ('occurs within') to the predicate 'O' (simply 'occurs') and revised
(BIC) accordingly as follows:

(BIC*): \( e = f \iff \Box (Oe^+ \equiv Of^+) \)

A problem for (BIC*), however, (which, by the way, is an additional problem for (BIC)) is that it is not very informative unless it is coupled with an explanation of what it is for an event to occur. How do we evaluate claims like '\( \Box (Oe^+ \equiv Of^+) \)'? Brand's utilization of Kim's canonical notation suggests that we might be able to use our occurrence condition (OC) to explicate (BIC*). Using (OC) we can say that, where \( e = [x, F, t] \) and \( f = [y, G, t'] \), \( \Box (Oe^+ \equiv Of^+) \) just in case \( \Box (Fx \at t \equiv Gy \at t') \). This offers some improvement in clarity, but I do not think that it is precisely what we need for conditions of event identity. The condition, as it stands, does not obviously assure that \( x=y \) and \( t=t' \); but surely identity of object and time constituents is a necessary condition for the identity of events.

This suggests a further revision, which one might view as a compromise between (BIC*) and (KIC).

(BKIC): \([x, F, t] \subset [y, G, t'] \iff x=y, t=t' \) and

\[ \Box(z)(t)(Fz \at t \equiv Gz \at t) \]

It will be instructive to compare (BKIC) to (KIC). So far as I can see, there are two kinds of cases in which the results of (BKIC) and (KIC) might diverge. The first is exemplified by a case that we have already considered. Consider the event of a pencil's turning blue and the event of a pencil's turning the color of the sky. (BKIC) produces the result that these events are not identical. There are possible worlds at which something turns blue without turning the
color of the sky. Kim claims that (KIC) gives the result that these events are identical, but this is because of his view that turns-blue and turns-the-color-of-the-sky are the same property. I agree with the result produced by (BKIC); but this result can also be derived from (KIC) if, as I have suggested, we adopt a synonomy criterion for property identity and a convention that a predicate expression in canonical notation names the property that it expresses, not necessarily the property or properties that it can be used to refer to.

The other kind of case is exemplified by a case cited by Brand. Consider the event of John's drawing an equiangular triangle and the event of John's drawing an equilateral triangle. (BKIC) produces the result that these are the same event. However, under the reasonable assumption that draws-an-equiaangular-triangle is not the same property as draws-an-equilateral-triangle (and a synonomy criterion would certainly produce the result that they are not the same property), (KIC) would say that the events are different. Now, I think that the latter result is correct. There is only one triangle drawing taking place, but there are both an equiangular triangle drawing and an equilateral triangle drawing also taking place; and it is only by virtue of the laws of geometry that we can depend on the non-exceptiOnal co-occurrence of the later two types of events. (KIC) allows us to keep a distinction between the relation of necessary co-occurrence and the relation of identity, with respect to events. I think that it is a distinction worth maintaining.
Perhaps the most familiar identity conditions for events, besides Kim's, are those of Donald Davidson. Davidson, in effect, claims that the maximally sufficient set of properties for event identity is having all the same causes and effects (cf. (1969), p. 231):

\[(DIC): e=f \iff (g)(g \text{ caused } e \implies g \text{ caused } f) \& (g)(e \text{ caused } g \implies f \text{ caused } g)\]

Davidson's identity conditions have been criticised as being circular, and it is easy to see why. Davidson views causation as a relation between events, so the 'g' in (DIC) ranges over events. But then it seems that determining whether any events e and f are identical requires determining of any event g which is a cause or effect of e whether that same event g is a cause or effect of f. This is an epistemological rather than a formal circularity. The definiens of the condition does not contain any event identity statements, but knowing whether the definiens is satisfied seems to require already knowing whether certain events are identical. This criticism, of course, does not challenge the truth of (DIC).

Another, more subtle kind of circularity derives from the use of the notion of causality. It may well be that an analysis of causation will require the notion of one event's being wholly distinct from another. Certainly, it seems that any counterfactual account of causation is likely to require this. Events that are not wholly distinct from one another will be counterfactually dependent on each other, without being causally related. If the notion of event identity is used to explain causation, and the notion of causation is used to explain event identity, the respective analyses will have
traversed a small and likely unilluminating circle. I am not at all sure that circularity can ultimately be avoided in analyzing basic concepts like these, but we can at least try to make the round-trip as long and serpentine as possible.

Finally, there is serious question about whether (DIC) is even true. Might there not be distinct events which have the same causes and effects, or distinct events which are totally causally inefficacious? Davidson's identity conditions provide that there are no such events, but an account of events should leave open these possibilities. It is not clear that events are entities essentially bound to a unique position within a causal nexus, nor should the question of whether there is universal causation should be resolved by an account of event identity conditions. 18

Judith Thomson (1977) has recently produced a very complex and ingenious account of events which also, unfortunately, makes use of event causation as a primitive notion. Thomson does not try to present an account of event identity conditions directly. Rather, she takes the circuitous route of first analyzing the notion of one event's being a part of another, and then characterizing identity as that relation in which events stand just in case they have all and only the same parts. The work in Thomson's account, then, is performed by her analysis of the event-part relation. This analysis is much too complex to do full justice to it here. But I think I can say enough to make it clear that it is not an account that is appropriate for our purposes.
Thomson's account starts with an analysis of the part relation that applies to events of the type that Thomson calls "complete" events. For Thomson, an event e is complete just in case there is no discrete event f such that part of e causes f and f causes part of e (p. 70). The following part condition is said to apply to all cases where at least event f is complete (cf. p. 74):

\[(TPC): \text{e Part f iff } (g)(g \text{ causes } f \supset g \text{ causes e}) \land (f \text{ causes e}) \land \neg (3d)((g)(g \text{ causes } e \supset g \text{ causes } d) \land (e \text{ causes } d) \land f \text{ causes } d)\]

All of the variables in (TPC) range over events. The third conjunct in (TPC) is designed to eliminate the possibility that e and f merely overlap by eliminating the possibility that there is a part of e (i.e., d) that is not a part of f.

(TPC) unfortunately is subject to basically the same difficulties as Davidson's (DIC). First, since the variable 'g' ranges over events, the same kind of epistemological circularity is presented by the fact that (TPC) qualifies over events in the definiens. Second, (TPC) makes essential use of a primitive notion of causality. This eliminates the possibility of making use of the requirement that events be discrete in the process of analyzing causality. Finally, (TPC) errs in assuming that causality is the essential unifying feature of complex events, just as (DIC) errs in assuming that position in a causal nexus is essential to events. I would agree with Thomson that, in a great number of cases, the principle unifying the parts of an event into one involves the causal relations of the event parts to one another. But there are events, ordinary, garden variety events,
for which this is not the case. Consider a party, a football game, the playing of a symphony. Which events count as parts of the party, football game, or playing of a symphony is not determined by considering their causal relations to each other. The principle of unity of complex events, in general, varies in accordance with the particular concept involved in identifying that complex event. What counts as parts of a party, football game or playing of a symphony is dependent on what we understand a party, football game or playing of a symphony to be; it is dependent upon how we analyze the respective concepts. The analysis of some concepts that we use to pick events out of the world is such that the notion of causal relation or causal chain is essential to that analysis. Such is the case for concepts like killing, cleaning, alerting, insulting, and many, many others. Doing something, often, is causing something to happen; and what counts as part of that "doing" depends upon what events are linked together in the causal chain leading to the something happening. But surely this is not the case for all events. Thomson certainly is not in a position to deny this point. Thomson has a principle which allows that any property of events can be used to unify events into a single bona fide event (called the "fusion" of all events having that property. (p. 78)).

This last point is not a direct attack on (TPC). Thomson has specified that (TPC) applies only to "complete" events. She has, thus, in effect, limited (TPC) to those events which are unified by their causal relations. But parties, football games, playings of symphonies, and many other events are not "complete" events. For
example, a play in a football game might cause someone in the stands to have a heart attack. The heart attack, in turn, might cause a commotion in the stands, which diverts the attention of a player and causes him to drop a pass. The heart attack, thus, is caused by a part of the game and is a cause of a part of the game, but it, itself, is distinct from the game. The same kind of example can be concocted for parties, playings of symphonies, and many other mundane events. Some events do not automatically siphon-up all events causally linked to their parts. (TPC) is at best limited in its application.

Moreover, Thomson uses (TPC) as the basic notion for her general criterion of the event-part relation. Roughly, her technique is to convert incomplete events into complete events by adding back in the missing causal links so that (TPC) can be used (see pp. 94-98). This involves so much complexity that it is hard to say whether or not it works. But surely it is not a very illuminating approach to use for any events except those which are unified by causal relations. Additionally, as Thomson herself notes (p. 96), the general event-part conditions involve a new kind of circularity in that they require use of the notion of complete event, which, as we have seen, is itself explained in terms of event-part relations.

G.E.M. Anscombe (1979) views the whole enterprise of trying to formulate identity conditions for events as a patent waste of time. Events, she says, are not count nouns. Questions like "How many events have occurred in this room in the last half-hour are utter nonsense. It is futile to search for conditions that will tell us
how to individuate events *per se*. This does not mean that events are pseudo entities, for the same thing is true of physical objects. There is no answer to the question "How many physical objects are in this room right now?" Of course, we can answer questions like, "How many chairs are in the room right now?"; but we can also answer questions like, "How many sneezes occurred in this room in the last half-hour?" (pp. 229-230).

The proper reply to Anscombe, I believe, is that she is attacking a straw man. No writer on the subject that I know of, and certainly not I, presumes to be giving conditions that will allow one to count events *per se*. Anscombe is surely right that no such conditions exist. Nevertheless, this does not mean that there might not be some general, systematic way of deciding questions about whether specific events (which are always events of some type) are identical or stand in a part relation. Additionally, there is surely some general feature that distinguishes events from other types of entities. It is not unreasonable, on any *prima facie* grounds, to expect that a systematic way of determining identity or part relations among events will shed some light on the nature of the distinguishing features of events *vis-à-vis* other kinds of entities.

Anscombe's argument, while misdirected, is suggestive. The fact that the individuation of events is always individuation of events-of-a-type suggests that any correct general conditions of individuation must involve utilization of information as to what types of events are involved. Such utilization is clearly present in a Kim-type identity condition. While (KIC*) is general in applying to events of
any type, the particular type of event involved plays an intrinsic role in the operation of those conditions by means of the requirement of property constituent identity.

In summary, it appears that (KIC*) avoids problems that infect the other accounts. There is no obvious circularity problem. The identity of events is explained in terms of the identity of particulars, properties and times. There is no quantification over events in the definiens of (KIC*). (KIC*) does not presuppose substantive philosophical theses, such as the falsity of Cartesian dualism or the truth of universal event causation. Moreover, (KIC*) does not make use of the notion of causality, which means that (KIC*) can be used in an analysis of causality without debilitating circularity. Finally, (KIC*) does give a central role to information concerning the type of event, and this seems to be appropriate for event identity conditions.


2. See my discussion related to this point on pp. 23-4 below.

3. One might object here that logically impossible properties, such as the property of being both bald and not bald, might meet my criterion for being a particular, since they cannot be exemplified by any entity. Logically impossible properties, however, do not meet the other criterion for being particulars. They cannot exemplify properties at a time.


5. Judith Thomson (1977) levels a criticism against Kim's account which made me aware of the need for this restriction. See pp. 103-107. One might object here that it isn't clear that an object can exemplify even an eternal property at all times. Does
the object exemplify the property at times before or after the object exists? I am inclined to think so. Perhaps it is the term 'exemplify' that raises the question here. It suggests that the item doing the exemplifying must be present - how else to be an "example" than to be present? But I mean no more by 'exemplify' than 'have'. In any case, it is clear that we do not want the exemplifying of eternal properties to count as events.

6. One problem might be, to use Chisholm's phrase, properties that are "rooted" at times other than those at which they are had (1976, pp. 126-8). For example, consider the property is-a-being-that-will-die-exactly-one-year-from-now. It does not seem plausible that an exemplifying of this property is an event, even given the broad notion of event that we have adopted. This may not raise a separate problem for us because Chisholm's properties seem to be a variety of eternal property, and thus already excluded.

7. My comments here were suggested by Thomson's discussion of the time "IN" which an event occurs (1977, pp. 192-3).


9. I think, however, that Davidson's (1969, pp. 226-7) and Thalberg's (1978) reasoning is on the right track.

10. The initial quantifiers have to be restricted so as to range only over entities which are eligible for being object, property and time constituents. Refer to the discussion of such eligibility requirements above.

11. The label '(KIC)' is my own, and I have altered the notation in Kim's condition for expository reasons (cf. (1973), p. 225). By using different letters 'm' and 'n', Kim clearly allows for cases where n≠m. However, he gives no examples of these, so I do not know whether he would agree with the examples that I have offered.


13. I am indebted to Marshall Swain for this line of argument.

14. Brand (1977, pp. 330-1) offers a more extensive argument along these lines, with which I am in general agreement, and to which I owe a considerable debt, including specifically the notion of a maximally sufficient set of properties.

15. Cf. (1977) pp. 334-5. It was pointed out to me by George Schumm that there may be a use-mention problem in Brand's conditions in that his variables 'e' and 'f' seem at once to be ranging over both events and event names. In any case, Brand's conditions have other problems, as I note in the text.

17. See, e.g., Swain (1978, p. 5).

18. Brand (1977 and 1976a) argues in a similar fashion. Thomson (1977) produces candidates for distinct events that have all the same causes and effects (p. 70), and for one event (called "Super-Event") which has no causes and no effects (p. 85). While my account of events is very different from Thomson's, the events that she cites would also be events under my account.

19. Certainly Kim has no such pretensions. In correspondence to me, he practically duplicated Anscombe's argument that no such conditions exist. He said:

   I am of the opinion that [the question, How many distinct events occurred in this room in the last half-hour?] is in the same league as such questions as "How many things (objects, facts, entities . . .) are in the left-half of this room?" and that like the latter it does not admit of a determinate answer. ("How many apples?", yes; but not "How many physical objects?" "How many murders?", yes; but not "How many events?")

See also Goldman (1971, p. 773).
3. THE IMPORTANCE OF EVENT-PART CONDITIONS

Thus far we have examined (KIC*) rather abstractly, and we have found that it has certain general, systematic advantages over other event identity conditions that have been offered. Now it is time to see how (KIC*) stacks up against its competition and our preanalytic intuitions when it is presented with identity questions about specific events embedded in a background context. Consider the following story:

Adolph and Bartholomew are both in love with Clarissa. Adolph, who is a ruthless sort of fellow, decides to bring Clarissa and himself closer together by eliminating the third side of the triangle. Being devious as well as ruthless, Adolph develops a clever plan to accomplish his evil purpose. Adolph learns that Bartholomew, who is an avid hiker and outdoorsman (Adolph never could stand that type), will be going on an overnight camping trip over the weekend. On Tuesday night, Adolph surreptitiously gets access to Bartholomew's camping supplies, and he injects a fast-acting botulin into one of Bartholomew's granola bars by use of a hypodermic syringe inserted through an inconspicuous portion of the wrapper. Adolph then sets up an all-weekend poker party with some friends in order to provide an alibi, in case it should prove necessary. On Friday night, Bartholomew manages to convince Clarissa to join him on his camping trip. At noon on Saturday, Bartholomew, gentleman that he is (another thing that Adolph can't stand), offers the first granola bar to Clarissa. Clarissa soon goes into convulsions, and she dies at 1:00 P.M. as she is being carried by
Bartholomew to the nearest medical assistance. (Readers with a sense of nemesis will be happy to learn that a Dr. Quincy-like medical examiner was called in. He quickly spotted the tiny injection hole in the granola bar wrapper, and justice was served.)

Among the events that we may suppose occurred in the course of our story are the following (Adolph, Bartholomew and Clarissa will henceforth be identified as 'A', 'B' and 'C' respectively):

   e1: A's moving his thumb,
   e2: A's depressing the plunger,
   e3: A's injecting botulin into the granola bar,
   e4: A's poisoning C,
   e5: A's killing C.

The question we have to consider can then be put very simply: What is the nature of the relationship among e1 - e5?

Cases like this have received a great deal of attention in the literature on events in the last few years. Based on this literature, it is clear that the answer that some prominent philosophers, including Anscombe and Davidson, would give to our question is that e1 - e5 are identical. Just as clearly, since none of the property constituents of e1 - e5 are identical, (KIC*) would produce the answer that e1 - e5 are mutually distinct. Now to say that e1 - e5 are distinct is to give only a minimal answer to the question of the nature of the relationship among the events. It is simply to say that the relationship is not that of identity. Still, this is a starting point. If (KIC*) is to be at all plausible, then it must at least be the case that e1 - e5 are not identical.
A number of arguments have been proposed in the literature, notably by Goldman and Thomson, that purport to show that events like $e_1 - e_5$ cannot be identical. We shall find that an examination of these arguments will not only serve to support (KIC*); it will also lead us in the proper direction for characterizing the relationships among $e_1 - e_5$ in a more definite way.

For ease of exposition, I will follow Goldman in referring to the position underlying the answer that $e_1 - e_5$ are identical as the identity thesis; and I will refer to its adherents as identity theorists. The contrast between the identity thesis and the position underlying (KIC*) has been characterized as that of the unifiers versus the multipliers or that of the coarse-grained versus the fine-grained view of events. I think these latter labels are not particularly happy ways of depicting the appropriate contrast. But more of this later.

The arguments against the identity thesis can be grouped into four distinct kinds: the causal relation argument, the temporal relation argument, the "by" relation argument, and the part relation argument. I claim no significant degree of originality for any of the arguments save those of the last variety.

The Causal Relation Argument

The causal relation argument seeks to show that two or more of $e_1 - e_5$ have different causal properties. Consider the following claims:
CR1: A's moving his thumb (e1) is a cause of the plunger's being depressed,

CR2: A's killing C (e5) is a cause of the plunger's being depressed.

Given the context of the story, it seems clear that CR1 is true and CR2 is false. We can imagine circumstances in which CR2 might have been true. For example, A's killing C might have caused C to fall on the plunger, thereby depressing it. But as the story actually goes, CR2 is false. Based upon this, we may claim that e1 has a causal property (being-a-cause-of-the-plunger's-being-depressed) that e5 lacks; therefore, e1 ≠ e5. Moreover, it seems that e2, e3 and e4 also lack this causal property. Therefore, we have the more general result that e1 ≠ e2, e3, e4 or e5.

The same point can be made by pointing to events that are causes of some one or more of e1 - e5, but not others. Consider the additional claims:

CR3: B's convincing C to accompany him on the camping trip is a cause of A's killing C (e5),

CR4: B's convincing C to accompany him on the camping trip is a cause of A's moving his thumb (e1).

CR3 is true and CR4 is false. Thus, there is a causal property (being-an-effect-of-B's-convincing-C-to-accompany-him-on-his-camping-trip) of e5 which is not a causal property of e1. Again, the claim can be generalized to show that e4 ≠ e1, e2 or e3, and e5 ≠ e1, e2 or e3.

The causal relation argument depends upon certain theses about causation. It assumes that there is such a thing as event causation,
and that events can have extensional causal relational properties. These two assumptions may seem rather unproblematic, but there are those who claim that causation is not a simple event relation. Castañeda (1979), for example, claims that causal relations do not hold between events simpliciter; rather they hold between ordered triples each consisting of a property, a sequence of individuals, and a sequence of events (pp. 239-41). Roughly speaking, causation is not a relation between events, it is a relation between events' havings of properties. In the case of our example, CR1 would be represented by Castañeda as the following:

\[
\text{CR1': (Moving, } \langle \text{A, his thumb} \rangle , \langle \text{el} \rangle \text{ ) caused (Being depressed, } \langle \text{plunger} \rangle , \langle \text{plunger's being depressed} \rangle \).
\]

Now the identity theorist's claim is that el = A's killing C. Substitution of identicals in CR1 above produces:

\[
(\text{Moving, } \langle \text{A, his thumb} \rangle , \langle \text{A's killing C} \rangle \text{ ) caused (Being depressed, } \langle \text{plunger} \rangle , \langle \text{plunger's being depressed} \rangle \).
\]

This would be read as something like: A's killing of C, which was a moving by A of his thumb, caused the plunger's being depressed. If CR2 is read in this way, it is claimed, then CR2 is not false; nor does it support the claim that el has a property that e5 lacks.

Much the same kind of response to the causal relation argument is made, less formally, by Anscombe (1979), when she claims that paraphrases are available that relieve the apparent absurdity of claims like CR2 (pp. 226-7). Anscombe's paraphrase of CR2 would be:

\[
\text{A's moving his thumb, which (as things turned out) was the killing of C by A, caused the plunger's being depressed.}
\]
Whatever appeal Anscombe's and Castañeda's paraphrases have results from the fact that they are stated in a way so as to draw attention away from the details of the background story. We must remember that the plunger's being depressed was, in turn, a cause of C's death. If this fact is introduced into the paraphrases, then they lose considerable plausibility:

A's killing of C, which was a moving by A of his thumb, caused the plunger's being depressed, which, in turn, was a cause of C's death,

A's moving his thumb, which (as things turned out) was the killing of C by A, caused the plunger's being depressed, which, in turn, was a cause of C's death.

The appropriate question here is how an event which is a killing of C can cause an event that in turn causes C's death.

It is important to sort out exactly where the dispute lies. Both Anscombe and Castañeda hold that A's moving his thumb becomes describable as A's killing C by virtue of being the action of A's that causes (in the appropriate way) the death of C. Anscombe would attribute the apparent implausibility of CR2 to this source. She would claim that it would be odd of anyone to state CR2 since it involves referring to an event by means of a property that it will acquire only after the time at which it acquires the property being ascribed to it in the statement. It is the same kind of oddness, Anscombe claims, that would be present if someone were to claim that a man married his widow or fought a duel with his widow's second husband. The claims would sound odd, but they would, none the less,
be true (p. 226).

Now I do not dispute that A's moving his thumb acquires the property of being a cause of C's death. But I do dispute that A's moving his thumb thereby becomes describable as A's killing of C. Consider:

CR2*: The action of A's that causes C's death is a cause of the plunger's being depressed.

CR2* doesn't sound odd to me at all. In fact, I think that CR2* is true. But if Anscombe's explanation of the source of the oddness of CR2 is correct, then CR2* should sound just as odd as CR2. CR2* also involves identifying an event by means of a property that it will not acquire until after the time it acquires the property being ascribed to it in the statement. The moral, it seems to me, is that A's killing C is not the action of A's that causes C's death.

## The Temporal Relation Argument

The temporal relation argument seeks to show that two or more of e1 - e5 have different temporal properties. The following claim:

TR1: A's depressing the plunger (e2) occurred on Tuesday is clearly true in the context of our story; but:

TR2: A's killing C (e5) occurred on Tuesday seems to be false, since C did not die until Saturday. Thus, e2 ≠ e5; for identical events had better occur at the same time.

Additional temporal property problems can be constructed out of the following claims:
TR3: A's depressing the plunger (e2) occurred before C died,
TR4: A's killing C (e5) occurred before C died,
TR5: C died after A depressed the plunger (e2 occurred)
TR6: C died after A killed her (e5 occurred),
TR7: A's depressing the plunger (e2) is taking place while C is in convulsions on Saturday,
TR8: A's killing C (e5) is taking place while she is in convulsions on Saturday.

TR3, TR5 and TR8 are true; TR4, TR6 and TR7 are false. But this can't be if e2 = e5. Similar claims would show at least that any one of e1, e2 and e3 is distinct from either e4 or e5.

There are basically two ways of trying to avoid the temporal relation argument. The first is to agree that TR2, TR4, and TR6 are false and TR8 is true, but to deny that they can be derived from the identity claim, e2 = e5, and TR1, TR3, TR5 and TR7. The second way is to deny that TR2, TR4 and TR6 are false, and TR8 is true. The second way is more easily refuted, so let us address it first.

One cannot deny that TR2, TR4, and TR6 at least sound odd, so if one is to claim that they are not false, one must give some other explanation of their oddness. The explanation offered is basically the same as that discussed with respect to the causal relation argument. TR2, TR4 and TR6 all sound odd because they involve referring to an event by using a description that will not be true of it until some later time in order to ascribe a property to it at an earlier time. But we have seen that the oddity cannot be totally attributed to this source. Consider:
TR2*: The act of A's which caused the death of C occurred on Tuesday,
TR4*: The act of A's which caused the death of C occurred before she died,
TR6*: C died after the act of A's which caused her death occurred.

None of TR2*, TR4* or TR6* sound odd or problematical. But the description 'the act of A's which caused the death of C' does not apply to e2 until after C dies. If Anscombe is right, TR2*, TR4* and TR6* ought to sound just as odd as TR2, TR4 and TR6. At the very least, the identity theorist owes us an explanation as to why they do not.

The identity theorist's response to the claims TR7 and TR8 must be different. Here the identity theorist would agree that TR7 is false, but claim that TR8 is also false. I have no idea as to what explanation might be offered as to why TR8 seems to be true.

The second way of attempting to avoid the temporal relation argument involves claiming that TR1 - TR8 represent some variety of intensional context. Now the contexts '...occurred at t' and '...occurred before (after, during)...' certainly do not appear to be intensional. If an event occurred at t, then surely it occurred at t under any and all true descriptions of it. But Thomson (1971a) has presented some interesting reasons for thinking that such contexts may be intensional after all. (I will concentrate on the locution '...occurs at t'. Our considerations will apply to the others mutatis mutandis.)
Thomson suggests that '...occurs at t' may be paraphrased as 'there exists a time u and a time v such that u is the time of initiation of ... and v is the time of completion of ... and u and v are during t'. Now I have no particular complaints about this paraphrase. Events are things that occupy stretches of time and, thus, have temporal beginnings and ends. It seems reasonable to suppose that an event occurs during (in the sense of within) t if and only if t contains both the temporal beginning and end point of that event. The controversial point is Thomson's suggestion that the second position for an event description in the paraphrase context may be intensional.

Thomson notes that the temporal problems concerning events all involve only the end points of events, never their beginnings. Perhaps, she says, this is because the time of completion of an event (say, A's killing C) can be understood by analogy with the time at which an object becomes qualified (or describable) in a certain way. For example, A becomes C's poisoner when C eats the granola bar; but A doesn't become C's killer until C dies. In a parallel way, it may be that A's action (pushing the plunger) becomes A's poisoning C when C eats the granola bar, but it doesn't become A's killing C until C dies.

If we take this analogy seriously, then we might paraphrase 'v is the time of completion of...' as 'v is the time that ... becomes...'. If we incorporate this into the forgoing paraphrase of '...occurs at t' we get, 'There is a time u and a time v such that u is the time of initiation of ... and, v is the time at which ...
becomes ... and \( u \) and \( v \) are during \( t \). Finally, paraphrasing TR1 and TR2 in this way produces:

\[ TR1': \text{There is a time } u \text{ and a time } v \text{ such that } u \text{ is the time of initiation of A's \underline{depressing the plunger}} \text{ and } v \text{ is the time at which A's \underline{depressing the plunger}} \text{ becomes A's \underline{depressing the plunger}} \text{ and } u \text{ and } v \text{ are on Tuesday,} \]

\[ TR2': \text{There is a time } u \text{ and a time } v \text{ such that } u \text{ is the time of initiation of A's \underline{killing C}} \text{ and } v \text{ is the time at which A's \underline{killing C}} \text{ becomes A's \underline{killing C}} \text{ and } u \text{ and } v \text{ are on Tuesday.} \]

The underlined event descriptions are in extensional contexts and subject to substitution by codesignative expressions. The event descriptions following the occurrences of 'becomes', however, are in predicative position. TR2' is false, but TR2' does not follow from TR1'. The statement that would follow from TR1' and \( e2 = e5 \) would be:

\[ TR1'': \text{There is a time } u \text{ and a time } v \text{ such that } u \text{ is the time of initiation of A's \underline{killing C}} \text{ and } v \text{ is the time at which A's \underline{killing C}} \text{ becomes A's \underline{depressing the plunger}} \text{ and } u \text{ and } v \text{ are on Tuesday.} \]

But TR1'' is true.

The most important question to ask regarding Thomson's paraphrases is why one should think that the time of completion of an event can be understood as the time at which that event becomes describable in a certain way. I said above that it is reasonable
to understand the time of occurrence of an event as that time which includes both the beginning and end point of that event. But this is not the case if the end point of the event is understood as that time at which the event becomes describable in a certain way. The only thing that Thomson has to say in favor of the paraphrase is to criticise the alternative view that the end point of an event can be looked upon as analogous to the death of a person. A person is a thing that endures through time and undergoes changes; an event takes place in time and is the making of a change which takes time to come about.

Now it seems to me that if Thomson's observations weaken the analogy between an event's completion and the death of a person, they a fortiori weaken her analogy between an event's completion and a person's becoming describable in a certain way. For the person's becoming describable in a certain way depends upon precisely those characteristics that Thomson chooses to contrast with events; namely, the fact that a person endures through time and undergoes changes. Actually, I do not think that there is a significant contrast here. I have no trouble thinking about an event as something lasting through time, nor as something that itself undergoes changes (in the sense of acquiring and losing properties) both during and after the time during which it exists. For example, consider an event like a war. It endures through time (usually, unfortunately, for years), and it undergoes many changes.

Even if we take Thomson's view of an event as the making of a change, then surely the time of completion of the event is the time
that the change is complete. If one is to claim that A's depressing the plunger and A's killing C are the same event (the same making of a change), then one had better claim that they end at the same time (the time that the change is complete).

Perhaps a counterexample will accentuate the implausibility of Thomson's paraphrase. Consider the event of Babe Ruth's hitting 60 home runs in a single season. This event occurred in 1927. When Roger Maris hit 61 home runs in 1961, Ruth's hitting 60 home runs became describable as Ruth's hitting the second highest number of home runs in a single season. Now, if one were to ask when that event took place, and one accepted Thomson's paraphrase, one should feel some temptation to answer, "1961." But, surely, Ruth's hitting the second highest number of home runs in a single season did not take place many years after his death.

In addition to the implausibility of the paraphrase, Thomson's proposal has other problems. For example, I do not think that A's depressing the plunger ever does become describable as A's killing C. Now, if one is willing to admit, as I am, that an event can acquire properties, then A's depressing the plunger does acquire the property of being a cause of C's death. So, we can go so far as to say that A's depressing the plunger becomes describable as the (or, at least, an) action of A's which caused (or, at least, was a cause of) the death of C. But this is not to say that A's depressing the plunger becomes describable as A's killing C. To see that A's killing C does not amount to being the action of A's which caused the death of C, refer back to TR2, TR4 and TR6 and compare them with TR2*, TR4* and TR6*. 
TR2, TR4 and TR6 are false; TR2*, TR4* and TR6* are true.

Still, it seems to me that there is some intuitive appeal to the claim that A's depressing the plunger becomes A's killing C. This appeal, however, is explained by the fact that 'becomes' can be read in different senses than 'becomes describable as'. The sense in which the claim sounds plausible is the sense in which 'becomes' is read as 'grows into' or 'generates'. Under this reading there is no implication that A's depressing the plunger = A's killing C, but there is the suggestion that the events are closely related and may not be wholly distinct. We will return to this suggestion later.

The "By" Relation Argument

The "by" relation argument claims that none of e1 - e5 are identical, since they stand in "by" relations to different events. Consider the following claims:

BR1: A depressed the plunger by moving his thumb.
BR2: A injected poison into the granola bar by depressing the plunger,
BR3: A poisoned C by injecting poison into the granola bar,
BR4: A killed C by poisoning her.

BR1 - BR4 are all true; and, thus, the following relations hold:

BR1*: e2 By e1,
BR2*: e3 By e2,
BR3*: e4 By e3,
BR4*: e5 By e4.
Now, if $e_1 = e_2 = e_3 = e_4 = e_5$, and if the "by" relation is extensional, then $BR1^* - BR4^*$ entail a number of further claims, including:

- $BR5^*$: $e_1$ by $e_1$,
- $BR6^*$: $e_1$ by $e_2$,
- $BR7^*$: $e_3$ by $e_4$,
- $BR8^*$: $e_4$ by $e_5$.

But $BR5^* - BR8^*$ are clearly false, since the corresponding statements:

- $BR5$: A moved his thumb by moving his thumb
- $BR6$: A moved his thumb by depressing the plunger
- $BR7$: A injected poison into the granola bar by poisoning C
- $BR8$: A poisoned C by killing her

are all obviously false. Thus, since there is no reason to think that the "by" relation is intensional, it follows that $e_1 \neq e_2 \neq e_3 \neq e_4 \neq e_5$.

Now one way of trying to avoid the "by" relation argument is to question whether the "by" relation is, indeed, extensional. Castañeda (1979, pp. 242-4) sees the same kind of intensionality present in the "by" relation as he claimed was present in the causal relation. He suggests that 'X did Y by doing Z' is to be analyzed as 'X's Y'ing is qua Y'ing a Z'ing'. In the case of $BR1$, this would produce something like:

- $CBR1$: A's depressing the plunger is qua depressing the plunger a moving his thumb.

Only the subject phrase here, 'A's depressing the plunger', is in a position allowing for substitution. Performing substitution, we would
A's moving his thumb is *qua* depressing the plunger a moving his thumb

A's injecting poison into the granola bar is *qua* depressing the plunger a moving his thumb

and so on. These claims, unlike BR5 - BR8, are not obviously false. On the other hand, they are not obviously true either. I am not sure that CBR1 and the derived claims even make sense, and it certainly isn't obvious why we should accept CBR1 as a paraphrase of BR1. *Why* is the "by" relation intensional? *Why* should we treat *qua Y'ing a Z'ing* as an unanalyzable predicate?

Thomson (1971b, pp. 775-6) has a different kind of objection to the "by" relation argument. She questions the legitimacy of the move from claims like BR1 - BR4 to relational statements like BR1* - BR4*. She first notes that the move is essential to the argument. There are no singular terms naming events in BR1 - BR4, so *a fortiori* there are no singular terms in a position allowing substitution in BR1 - BR4. She then raises two problems for the claim that BR1 - BR4 can be paraphrased as BR1* - BR4* respectively. Let us concentrate on the move from BR1 to BR1*. Exactly parallel problems exist for the others. First, BR1*, but not BR1, entails that el occurs. The nearest that one can come to an actual paraphrase of BR1 in the spirit of BR1* is something like:

\[(\exists e)(\exists f)(e \text{ is A's depressing the plunger} \& f \text{ is A's moving his thumb} \& e \text{ By f}).\]

But, again, there are no singular terms naming events in this
I am inclined to think that Thomson is right about the analysis of BR1, but this doesn't prevent a very similar argument from going through (as Thomson recognizes). Let us suppose that A depressed the plunger at 10:01 P.M. on Tuesday (assume that date and year are also specified). Then we can substitute for BR1:

\[ \text{BR1': A depressed the plunger at 10:01 P.M. on Tuesday by moving his thumb at 10:01 P.M. on Tuesday.} \]

The Thomson-type analysis of BR1' would be:

\[ \begin{align*}
(\exists e)(\exists f) & (e \text{ is A's depressing the plunger at 10:01 P.M. on Tuesday} & f \text{ is A's moving his thumb at 10:01 P.M. on Tuesday} & e \text{ By } f).
\end{align*} \]

Now, if one supposes that \( e_1 = e_2 \), one is committed to:

\[ \begin{align*}
(\exists e) & (e \text{ is A's moving his thumb at 10:01 P.M. on Tuesday} =
\text{ e is A's depressing the plunger at 10:01 P.M. on Tuesday}).
\end{align*} \]

But this will produce both:

\[ \begin{align*}
(\exists e)(\exists f) & (e \text{ is A's moving his thumb at 10:01 P.M. on Tuesday} & f \text{ is A's moving his thumb at 10:01 P.M. on Tuesday} & e \text{ By } f).
\end{align*} \]

and

\[ \begin{align*}
(\exists e)(\exists f) & (e \text{ is A's moving his thumb at 10:01 P.M. on Tuesday} & f \text{ is A's depressing the plunger at 10:01 P.M. on Tuesday} & e \text{ By } f).
\end{align*} \]

These are the appropriate analyses of:

\[ \begin{align*}
\text{BR5': A moved his thumb at 10:01 P.M. on Tuesday by moving his thumb at 10:01 P.M. on Tuesday,}
\end{align*} \]
and

BR6'': A moved his thumb at 10:01 P.M. on Tuesday by
depressing the plunger at 10:01 P.M. on Tuesday.

Clearly, BR5' and BR6' are just as implausible as BR5 and BR6. So,
the identity claims e1 = e2 = e3 = e4 = e5 and BR1 - BR4 will entail
implausible statements even under Thomson's analyses; and the "by"
relation argument, thus, still presents a *reductio* against the
identity claims.

The second problem that Thomson raises against the move from the
BR statements to their BR* paraphrases is that it represents an
inconsistency in the treatment of means or method statements
(pp. 778-9). The 'by' in the BR statements is simply the 'by' of
method. Now if one is to treat the 'by' of method as representing
a relation between events, then one should be willing to treat the
'with' of method as a relation between an event and an object. So,
for example, the statement:

A injected the botulin with a hypodermic syringe

should be analyzed as a relation between e3 and the hypodermic
syringe.

This, of course, represents a problem for the "by" relation
argument only if one thinks that there is a problem with analyzing the
'with' of method as a relation between an event and an object. I shall
suggest, later, that there may be no problem in holding that there are
such relations between events and objects. For now, however, let us go
on to consider the last argument against the identity thesis.
The Part Relation Argument

The part relation argument appeals to our intuitive notion of when one event is a part of another. We make such determinations with no difficulty in a great many cases. A particular play is part of a football game, the playing of a particular note is part of the playing of a symphony, washing the car's roof is a part of washing the car, crossing the street is a part of walking to work. Now consider the following claims anent our story:

PR1: C's being poisoned is a part of A's killing C,
PR2: C's being poisoned is a part of A's depressing the plunger.

Obviously, PR2 is false. If PR1 is true, then e2 ≠ e5, since some event is a part of e5 that is not a part of e2. It seems clear to me that PR1 is true. The identity theorist, of course, would deny PR1. But he must offer some explanation of why it seems to be true. The best explanation that I can come up with, on behalf of the identity theorist, is that we have a tendency to think that C's being poisoned is a part of A's killing C because it was necessary for C's dying, and, hence, necessary for the description 'A's killing C' becoming true of A's depressing the plunger. C's being poisoned was not necessary for the description 'A's depressing the plunger' to be true of A's action; thus we have the differing intuitions about PR1 and PR2. C's being poisoned is not literally a part of A's action under any description. Moreover, it might be claimed that PR1, on careful inspection, must be false. How can an event involving C
literally be part of A's action?

This rejoinder, however, is not adequate. First, it is clear that our intuitions regarding part relations between events cannot be explained totally by reference to which events are necessary for the occurrence of others. In the case under discussion, there are events which are necessary for C's death but which are not parts of A's killing C. For example, B's convincing C to go with him was necessary for C's death, but it is not a part of A's killing C. We can change the story so that B's convincing C to go with him is part of A's killing C. Suppose that it was A's plan all along to kill C and that B was an accomplice, whose job it was to get C to go on the trip. In whatever way these changed circumstances change our intuitions about whether B's convincing C to go with him is a part of A's killing C, they do not do so by making the former event necessary for the latter, because such relationship already existed in the original story.

Second, there is no problem in general about an event involving one person being a part of another's action. In fact, there are clear-cut cases where even actions of one person are parts of another's action. Suppose that A builds his own house. A doesn't do everything, of course. He hires an excavation contractor, plumber and electrician; and he also has some of his friends and family help with the carpentry and roofing. Clearly, the actions of these other people are all parts of A's building his own house. Whatever the relationship is of being an agent in an action (and we shall, later, investigate this) it is not such that the person must be the agent in
Consideration of the part relation argument suggests a new perspective from which to view the events highlighted in our original story. Consider the following diagramatic representation of the relationships among our five events:

The arrows in the diagram indicate causal connections. Our events e1 - e5 are complex events which each include all of the events (many of which are unnamed above) within their respective boundary as event parts. Each event e1 - e4 is itself a part of each of the higher numbered events. The direction of time flows in the same direction as the causal arrows, but it should be noted that certain of the events (e.g., A's thumb's moving and the plunger's being depressed) may occur simultaneously.
In contrast, the identity theorist's diagram would be very simple. It would have all of e1 - e5 located at a single point on the diagram, perhaps at the location of A's thumb's moving. Comparing these respective views makes one wonder about the appropriateness of the labels that have been laid upon them. The identity theorist may be a "unifier" in placing all of e1 - e5 at the same spot; but his opponent can hardly be called a "multiplier." He is simply grouping the events differently. Moreover, this grouping, in marked contrast to the "fine-grained" label, makes his events far bigger chunks of the world than those of the identity theorist.

Now I think that Figure 1 provides a very illuminating perspective from which to reflect upon the arguments we have just considered. If the events stand in the relationship depicted in the diagram, it is easy to see why the claims made in the arguments are justified.

In the case of the causal relation argument, CR1 is true, since a part of e1 (namely, A's thumb's moving) is a cause of the plunger's being depressed. On the other hand, CR2 is false, and, in fact, none of e2 - e5 is a cause of the plunger's being depressed, since each of e2 - e5 include the event of the plunger's being depressed as a part and it is a plausible causal principle that no event is a cause of one of its own parts. CR3 is true, because B's convincing C to go with him on the trip is a cause of part of e5 (namely, C's being poisoned). Finally, CR4 is false, because B's convincing C to go with him is not a cause of e1 or any of its parts. There is no need to posit intensionality in the causal relation, nor is there any need to supply complex and implausible paraphrases.
of straightforward causal statements.

Figure 1 also supports the claims made in the temporal relation argument. Event e2 is a part of e5, but this is consistent with TR1's being true and TR2's being false. We would be committed to saying that e5 was occurring (or in progress) on Tuesday, but considering the background story, this isn't an implausible claim. The diagram also explains the nature of the difficulties that we sometimes encounter in identifying the time of occurrence of an event like a killing. If the identity thesis is correct, we should have no difficulty saying on what day A's killing C (e5) took place. If e5 = e2, then, clearly, e5 occurred on Tuesday. But I think that most of us would feel unhappy with the claim that A's killing C occurred on Tuesday. Some might think that it occurred on Saturday rather than Tuesday (after all, C was in perfect health until Saturday); but the majority, I think, would feel that, given the background story, there is something odd about asking on what day e5 occurred. On the other hand, there is nothing difficult about identifying the week during which e5 occurred. If our diagram is correct, then the killing began on Tuesday, but did not end until Saturday, and this explains the fact that we have difficulty answering the one question and not the other. There is no general temporal indeterminacy problem about events like killings. The problem occurs only when one is asked to tie an event down to a time period that is less than the time period that it, in fact, occupied. It is the same difficulty that one would encounter if one were asked, of a three hour football game, at what hour it occurred. If one were to answer at all, one would most likely provide
the hour at which the game began or ended (cf. the day on which the killing began or ended); but one would not mean this to imply that the game occupied no more than that hour of time.

Figure 1 also suggests a way in which we can begin to understand the sense in which we may say that e₁ "becomes" e₂ (or e₃, e₄, e₅). As we said, e₁ does not become e₂ in the sense of becoming describable as e₂. Rather, e₁ generates or grows into e₂. Now e₁ does "grow into" e₂ (or e₃, e₄, e₅) in the diagram at least in the sense that e₂ (or e₃, e₄, e₅) results from the accretion of non-temporally-prior events onto e₁.

The "by" relation argument also fits in nicely with the view of the relationship among the events that is represented in the diagram. According to the "by" relation argument, the "by" relation is both asymmetric and irreflexive. Figure 1 shows that each of the events that stand in a "by" relation to each other also stand in a proper part relation, though in reverse order. This suggests that the "by" relation is asymmetric and irreflexive because it is intimately related to the asymmetric and irreflexive proper part relation. This also may explain the transitivity of the "by" relation. From 'e₃ By e₂' and 'e₂ By e₁', it follows that e₃ By e₁, just as from 'e₁ Proper Part e₂' and 'e₂ Proper Part e₃', it follows that e₁ Proper Part e₃.

Finally, Figure 1 gives us a way of responding to a familiar argument offered on behalf of the identity thesis. The identity theorist might claim that it is implausible to think, with respect to our story, that Adolph performed an indefinite number of actions on
Tuesday night. But (KIC*) seems to produce that result. A moved his thumb and A depressed the plunger and A injected the botulin and .... Surely A wasn't that busy on Tuesday night.

Now, if we simply think of these as distinct events, then the identity theorist's objection has some bite. But, if Figure 1 is right, the events are not wholly distinct; and this makes a big difference. All three are in process at the same time, but A need not have three hands. His moving his thumb grows into his depressing the plunger and his injecting the botulin, and, eventually, his poisoning C and his killing C, without further effort on his part.

Moreover, this objection can recoil against the identity thesis. Note that even the identity theorist must provide for all of these actions occurring on Tuesday night. Additionally, the identity theorist must claim that A's poisoning C and A's killing C also took place on Tuesday night. The identity theorist, of course, would claim that all of these actions are identical - what we are tempted to think of as distinct actions are simply various ways of describing the same event. But it is fair to ask, What is this event? Presumably, the only way to answer this question is to provide one of the action descriptions. But which one?

Anscombe (1979, p. 220) claims that any description will do, but I find this claim unsatisfying. The picture of an event intuitively suggested by the identity theory is that of some basic thing that can be described in an indefinite number of ways. There ought to be some description that is particularly apt for picking out this basic thing. Anscombe eschews the picture I have suggested. But she cannot both do
that and fail to provide identity conditions for events. How in the world are we to resolve event identity questions without either identity conditions or some picture of the basic nature of events to guide us. The identity thesis, without suitable supplementation, leaves the basic nature of any event obscure.

To summarize: If the events stand in the relationships depicted in Figure 1, this explains many of our intuitions underlying the four arguments and handles other problems as well. The identity thesis, of course, is incompatible with Figure 1. (KIC*) is compatible with Figure 1, since it provides that e1 - e5 (and all of the other events identified in Figure 1) are distinct and does not commit us to the claim that they are wholly distinct. But this is not enough. Identity conditions are supposed to tell us something about the nature of the entity that we are dealing with, and that should include some information about part relationships involving that kind of entity. I think, however, there is a natural way of extending (KIC*) to provide an account of event-part relations.

Let us reconsider the four kinds of arguments posed against the identity thesis. Each of them relied upon events standing in certain relations to one another. Events stand in causal, temporal, "by", and part relations to each other. Moreover, remember Thomson's comment with respect to the "by" relation argument. If one is to suppose that events can stand in "by" relations to other events, then why shouldn't one accept that events can stand in, e.g., "with" relations to objects? Davidson's famous (some, I suppose, would say infamous) proposal (1967b) for dealing with the logical form of
adverbial modification relies upon events standing in relations to
events, agents, objects, and having monadic properties as well.

Let us suppose that Adolph injected the botulin into the granola
bar with a syringe at 10:01 P.M. in the kitchen. On Davidson's view,
we can conclude that there is an event which has, among others, the
properties of being an injecting of botulin, being done by Adolph,
being into the granola bar, being done with a syringe, occurring at
10:01 P.M., taking place in the kitchen, and (given the full context
of our story) being a cause of C's death.

There is much controversy over the correctness of Davidson's
views about the logical form of adverbial modification. This is
a controversy in which I shall not take part here. It suffices for
my present purposes to note that Kim's view of events makes events the
types of things that can be expected to have at least some of the
properties that Davidson attributes to them.

Now, from the standpoint of one who views events as property
instantiations at times, it is legitimate to ask whether the instan-
tiations of properties (or relations) by events do not themselves
qualify as events. Such instantiations take place at times, so events
seem to qualify as "particulars" in our special sense of being
eligible for being object constituents of events. Since our assump-
tions force us to consider the possibility of events which have events
as object constituents, we should see where the consideration of such
"higher-level" events leads us.

First, we should note that the bracket notation offers a straight-
forward way of representing such higher-level events. In bracket
notation, the event of A's injecting the botulin would be described as '[[A, injects-the-botulin, 10:01]]'. This event's instantiating the property of being done with a syringe would be represented as '[[[A, injects-the-botulin, 10:01], is-done-with-a-syringe, 10:01]]'; and its instantiating the property of taking place in the kitchen would be represented as '[[[A, injects-the-botulin, 10:01], takes-place-in-the-kitchen, 10:01]]'. (KIC*), along with the notion of a permutation, also gives us some flexibility in representing the events. For example, the last event could also be represented as '[[[A, the botulin; \text{\textcircled{1}}-injects-\text{\textcircled{2}}; 10:01], the kitchen; \text{\textcircled{1}}-takes-place-in-\text{\textcircled{2}}; 10:01]]'.

Second, allowing events to be object constituents of events does not introduce any vicious circularity into (KIC*). It is true that (KIC*) defines event identity partially in terms of the identity of particulars, and we are now allowing some of those particulars to be events. But this would be viciously circular only if the identity of the event object constituents required identifying other events ad infinitum. It seems likely that repeated applications of (KIC*) to any set of events will eventually produce a decision based on the identities of particulars that are not themselves events.

Finally, allowing events to be object constituents suggests a way in which (KIC*) might be developed to give an account of event-part relations. One way, it seems, that one event can be a part of another is by being an object constituent of it. Thus, [[A, injects-the-botulin, 10:01]] is an object constituent, and hence a part of [[[A, injects-the-botulin, 10:01], is-done-with-a-syringe, 10:01]]. But
what is this latter, higher-level event? I suggest that it is the same event as \([A, \text{injects-the-botulin-with-a-syringe}, \text{10:01}]\). In rough and ready English, I claim that the event of A's injecting the botulin having the property of being done with a syringe is just the event of A's injecting the botulin with a syringe. Kim's account has notorious difficulty explaining the relationship between events such as A's injecting the botulin and A's injecting the botulin with a syringe. But if we allow events to be object constituents, and if we provide for identities such as the above, then we can explain the relationship between such events as an event-part relation. A's injecting the botulin is a part of, but not identical with, A's injecting the botulin with a syringe.

Let us return for a minute to the controversy over the identity thesis. Anscombe (1979, p. 232) claims that Davidson's views on event identity do not mesh well with his views on the logical form of adverbial modification. She cites as an example a case in which a person bribes a judge by purchasing some materials from the judge's brother. On Davidson's view, as well as Anscombe's, the purchasing of the materials from the judge's brother is the same event as the bribing of the judge. But the purchasing was done with cash, and the bribing was not done with cash. So, if one supposes that there is a property of being done with cash that is a property of events, one is forced to the conclusion that the bribing is distinct from the purchasing after all.

Now it is curious that Anscombe presents this argument. Surely, if her ploys for avoiding the causal, temporal and "by" relation
arguments worked there, they would work here just as well. Why not paraphrase the statement 'The bribing was done with cash' as 'The purchasing of the materials, which, as things turned out, was a bribing of the judge, was done with cash'? Of course, the paraphrase here is implausible; but no more so than those offered in the other cases. The moral, it seems to me, is that Davidson and Anscombe's identity claims are virtually incompatible with events being things that have properties and stand in relations. Once we allow that events have properties, even if we limit them to causal and temporal properties, the problems for the identity thesis arise.

On the other hand, if we reject the identity claim, we have no problem with events' having causal or temporal properties, and we can at least provide for the possibility that events have the more controversial types of properties, such as being done with cash. In Anscombe's example, my view would be that the purchasing of the materials was a part of the bribing of the judge. This is perfectly compatible with the claim that the purchasing of the materials was done with cash and the bribing of the judge was not. A property of the part need not be a property of the whole.

Moreover, my proposal allows us to handle adverbials that even Davidson dispairs of accounting for. For example, Davidson declines to extend his proposal to "attributives" like 'slowly' or 'quickly'. The problem here, of course, is that an action, say A's injecting the botulin, can be done quickly; but if that action is also A's killing C, it might also be done slowly. A quick injecting can produce a slow killing. But there is no problem if A's injecting the
botulin is merely a part of A's killing C. It is perfectly compatible with this relationship's holding between the events that the injecting be done quickly and the killing slowly.

So, the idea that certain events stand in proper part relations to each other rather than being identical seems to offer a number of desirable features. First, it fits in nicely with our intuitions regarding the events in or original story about A, B and C. And, of course, this suggests that the same may be true of other examples that have received attention in the literature on events. Consider the case of Donald's flipping the light switch, thereby alerting a burglar (Davidson, 1963). Our account suggests that Donald's flipping the switch is a proper part of Donald's alerting the burglar. Or consider the case of Socrates' dying and Xantippe's becoming a widow (Kim, 1974). Perhaps Socrates' dying is a proper part of Xantippe's becoming a widow. Second, the idea grows naturally out of the view of events which takes events to be property instantiations at times. This view allows us (indeed, almost forces us) to consider events which have other events as object constituents. And it may well be precisely this constituency relation that is involved in the cases that we have been considering. Third, the idea allows us the flexibility to account for adverbial modification in terms of events' having properties.

Clearly (KIC*) will not provide for the identities that we need to develop this idea. So (KIC*) must be substantially revised. Yet, we want to retain the basic insight of (KIC*) relative to the nature of events. Also we want to remember that events are always events
Our conditions should provide some central role for considerations about the types of events that are involved. Determination of event-part relations, no less than determination of event identities, should rely essentially on an analysis of the concepts which are used to identify the respective events. In the next chapter, we shall provide identity conditions and event-part conditions which meet these desiderata.

Notes


2. CR3 may conflict with one of Thomson's causal principles. She says that e causes f i f f e causes all of f's parts (1977, p. 63). However, Thomson's principle need not conflict with CR3 if one distinguishes between the causes and the is-a-cause-of relations. Thomson's principle may be correct for the causes relation, but it is too strong for the is-a-cause-of relation. Perhaps we could say that e is a cause of f i f f e is a cause of some part of f and e is wholly distinct from f.


4. Yagisawa (1979) takes a similar tack with respect to Xantippe's becoming a widow and other such "Cambridge" events.
4. EVENT IDENTITY AND PART CONDITIONS

Before presenting the identity conditions, some introductory comments are in order. I shall use the variables 'x', 'y', and 'w' to range over particulars (including events), the variables 'F', 'G' and 'H' to range over properties, the variable 't' (and its primes) to range over times, and the variables 'e' and 'f' to range over events. I shall also name particular events with expressions such as 'e1', 'e2', etc. The brackets '[]', the notion of a permutation and the variable 'k' ranging over permutations shall be used in the same way as for (KIC*).

We shall say that property F entails property G (in symbols, \( F \rightarrow G \)) just in case \( \Box(t)((\exists x_1)...(\exists x_n)Fx_1...x_n \text{ at } t \supset (\exists y_1)...(\exists y_m)Gy_1...y_m \text{ at } t) \). We shall also introduce a property unification operator '\( \otimes \)', which takes two properties into a single combined property. For example, the result of applying \( \otimes \) to runs and is-slow (which will be represented as '\( \otimes (\text{runs, is-slow}) \)') is runs-slowly. Note that in this example runs is a property of animate things and is-slow is a property of events. On my view, this does not mean that the properties are of different types or levels. Both properties are properties of particulars.  

Let me first introduce the conditions and then explain and demonstrate their operation:
Monadic Identity Condition (MIC)

Where e is \([x, F, t]\) and f is \([y, G, t']\), e=f iff either:

1. \(x=y\), and \(F=G\) and \(t=t'\); or
2. \(x\) is itself an event, say \([w, H, t'']\), and \(w=y\), \(H(F)\rightarrow G\) and \(t=t'\); or
3. \(y\) is itself an event, say \([w, H, t'']\), and \(w=x\), \(H(G)\rightarrow F\) and \(t=t'\).

General Identity Condition (GIC)

Where e is \([x_1,\ldots,x_n; F; t]\) and f is \([y_1,\ldots,y_m; G; t']\), e=f iff either:

1. there exists a permutation \(k\) such that \(k(x_1,\ldots,x_n) = y_1,\ldots,y_m\), and \(k(F)=G\) and \(t=t'\); or
2. some \(x_i\) (where \(1 \leq i \leq n\)) is itself an event, say \([w_1,\ldots,w_j; H; t'']\), and there exists a permutation \(k\) such that (where \(x_1,\ldots,x_{(n+j)-1}\) is the sequence resulting from replacing \(x_i\) with \(w_1,\ldots,w_j\) in \(x_1,\ldots,x_n\)) \(k(x_1,\ldots,x_{(n+j)-1}) = y_1,\ldots,y_m\), and \(k(\bigcap H,F))\rightarrow G\), and \(t=t'\); or
3. some \(y_i\) (where \(1 \leq i \leq m\)) is itself an event, say \([w_1,\ldots,w_j; H; t'']\), and there exists a permutation \(k\) such that (where \(y_1,\ldots,y_{(m+j)-1}\) is the sequence resulting from replacing \(y_i\) with \(w_1,\ldots,w_j\) in \(y_1,\ldots,y_m\)) \(k(y_1,\ldots,y_{(m+j)-1}) = x_1,\ldots,x_n\), and \(k(\bigcap H,G))\rightarrow F\), and \(t=t'\).
(MIC) is a special case of (GIC), which applies whenever the constituent properties of both events are monadic properties. I have listed it separately because it is easier to see how the conditions operate for (MIC) than for (GIC), where the requirement of generality introduces an unavoidable degree of complexity. I shall demonstrate how the conditions operate by starting with a case that involves only (MIC), then moving on to more complex cases where all of the features of (GIC) come into play. The conditions meet the desiderata stated at the end of the last section. They obviously maintain Kim's basic insight about the nature of events. (The reader might note that (MIC)(1) is (KIC) and (GIC)(1) is (KIC*).) And, by means of the property unification operator and the requirement of property entailment, they assure that the analysis of the constituent concept involved in the events shall play a central role in determinations of event identity and event-part relations. The nature of this role will become clear as we work through the following examples.

Consider the following events:

- e1: John's walking at t,
- e2: John's walking softly at t,
- e3: John's walking softly, slowly, at t,
- e4: John's walking softly, slowly, carefully, at t,
- e5: John's walking softly, slowly, carefully, through the minefield at t.

Davidson would presumably claim that e1=e2=e3=e4=e5, explaining that each subsequent expression in the above list is simply a more complete description of the event to which they all refer. Kim,
Goldman and I would claim that \( e_1 \neq e_2 \neq e_3 \neq e_4 \neq e_5 \). I would claim in addition that while these events are not identical, neither are they wholly distinct. Each event in the list is a constituent of each of the events following it in the list. These claims can be justified by looking at the canonical expressions of \( e_1 \) to \( e_5 \) in Kim notation:

\[
\begin{align*}
e_1 & : [J, \text{walks}, t], \\
e_2 & : [J, \text{walks-softly}, t], \\
e_3 & : [J, \text{walks-softly-slowly}, t], \\
e_4 & : [J, \text{walks-softly-slowly-carefully}, t], \\
e_5 & : [J, \text{walks-softly-slowly-carefully-through-the-minefield}, t].
\end{align*}
\]

The events are not identical, since they have different property-constituents. But consider the following related events:

\[
\begin{align*}
e_2^* & : [[J, \text{walks}, t], \text{is-soft}, t], \\
e_3^* & : [[J, \text{walks-softly}, t], \text{is-slow}, t], \\
e_4^* & : [[J, \text{walks-softly-slowly}, t], \text{is-careful}, t], \\
e_5^* & : [[J, \text{walks-softly-slowly-carefully}, t], \text{is-through-the-minefield}, t].
\end{align*}
\]

(The reader should note that the property constituents of \( e_2^*-e_5^* \) are all properties of events. It admittedly sounds awkward to say that an event is soft, or slow, or careful, etc. The awkwardness can be relieved by mentioning the constituent property of the object event when talking about exemplifying such properties. Thus, rather than state the claims as phrased above, I would say that an event is a soft walking, or a slow walking, or a careful walking.)
I claim that (MIC)(2) produces the result that $e_2^*=e_2$, $e_3^*=e_3$, $e_4^*=e_4$, and $e_5^*=e_5$. Let us consider the first two identities in some detail. $e_2^*=e_2$ by (MIC)(2), since the object-constituent of $e_2^*$ is itself an event, viz. $e_1$, $J=J$, $\forall(\text{walks, is-soft}) \rightarrow \text{walks-softly}$, and $t=t$. $e_3^*-e_3$ by (MIC)(2), since the object-constituent of $e_3^*$ is itself an event, viz. $e_2$, $J=J$, $\forall(\text{walks-softly, is-slow}) \rightarrow \text{walks-softly-slowly}$, and $t=t$. The remaining identities are derived in a similar manner. The following argument then shows that $e_1$ is a constituent of $e_5$:

1. $e_1$ is a constituent of $e_2^*$,
2. $e_2^*=e_2$,
3. $e_1$ is a constituent of $e_2$, by (1), (2).
4. $e_2$ is a constituent of $e_3^*$.
5. $e_3^*=e_3$.
6. $e_1$ is a constituent of $e_3$, by (3), (4), (5).
7. $e_3$ is a constituent of $e_4^*$.
8. $e_4^*=e_4$.
9. $e_1$ is a constituent of $e_4$, by (6), (7), (8).
10. $e_4$ is a constituent of $e_5^*$.
11. $e_5^*=e_5$.
12. $e_1$ is a constituent of $e_5$, by (9), (10), (11).

A similar argument, which shall be spared the reader, shows that $[[[[[J, \text{walks, t}], \text{is-soft, t}], \text{is-slow, t}], \text{is-careful, t}], \text{is-through-the-minefield, t}]=e_5$. These results are consistent with Davidson's account of the logical form of event sentences, since $e_1$ can be said to have an indefinite number of attributes including being
soft, slow, careful, and through-the-minefield. My account simply provides that el's havings of these properties are distinct (but not wholly distinct) events from el. Thus, my account shows that Davidson's proposals for logical form are not essentially tied to his identity claims for events.

I next consider an example of Davidson's (1963) to which the literature on events often refers:

el: Donald's flipping of the switch at t,
e2: Donald's alerting of the burglar at t'.

The context of these events is that John's flipping of the switch causes the light to go on, and this causes the burglar to be alerted. Given this context, Davidson would say that el=e2, whereas Kim, Goldman and I would say that el≠e2. Again, I would make the further claim that while these events are not identical, neither are they wholly distinct; el is an object-constituent of e2. To see this, consider the following events described in canonical notation:

el: [D, s; 1-flips-2; t],
e2: [D, b; 1-alerts-2; t'],
e3: [D, b; 1-is-an-agent-in-some-event-that-causes-2-to-be-alerted; t'],
e4: [D, 1-flips-the-switch, t],
e5: [e4, b; 1-causes-2-to-be-alerted; t'].

Condition (GIC) provides that el is a constituent of e2 in the following way:
(1) \( e_2 = e_3 \) by (GIC)(1), since there is a \( k \) such that \( k(D, b) = D, b, k(\text{alerts} - 2) = \text{is-an-agent-in-some-event-that-causes-to-be-alerted}, \) and \( t' = t' \)

(2) \( e_1 = e_4 \) by (GIC)(1), since there exists a \( k \) such that \( k(D, s) = D, \) and \( k(\text{flips} - 2) = \text{flips-the-switch}, \) and \( t = t. \)

(3) \( e_4 \) is a constituent of \( e_5. \)

(4) \( e_1 \) is a constituent of \( e_5, \) by (2), (3).

(5) \( e_5 = e_3, \) by (GIC)(2). First, \( e_4 \) is itself an event. Second, there exists a \( k \) such that \( k(D, b) = D, b. \)

(Note that \( D, b \) is the result of replacing \( e_4 \) with \( D \) in \( e_4, b. \)) Third, \( \varphi(\text{flips-the-switch}, \text{causes-to-be-alerted}) = \text{flips-the-switch-causing-to-be-alerted}. \) Fourth, \( k(\text{flips-the-switch-causing-to-be-alerted}) \rightarrow \text{is-an-agent-in-some-event-that-causes-to-be-alerted}. \) Finally, \( t' = t'. \)

(6) \( e_1 \) is a constituent of \( e_2, \) by (4), (5), (1).

Now consider this more complex case:

\begin{align*}
    e_1 & : \text{Harry's hopping at } t, \\
    e_2 & : \text{Harry's hopping on one foot at } t, \\
    e_3 & : \text{Harry's hopping on one foot, out the window, at } t, \\
    e_4 & : \text{Harry's committing suicide at } t'.
\end{align*}

Given the context that Harry's one-footed hop out the window was intended by Harry to cause his death and it did so, Davidson would presumably claim that \( e_1 = e_2 = e_3 = e_4 \) (and, incidentally, that \( t = t' \)). My claim is that \( e_1 \neq e_2 \neq e_3 \neq e_4, \) but that \( e_1 \) is a constituent of \( e_4. \)
Consider the following series of events described in canonical notation:

\[
\begin{align*}
e_1 &: [H, \text{hops, } t], \\
e_2^*: &[[H, \text{hops, } t], \text{is-on-one-foot, } t], \\
e_2 &: [H, \text{hops-on-one-foot, } t], \\
e_3^*: &[[H, \text{hops-on-one-foot, } t] \text{is-out-the-window, } t], \\
e_3 &: [H, \text{hops-on-one-foot-out-the-window, } t], \\
e_4 &: [H, \text{commits-suicide, } t'], \\
e_5 &: [H, \overset{1}{\text{is-an-agent-in-an-action-that-causes-}} \overset{1}{\text{to-die-and-this-is-intentional-of-}} t'], \\
e_6 &: [e_3, H; \overset{1}{\text{causes-}} \overset{2}{\text{to-die; } t'}], \\
e_7 &: [H, \overset{1}{\text{is-an-agent-in-an-action-that-causes-}} \overset{1}{\text{to-die, } t'}], \\
e_8 &: [e_7, H; \overset{1}{\text{is-intended-by-}} \overset{2}{\text{; } t'}].
\end{align*}
\]

By an argument similar to that used for the case of John's walking through the minefield, it can easily be shown that \(e_1\) is a constituent of \(e_3\). Showing that \(e_3\) is a constituent of \(e_4\), however, introduces some new wrinkles, and this justifies going through the derivation in detail.

1. \(e_4 = e_5\) by (GIC)(1). The interesting feature here is the claim that \(\text{commits-suicide} = \overset{1}{\text{is-an-agent-in-an-action-that-causes-}} \overset{1}{\text{to-die-and-this-is-intentional-of-}}\). Any kind of analysis like this is bound to be controversial, but I hope that it is at least nearly correct, and I think it is clear in any event that the 'this' in the second conjunct of the analysans
refers not only to \(1\)'s action but to \(1\)'s action causing \(1\)'s death.

(2) \(e3\) is a constituent of \(e6\).

(3) \(e6=7\), by (GIC)(2). \(e3\) is itself an event. There exists a \(k\) such that \(k(H,H) = H\). (Note that \(H,H\) is the result of replacing \(e3\) with \(H\) in \(e3,H\).) \[H(\text{\(1\)}\text{-hops-on-one-foot-out-the-window, \(1\)}\text{-causes-\(2\)} \text{-to-die}) \]

\[=\text{\(1\)}\text{-hops-one-one-foot-out-the-window-causing-\(2\)} \text{-to-die}.\] Now \(k(\text{\(1\)}\text{-hops-on-one-foot-out-the-window-causing-\(2\)} \text{-to-die}) = \text{\(1\)}\text{-hops-on-one-foot-out-the-window-causing-\(1\)} \text{-to-die}.\) And this property entails \(1\) is an agent in an action that causes \(1\) to die. Finally, \(t'=t'\).

(4) \(e7\) is a constituent of \(e8\).

(5) \(e8=e5\), by (GIC)(2). \(e7\) is itself an event. There exists a \(k\) such that \(k(H,H) = H\). \[H(\text{\(1\)}\text{-is-an-agent-in-an-action-that-causes-\(1\)} \text{-to-die, \(1\)} \text{-is-intended-by-\(2\)} ) = \text{\(1\)}\text{-is-an-agent-in-an-action-that-causes-\(1\)} \text{-to-die-and-this-is-intentional-of-\(2\)} \]

Now \(k\) applied to this property gives \(1\) is an agent in an action that causes \(1\) to die and this is intentional of \(1\). Finally, \(t'=t'\).

(6) \(e3\) is a constituent of \(e4\), by (2), (3), (4), (5), and (1).

Finally, consider the following, rather different type of case, which is one of Kim's (1974) examples:
el: Socrates' death at t,
e2: Xantippe's becoming a widow at t.

Again, I claim that el#e2, but el is a constituent of e2. The relevant events in canonical notation are:

el: [S, dies, t],
e2: [X, becomes-a-widow, t],
e3: [X, 1-is-a-woman-and-2-is-married-to-someone-at-the-time-that-person-dies, t],
e4: [X, S, el; 1-is-a-woman-and-2-is-married-to-3-at-the-time-that-3-occurs, t],

The derivation of the claim that el is a constituent of e2 is as follows:

1. e2=e3, by (GIC)(1).
2. el is a constituent of e4.
3. e4=e3, by (GIC)(2). el is itself an event. There exists a k such that k(X, S, S) = X. \( ∀(1)-dies, 1\)-is-a-woman-and-2-is-married-to-2-at-the-time-that-3-occurs = 1-is-a-woman-and-1-is-married-to-2-at-the-time-that-3-dies. And k(1-is-a-woman-and-1-is-married-to-2-at-the-time-that-3-dies) = 1-is-a-woman-and-1-is-married-to-Socrates-at-the-time-that-Socrates-dies. Finally, this property entails: 1-is-a-woman-and-1-is-married-to-someone-at-the-time-that-person-dies.

Before going on to give event-part conditions, I want to use (MIC) and (GIC) to respond to a criticism of Kim's account of events that we
have not yet considered. Irving Thalberg asks, with respect to the relation between property, time, and object in a Kim-type event, "Isn't this 'having', this 'being', this 'instantiating' or 'exemplifying' between object and attribute some kind of event - a transaction or getting together 'at a time'?" (1978, p.8). The implication of Thalberg's remark is that Kim's account "explains" events in terms of events and, thus, does not really explain events at all.

Now, I think that Thalberg's criticism is justified only if Kim's account is looked upon as an attempt to reduce events to properties, particulars and times. But I have already noted that neither Kim nor I make any reductionist claims. Of course the exemplifying of F by x at t is an event. How else could it be x's F-ing at t?

This last consideration shows the way to the answer of a related criticism. If x's exemplifying F at t is itself an event, doesn't this view lead to a vicious generation of events? That is, given the occurrence of the event [x, F, t], do we not also have the events [x, exemplifies-F, t], [x, exemplifies-exemplifying-F, t] and so on? The answer is that there is no vicious regress since (MIC) (and, indeed, (KIC)) provides that [x, F, t] = [x, exemplifies-F, t] = [x, exemplifies-exemplifying-F, t] = ... The property constituents of these events are identical since F is the same property as exemplifies-F, and so on. All of these canonical notations, then, describe the same event. X's exemplifying F at t is simply a helpful way (for the very special purpose of revealing the structure of events) of describing x's F-ing at t. While an infinite number of further descriptions
of this event are available, there is no compunction to offer them.

Now, it might be claimed that my account becomes subject to a
different type of vicious generation of events by allowing events to
be object constituents and by characterizing an occurrence predicate.
Suppose that \([x, F, t]\) occurs. Then do we not also have the events
\([[x, F, t]; \text{occurs}; t], [[[x, F, t]; \text{occurs}; t]; \text{occurs}; t]\) and so
on? The illusion of a vicious generation, however, is dispelled in
the same way as above. (MIC) provides that \([x, F, t] = [[x, F, t],
\text{occurs}, t]\), since \(x=x, \mathcal{M}(\text{Fs}, \text{occurs}) = \text{Fs},\) and this entails \(\text{occurs}, t = t.\) On reflection, this result may
seem counterintuitive. How can \(e\) be identical with \([e, \text{occurs}, t]\)
when \(e\) is one of the constituents of \([e, \text{occurs}, t]\)? The answer is
that while an object constituent of an event is a part of that event,
nothing in my account requires that it be a proper part. The other
constituents of \([e, \text{occurs}, t]\), viz. \(\text{occurs}\) and \(t\), are constituents
of this event by virtue of the fact that they are constituents of \(e\).
This means that \(\text{occurs}\) is a property constituent of every occurrent
event. But this doesn't sound implausible to me.

I shall conclude by trying to formulate event-part conditions.
The tripartite structure of a Kim-type event suggests that one event
can be a part of another in any of three ways. It can have an
object constituent, property constituent or time constituent that is
part of the respective constituent of the including event. Examples
of the three types of cases are:

(1) The lower half of the window pane's shattering is a
part of the entire window pane's shattering.
(2) Adolph's moving his thumb is a part of Adolph's killing Clarissa,

(3) Jane's running from 10:00 to 10:10 is a part of Jane's running from 10:00 to 10:30.

Case (2) is covered by the notion of one event's being an object constituent of another as characterized by (MIC) and (GIC). The other cases are relatively straightforward. I think that the following condition will handle all three.

**Event Part Condition (EPC)**

Where \( e = [x_1, \ldots, x_n; F; t] \) and \( f = [y_1, \ldots, y_m; G; t'] \), \( e \) is a part of \( f \) iff either:

1. \( e \) and \( f \) satisfy (GIC) except perhaps that:
   - (i) \( k(x_1, \ldots, x_n) \neq y_1, \ldots, y_m \) only because some one or more of \( x_1, \ldots, x_n \) is a part of one or more of \( y_1, \ldots, y_m \); or
   - (ii) \( k(x_1, \ldots, x(n+j)-1) \neq y_1, \ldots, y_m \) only because one or more of \( x_1, \ldots, x(n+j)-1 \) is a part of one or more of \( y_1, \ldots, y_m \); or
   - (iii) \( t \neq t' \), but \( t \) is a part of \( t' \); or
2. \( e=y_i \) or \( e \) is a part of \( y_i \) for some \( i \) such that \( 1 \leq i \leq m \).

There is a hint of circularity in (EPC)(2), since it mentions \( e \)'s being a part of another event \( y_i \). But the circularity is not vicious, since \( e \)'s being a part of another event \( y_i \) can ultimately be expected to be determined by (EPC)(1) or by the first disjunct in (EPC)(2). Given (EPC), a proper part condition is easy to formulate.
(EPPC): e is a proper part of f iff e is a part of f and e ≠ f.

Let us apply (EPPC) to examples (1), (2) and (3) above to demonstrate the operation of the conditions and to make sure the right results are obtained. Cases (1) and (3) can be covered very quickly:

Case (1): Let e = [the lower half of the window pane, shatters, t] and f = [the window pane, shatters, t']. Now e and f partially satisfy (GIC) (1) in that there exists a k such that k(shatters) = shatters, and t = t'. The only reason that e and f do not satisfy (GIC) (1) completely is that k(the lower half of the window pane) ≠ the window pane. But the lower half of the window pane is a part of the window pane. Therefore, e and f satisfy (EPC) (1) (i); and thus e is a part of f.

Case (3): Let e = [Jane, runs, 10:00-10:10] and f = [Jane, runs, 10:00-10:30]. Now, in this case, there exists a k such that k(Jane) = Jane and k(runs) = runs. The only reason why e and f do not satisfy (GIC) (1) is that 10:00-10:10 ≠ 10:00-10:30. But 10:00-10:10 is a part of 10:00-10:30. So e and f satisfy (EPC) (1) (iii), and thus e is a part of f.

Case (2) is best considered in the context of the entire story that we discussed in the last section. We not only want our conditions to produce the result that A's moving his thumb is a part of A's killing C, we also want them to produce all of the relationships among the events as represented in Figure 1. For this reason, we should consider all of the following events (where 'T' stands for 'Tuesday night' and 'S' stands for 'Saturday afternoon'):
e1:  A's moving his thumb at 10:01 T,  
e2:  A's depressing the plunger at 10:01 T,  
e3:  A's injecting the botulin into the bar at 10:01 T,  
e4:  A's poisoning C through 10:01 T to 12:00 S,  
e5:  A's killing C through 10:01 T to 1:00 S,  
e6:  A's wanting to move his thumb at 10:01 T,  
e7:  A's thumb's moving at 10:01 T,  
e8:  the plunger's being depressed at 10:01 T,  
e9:  the botulin's entering the bar at 10:01 T,  
e10:  C's being poisoned at 12:00 S,  
e11:  C's going into convulsions at 12:15 S,  
e12:  C's dying at 1:00 S.

Figure 1 indicates that the following relationships hold among these twelve events:

   e1 is a part of e2, e3, e4 and e5,  
   e2 is a part of e3, e4 and e5,  
   e3 is a part of e4 and e5,  
   e4 is a part of e5,  
   e6 and e7 and parts of e1, e2, e3, e4 and e5,  
   e8 is a part of e2, e3, e4 and e5,  
   e9 is a part of e3, e4 and e5,  
   e10 is a part of e4 and e5,  
   e11 and e12 are parts of e5.

All of these relationships can be derived from (GIC) and (EPC). A sampling of these derivations will justify my claim and further demonstrate the operation of (GIC) and (EPC). I shall concentrate
on showing that the conditions provide the results that $e_1$ is a part of $e_2$, $e_3$, $e_4$ and $e_5$, that $e_6$ and $e_7$ are parts of $e_2$, $e_3$, $e_4$ and $e_5$, and that $e_{11}$ is a part of $e_5$. Along the way, we will also derive certain of the other relationships, and it will become quite clear how all of the other derivations would go.

First, let me demonstrate the following claims:

(a) $e_1$ is a part of $e_2$,
(b) $e_2$ is a part of $e_3$,
(c) $e_3$ is a part of $e_4$,
(d) $e_4$ is a part of $e_5$.

(a). In canonical notation $e_1$ and $e_2$ are $'[A, \text{moves-his-thumb}, 10:01 T]'$ and $'[A, \text{depresses-the-plunger}, 10:01 T]'$. Now, by (GIC) (1) (since these are monadic events, (MIC) would do just as well) $[A, \text{depresses-the-plunger}, 10:01 T]$ is identical with $[A, \text{is-the-agent-in-an-action-that-causes-the-plunger's-being-depressed}, 10:01 T]$. Furthermore, by (GIC) (3), this event is identical with the complex event $[[A, \text{moves-his-thumb}, 10:01 T], \text{causes-the-plunger's-being-depressed}, 10:01 T]$. Now refer to (EPC) and let $e$ be $[A, \text{moves-his-thumb}, 10:01 T]$ (i.e., $e_1$) and let $f$ be $[[A, \text{moves-his-thumb}, 10:01 T], \text{causes-the-plunger's-being-depressed}, 10:01 T]$ (i.e., $e_2$). It is clear that $e$ and $f$ satisfy the first disjunct of (EPC) (2), and thus that $e_1$ is a part of $e_2$.

(b). In canonical notation $e_3$ is $'[A, \text{injects-the-botulin-into-the-bar}, 10:01 T]'$. By (GIC) (1), this event is identical with $[A, \text{is-the-agent-in-an-action-that-causes-the-botulin's-being-injected-into-the-bar}, 10:01 T]$. By (GIC) (3), this event is identical with
the complex event [[A, depresses-the-plunger, 10:01 T], causes-the-
botulin's-being-injected-into-the-bar, 10:01 T]. Again, by the first
disjunct of (EPC) (2), e2 is a part of e3.

(c). In canonical notation, e4 is '[[A, poisons-C, 10:01 T -
12:00 S]]'. By (GIC) (1), this event is identical with [[A, is-an-agent-
in-an-action-that-causes-C-to-be-poisoned, 10:01 T - 12:00 S]]; and,
by (GIC) (3), this identical with [[A, injects-the-botulin-into-
the-bar, 10:01 T], causes-C-to-be-poisoned, 10:01 T - 12:00 S].
Again, by the first disjunct of (EPC) (2), e3 is a part of e4.

(d). In canonical notation, e5 is '[[A, kills-C, 10:01 T - 1:00
S]]'. By (GIC) (1), this event is identical with [[A, is-an-agent-in-an-
action-that-causes-C's-death, 10:01 T - 1:00 S]]; and, by (GIC)(3),
this is identical with [[A, poisons-C, 10:01 T - 12:00 S], causes-C's-
death, 10:01 T - 1:00 S]. Again, by the first disjunct of (EPC) (2),
e4 is a part of e5.

Now that we have established claims (a) - (d), it is easy to show
that e1 is a part of e2, e3, e4, and e5. That e1 is a part of e2 is
shown immediately by claim (a). That e1 is a part of e3 follows from
claim (a) and the second disjunct of (EPC) (2). For, as shown in
claim (b), e3 is [[A, depresses-the-plunger, 10:01 T], causes-the-
botulin-to-be-injected-into-the-bar, 10:01 T], and claim (a) shows
that e1 is a part of [[A, depresses-the-plunger, 10:01].

Showing that e1 is a part of e4 is a little more complex.
Remember, as shown in claim (c), that e4 is [[A, injects-the-botulin-
into-the-bar, 10:01 T], causes-C-to-be-poisoned, 10:01 T - 12:00 S].
Therefore, if e1 is a part of [[A, injects-the-botulin-into-the-bar,
10:01 T], it is a part of e4, by the second disjunct of (EPC) (2). But [A, injects-the-botulin-into-the-bar, 10:01 T] is e3, and we have shown above that e1 is a part of e3. So, it follows that e1 is a part of e4.

In the same way, we show that e1 is a part of e5. As shown in deriving claim (d), e5 is [[A, poisons-C, 10:01 T - 12:00 S], causes-C's-death, 10:01 T - 1:00 S]. So, if e1 is a part of [A, poisons-C, 10:01 T - 12:00 S], then, by (EPC) (2), e1 is a part of e5. But [A, poisons-C, 10:01 T - 12:00 S] is e4, and we have shown that e1 is a part of e4. So, e1 is a part of e5.

Now we show that e6 and e7 are parts of e1, e2, e3, e4 and e5. First, (GIC) (3) provides that e1 is identical with [[A, wants-to-move-his-thumb, 10:01 T], [A's thumb, moves 10:01 T]; CD-causes-C?]; 10:01 T]. The details of how (GIC) provides this result might be of interest. Let e be [A, wants-to-move-his-thumb-and-this-causes-his-thumb-to-move, 10:01 T], and let f be [[A, wants-to-move-his-thumb, 10:01 T], [A's thumb, moves, 10:01 T]; 1-causes-2; 10:01 T]. The y^1 in this case is [A, wants-to-move-his-thumb, 10:01 T], and the sequence y_1, ..., y_(m+j)-1 is A, [A's thumb, moves, 10:01 T]. Now H is wants-to-move-his-thumb and G is 1-causes-2, so W(G,H) is 1-wants-to-move-his-thumb-and-this-causes-2. There exists a permutation k such that k( A, (A's thumb, moves 10:01 T) ) = A and k(1-wants-to-move-this-thumb-and-this-causes-this-thumb's-moving) = 1-wants-to-move-his-thumb-and-this-causes-his-thumb's-moving. This property entails 1-moves-his-thumb (i.e., F). Finally, 10:01 T = 10:01 T.
Given that $e_1$ is identical with $[\text{[A, wants-to-move-his-thumb, 10:01 T]}, [\text{A's thumb, moves, 10:01 T}]; \text{\textcircled{1}-causes-\textcircled{2}; 10:01 T}]$, it follows immediately by the first disjunct of (EPC) $(2)$ that $e_6$ and $e_7$ are parts of $e_1$. Furthermore, since we have already shown above that $e_1$ is a part of $e_2$, $e_3$, $e_4$ and $e_5$, it is easy to show that $e_6$ and $e_7$ are also parts of $e_2$, $e_3$, $e_4$ and $e_5$.

Finally, we show that $e_{11}$ is a part of $e_5$. In order to do this we must take note of an event we have not yet explicitly considered, viz., A's causing C to go into convulsions. Call this event $e_{13}$. In canonical notation, $e_{13}$ is '$[\text{A, causes-C-to-go-into-convulsions, 10:01 T - 12:15 S}]'$. By (GIC) it can be shown that this event is identical with $[\text{A, e_{11}; \text{\textcircled{1}-is-an-agent-in-some-action-that-causes-\textcircled{2}, 10:01 T - 12:15 S}]$. Thus, it follows by the first disjunct of (EPC) $(2)$ that $e_{11}$ is a part of $e_{13}$. Now it can be shown by (GIC) that $e_5$ is identical with $[e_{13}, e_{12}; \text{\textcircled{1}-causes-\textcircled{2}, 10:01 T - 1:00 S}]$. Again, by the first disjunct of (EPC) $(2)$, it follows that $e_{13}$ is a part of $e_5$; and, by the second disjunct of (EPC) $(2)$, it follows that $e_{11}$ is a part of $e_5$.

Of the accounts of events that we have considered, only Thomson's attempts to present event-part conditions. As we have seen, Thomson's account concentrates on "complete" events, and it makes use of the notion of one event's being a part of another in defining the notion of "complete" event. Moreover, perhaps since she develops identity conditions out of part conditions (rather than the other way around), Thomson's account fails to give any clear picture of what kind of things events are.
Our account starts with Kim's view of events as property exemplifications at times. As we have seen, this captures a broad notion of event; and this is the notion that is applicable to the broadest range of philosophic problems. Our account shares with Kim's the advantages of not requiring a primitive notion of causality, not begging questions concerning the physical location of events or questions concerning universal causation, and not being circular. Our account departs from Kim's in giving explicit eligibility criteria for object, property and time constituents. It also differs from Kim's in proposing that synonomy is the basis for property identity conditions. Finally, our account represents a significant advance over Kim's in explicitly allowing for the existence of events which involve other events as object constituents. The extended identity conditions that are required to cover cases involving such "higher-level" events resolve important questions that are left open by Kim's account. Moreover, our identity conditions, unlike Kim's, show how conceptual analysis can manage to say something about the non-linguistic world. The analysis of concepts that are property constituents of events plays a central role in determining the nature of the relationship between actual occurrent events.

Finally, the identity conditions serve as the basis for developing fully general part conditions for events. I suspect that most of the interesting questions concerning relationships between events will involve questions about event-part relationships. This is suggested by the examples and derivations that we have considered in this section. We shall see just how significant the event-part
relationship is when we apply the resources we have developed so far to the problems concerning causings, actions, and perceivings.

Notes

1. The reader who is interested in a more formal explication of the mechanics of the '_workers' operator is directed to the Appendix.

2. I am assuming here that the \( \text{\textcircled{1}} \text{-is-a-constituent-of-\textcircled{2}} \) relation is transitive. This will later be justified by the event-part conditions.

3. To avoid unnecessary complexity, I have not attempted to give a full or entirely adequate analysis of the property \( \text{\textcircled{1}} \text{-alerts-\textcircled{2}} \). For one thing, my account is inadequate in that events involving inanimate objects can also alert people. In the case at hand, for example, there is the event of the light's going on alerting the burglar. Perhaps a more adequate analysis would be something like: either \(-\text{\textcircled{1}} \text{-is-an-agent-in-some-event-}\text{or}-\text{\textcircled{1} is-some-event-such-that-there-exists-an-event-causal-chain-between-that-event-and-the-event-of-\textcircled{2}'s-being-alerted}. \) Even this takes the notion of agent as primitive, and it may need further qualification or restriction.

I shall not make claims of adequacy for any of the analyses that I offer in this section. I am committed, of course, to the claim that adequate analyses would support the various derivations using (GIC) that I illustrate. I hope that my analyses are good enough to make this claim plausible.

4. In the Appendix I offer a demonstration of the way the '\(_w\)' operator applies in steps (3) and (5) of the derivation.

5. This criticism was suggested to me by Marshall Swain.
5. CAUSINGS

Our account of events allows us to view causings as higher level events consisting of two or more events standing in a causal relationship to each other. I shall have little to say about what the nature of that causal relationship is. That is too broad and difficult a question for us to attack here. Suffice it to say that our account of events provides a valuable service to anyone who takes causation essentially to involve a certain kind of relationship between events. Our account has been carefully designed so as not to make use of the notion of causation in saying what an event is. Also, we have strived to include within our account all of the kinds of things that can enter into causal relationships.

The last point, however, is subject to challenge. There appear to be things that enter into causal relationships that are not events, even in the broad sense of 'event' we have adopted. People cause things and so do objects, but neither are events. Also, what about the cases where something's not happening is either a cause or effect of something else? In this chapter, we will consider the case of "negative events" (something's not happening) and the case of object causation. In the next chapter, we will consider the case of agent causation as part of our investigation of actions.
Do "negative events" or "acts of omission" - such things as John's not noticing the stop sign or the failure of the sprinkler system to go off - exist? The primary reason for thinking that there are such things is that we sometimes make claims which give the appearance that such entities enter into causal relationships. For example, one might claim that John's not noticing the stop sign was a cause of the accident or that the failure of the sprinkler system was a cause of the building's being destroyed by fire.

In spite of the fact that we sometimes make such claims, however, there is overwhelming reason to think that negative events and acts of omission do not exist. For one thing, there is a serious problem in specifying the time at which such events or acts occur. Specifying the time that John noticed the stop sign or the time that the sprinkler system went off is easy, but how do we specify the time at which John failed to notice the stop sign or the time at which the sprinkler system failed to go off. Are these events occurring at all times other than times during which John is noticing the stop sign or the sprinkler system isn't going off?

Secondly, if negative events exist, then there are a great number of them, and there would appear to be little justification for only picking out certain of these as being causally efficacious. If John's not noticing the stop sign was a cause of the accident, then why isn't it the case that John's not staying in bed, or John's car's not running out of gas before reaching the intersection, or the other car's not being trampled by a herd of elephants are not also causes of the accident?
Finally, the whole view of events that we have developed is at odds with the existence of negative events. Our view takes events to be property exemplifications at times, but a negative event is a case where something fails to exemplify a property. Moreover, we have taken events to be particulars, things that are themselves parts of the world. If we count negative events among the parts of the world, we will have an extremely overpopulated world. It is true that a great number of events exist according to our account; but, as we have seen, many of these events are complex events simply consisting of other events as parts. These part relationships allow us to explain how all of these occurrent events can fit together in the world without overpopulating it.

One might suggest, however, that other features of our view make it difficult to deny the existence of negative events. Consider the case of John's not noticing the stop sign. Granted that John's failure to exemplify the property, notices-the-stop-sign, is not an event, why isn't it the case that there is a different property, does-not-notice-the-stop-sign, such that John does exemplify it, and such that his exemplification of it is a bona fide event?

Ignoring for a moment the troublesome matter of specifying the time constituent, we can represent this putative event as: [John, does-not-notice-the-stop-sign, t]. Let us suppose that this event exists. By (GIC), it can be shown that this event is identical to: [[John, notices-the-stop-sign, t], does-not-occur, t]. But this event does not exist, since its object constituent does not exist. Therefore, our supposition has led us to the result that this event both
exists and doesn't exist, and we can conclude by reductio that there is no such event as John's not noticing the stop sign.

My conditions allow for the existence of events having as property constituents any property or relation of events that entails the existence of the events having that property or standing in that relation at the appropriate time. "Negative properties", such as does-not-notice-the-stop-sign, analyzed as properties of events, entail that the item having the property does not exist. "Disjunctive relations" or "material conditional relations" of events are not eligible as property constituents since, even though they are compatible with the existence of the events standing in the relation, they do not entail that they (all) exist. "Conjunctive relations", on the other hand, are eligible as property constituents. A conjunctive relation's holding between events constitutes a new event having the other events as parts. A disjunctive or material conditional relation's holding between events would, if anything, represent an entity that might have non-existant parts; and no occurrent event is an entity like that.

If I am correct and there are no negative events, then how is one supposed to understand such causal claims as John's not noticing the stop sign was a cause of the accident? Moreover, we might note that on the basis of such a claim, one can go on to make the further causal claim that John caused the accident. Not only do negative events seem to be causally efficacious, they seem to provide a basis for attributing causal agency to the person "involved" in the negative event.
Thomson (1977, ch. XV) takes claims such as the above to be perfectly straightforward causal claims, even though she too holds that negative events and acts of omission do not exist. The example that she discusses involves someone who undertakes the responsibility to feed a neighbor's baby, and whose neglect of that responsibility leads to the baby's death. Calling the responsible person 'T', we can make the claims that T's not feeding the baby caused its death and that T caused the baby to die. Thomson says that these claims can be true even though there is no negative event of T's not feeding the baby, because there is a state of affairs consisting in T's not feeding the baby, and states of affairs can be causally efficacious.

Now it isn't clear why Thomson thinks that negative states of affairs are any less mysterious sorts of entities than negative events. She does make the claim that the time parameter of negative states of affairs is more easily determined than the time parameter of negative events. The state of affairs of T's not feeding the baby obtains at all times that T is not feeding the baby. But this only raises further questions. If this state of affairs exists at all such times, why should it pick some particular time to be causally efficacious in causing the death of the baby? Presumably, the state of affairs existed before the baby was born. Surely, it was not causing the baby's death at that time. Moreover, there would be at least as many negative states of affairs as there would be negative events. How do we prevent the world from being over-rich in negative states of affairs? Also, how do we distinguish the causally efficacious negative states of affairs from those that are not?
Thomson recognizes this latter problem. As we shall see, she takes it upon herself to explain why T's not feeding the baby caused its death and Gerald Ford's not feeding the baby did not. But there is a further difficulty here. Is it plausible to think that a negative event or a negative state of affairs is the kind of thing that can cause, in the full-blooded sense, anything? When I speak of the "full-blooded" sense of 'cause', I am referring to the sense in which one ordinary event causes another; the sense in which, for example, T's strangling the baby would have caused its death. Of course, the baby is just as dead whether T strangles it or fails to feed it, and perhaps T's moral responsibility is the same in both cases, but moral responsibility and causal efficacy are two different matters. Surely, T would not have caused in the same sense the baby's death in both cases. What we need explained is how a negative state of affairs can stand in a causal relation to any event.

Let us see if Thomson's account can resolve these problems. Thomson has a general thesis about causation that can be stated as follows:

\[(TC) \quad x \text{ causes } y \iff \text{ there is an event } e \text{ such that } x \text{ Owns } e \text{ and } e \text{ causes } y\]

(cf. p. 216).

Here 'x' and 'y' range over things in general, not only events. Thomson undertakes to show that both T and the state of affairs of T's not feeding the baby cause the baby's death in this sense, which is the same sense in which T's strangling the baby would have caused its death. Central to Thomson's claims is the following definition
of "event-ownership":

\[(\text{TEO}) \ x \text{ Owns } e \iff e \text{ is an event and } x \text{ causes everything } e \text{ causes} \]

(cf. p. 216).

If we substitute the definition for event-ownership into (TC), and eliminate redundancy, we get the following version of (TC):

\[x \text{ causes } y \iff \text{there is an event } e \text{ such that } x \text{ causes everything } e \text{ causes and } e \text{ causes } y.\]

Now I think that one might reasonably question the usefulness of this thesis, if not its truth. Going in the "if" direction, the thesis is trivial. If \(x\) causes everything that \(e\) causes, and \(e\) causes \(y\), then, of course, \(x\) causes \(y\). But how is one expected to know whether \(x\) causes everything that \(e\) causes unless one already knows that \(x\) causes \(y\)? Going in the "only if" direction, the thesis is again trivial for the cases where \(x\) is an event. For in those cases \(x\) itself would be the event \(e\). In the cases where \(x\) is not an event, the thesis is not trivial. Unfortunately, it still isn't very helpful, so long as the notion of "event-ownership" is analyzed in terms of the same sense of causation as appears in the \textit{analysandum} of (TC).

Let us, however, see how Thomson applies her principles to the case at hand. To support the claims that \(T\) and \(T's\) not feeding the baby caused its death, Thomson must identify an event which \(T\) owns and one which \(T's\) not feeding the baby owns which themselves caused the death of the baby. She claims that certain physiological occurrences in the baby leading to its death will do. She takes it as
needing no argument that the physiological occurrences are "owned" by T and T's not feeding the baby. T's not feeding the baby caused everything that a certain physiological occurrence caused, and that occurrence caused the baby's death. But this just raises a further question. Why is it that T's not feeding the baby caused everything that that certain physiological occurrence caused?

One answer that suggests itself is that T's not feeding the baby caused the physiological occurrence, and causality is transitive. In fact, it does seem clear that T's not feeding the baby was the cause of the physiological occurrence in precisely the same sense in which it was the cause of the death of the baby. But this leads us into a form of explanatory regress. For now we must explain how it is that T's not feeding the baby was the cause of the physiological occurrence. This means that we must identify some further event that T's not feeding the baby owned and that caused the physiological occurrence. What would this event be? Even if we can come up with such an event, it seems likely that T's not feeding the baby caused that event in precisely the same sense in which it caused the baby's death. This would require finding a further event, which would require explaining how T's not feeding the baby caused it, etc., etc.

There is another aspect to this problem. Thomson takes it as evident that T's not feeding the baby owns the physiological occurrence and that Gerald Ford's not feeding the baby does not. But on what basis? Presumably, because T was responsible for feeding the baby and Gerald Ford was not. But Thomson's definition of event-ownership says nothing about responsibility. Ownership is defined purely in terms
of causal relations. We can distinguish between the events that T's not feeding the baby owns and the events that Gerald Ford's not feeding the baby owns only on the basis of which events the respective states of affairs caused. But that is where we came in. Thomson's account explains why T's not feeding the baby caused its death and Gerald Ford's not feeding the baby did not by, in effect, claiming that the first state of affairs has causal relations that the second state of affairs does not. But what we need explained is how either state of affairs can have any causal relations at all.

The nature of these problems can be explored further by applying Thomson's account to our case of John's not noticing the stop sign. In order to explain how John's not noticing the stop sign is a cause of the accident, we have to identify some event that John's not noticing the stop sign owned and that caused the accident. Perhaps the event would be the event of John's car's entering the intersection. The problem again is that it seems just as reasonable to say that John's not noticing the stop sign caused his car's entering the intersection as that it caused the accident. So we need to explain how it is that John's not noticing the stop sign caused his car to enter the intersection. This requires finding yet another event that John's not noticing the stop sign owns. Perhaps John's foot remaining on the accelerator would do. But, again, it seems that this is caused by John's not noticing the stop sign; and we have to search for another owned event in order to explain this causal relationship. I can think of no event such that: (1) John's not noticing the stop sign "owned" it in Thomson's sense, (2) it caused the accident, and
(3) it is not the case that John's not noticing the stop sign caused it in the same sense that it caused the accident. So we will always have a new event whose causal relationship to John's not noticing the stop sign must be explained.

In spite of the unresolved problems, Thomson's account does have some interesting features. Something like the concept of "event-ownership" seems to be required to explain certain kinds of causal relationships, and there is something to be said for Thomson's thesis about causation. Thomson goes wrong in trying to define event-ownership itself in terms of causal relations and in thinking that there is a univocal sense of 'cause' that applies to event causation, agent causation, and to those strange cases that seem to involve causation by negative events.

Let us return to take a fresh look at the claims seeming to involve reference to negative events. The claims that we have considered so far involve cases where it seems that negative events cause ordinary events, but there are also cases where it seems that ordinary events cause negative events. Consider the claim that T's being drugged caused her not to feed the baby or that Harold's incessant chatter caused John not to notice the stop sign.

If we take these claims to be the causal, relational statements that they appear on the surface to be, then our options are limited. If we do not want to suppose that some kind of "negative" entity exists as one of the related items, then we must suppose that the expression which apparently refers to some "negative" entity actually refers to some more ordinary type of thing. Now I think that there are cases
where this latter approach is correct. Consider the claim that the 
failure of the bolt caused the bridge to collapse. The expression 
'the failure of the bolt' is most naturally read here as being a 
loose way of referring to some ordinary event involving the bolt, 
such as the bolt's snapping, bending, or slipping out of position. 
It is this ordinary kind of event that caused the bridge's collapse. 
Unfortunately, this approach will not work in all cases. To what 
ordinary event does 'John's not noticing the stop sign' or 'T's not 
feeding the baby' refer? I can think of no plausible candidates.

We have no option, I feel, but to suppose that, despite surface 
appearance, these claims that seem to involve negative events are not 
really causal relational statements at all. Let us first take the 
cases where it appears that a negative event is a cause. I will 
identify such cases by using the term 'cause$_{nc}$'. In contrast, I will 
use the term 'cause$_e$' to identify cases where 'cause' is being used 
in the straightforward relational sense in which one ordinary event 
causes another. T's not feeding the baby caused$_{nc}$ its death, but 
it did not cause$_e$ its death.

It seems to me that a causal$_{nc}$ claim is merely a particular kind 
of counterfactual claim. To say, for example, that T's not feeding 
the baby caused its death is to say that if T had fed the baby it 
would not have died. This brings out a similarity between causal$_{nc}$ 
and causal$_e$ claims that explains, perhaps, why we use the same term 
'cause' in expressing both. If e causes$_e$ f, then it is (at least 
in general) true that if e had not occurred, then f would not have 
ocurred. If e's not occurring causes$_{nc}$ f, then it is true that if
e had occurred, f would not have occurred. This similarity, however, must not blind us to a significant ontological difference. In the case of causation, there are two occurrent events standing in a certain relation. In the case of causation, there is only one occurrent event to which the claim refers. This is made clear in the following analysis of negative event causation claims:

\[(\text{NC})\] \(x\)'s failure to F (x's not F-ing) was a cause of e iff.

1. if \(x\) had F-ed, e would not have occurred; but
2. e occurred.

Note that (NC) can explain why the time of a negative event is usually indeterminate. It is because the time reference in the antecedent of the counterfactual condition (NC)(1) is also usually indeterminate. Normally there will be some more or less indefinite range of time, such that if an x's F-ing had occurred within that time, e would not have occurred. (NC) escapes the absurdity of claiming that a special kind of event (x's not F-ing) occurred at some indefinite time. (NC) also offers a way of explaining other causal claims derived from claims concerning negative events, claims such as that John caused the accident or that T caused the baby's death. On this approach, such claims could be understood along the lines of causal claims as follows:

\[(\text{ONC})\] x was a cause of e iff there is some property F such that x's failure to F was a cause of e.
There are, however, serious objections that one might raise to (NC). Remember Thomson's example concerning T's not feeding the baby. (NC) would result in its being the case that T's not feeding the baby was a cause of its death, which is the result that we want; but (NC) would also result in its being the case that Gerald Ford's not feeding the baby caused its death, and this does not seem to be a correct result. Moreover, once we reflect on cases of this sort, we see that similar problems are easy to construct. Not only did John's not noticing the stop sign cause_{nc} the accident, it is also the case that John's not staying in bed that day, John's car's not running out of gas, and the other car's not being trampled by a herd of elephants were causes_{nc} of the accident. In other words, it seems that my proposal is subject to one of the objections that I levied against those who hold that negative events exist, namely, that it fails to distinguish between cases where negative events are causally efficacious and cases where they are not.

Now I do not think that the objection has the same weight against my account as against those which posit the existence of negative events. The latter have a host of negative events populating the world, and they must explain how it is that some of those things enter into causal relations and others do not. My account has no negative events populating the world. My account merely has to explain why certain causal_{nc} claims seem to differ in truth value, even though the counterfactual claims they express do not.

The answer, it seems to me, is that the relevant causal_{nc} claims do not, in fact, differ in truth value. It may sound odd to say
that Gerald Ford's not feeding the baby caused its death; but it also
sounds odd to claim that Gerald Ford's not feeding the baby did not
cause its death. Given the background story, it is simply odd to
talk at all about Gerald Ford's activities vis-à-vis the baby's
death. But this oddness has nothing to do with the truth conditions
of the respective causal claims. It is true that Gerald Ford's not
feeding the baby was a cause of its death, since if Gerald Ford had
fed the baby, it would not have died. The claim sounds odd because its
utterance violates principles of conversational implicature. To
state a causal claim is to implicate that there is some further
relationship of relevance or proximity holding between the event-types
or the objects or persons involved. In Thomson's case, T has a
special responsibility to see to it that the baby is fed, which
Gerald Ford does not have. In the automobile accident case, John's
failure to notice the stop sign has a special position of relevance,
since John, as driver, has a responsibility to notice the stop sign.
Given the background story as presented, John's not staying in bed
has no special relevance at all. But if we were to add to the story
that John had woken up with a bad cold that day and was urged by his
wife to stay in bed rather than drive to work, then it no longer
sounds odd to claim that John's failure to stay in bed was a cause
of the accident.

Similar kinds of implicature are presented, I believe, by making
casual claims. It sounds odd to claim that oxygen's being present
was a cause of the house's catching fire, or that the house's being
built was a cause of its catching fire. But I think that both of the
latter claims are true. Under ordinary circumstances it would not be proper to assert these claims, because they offer no information that is not already common knowledge.

For any occurrent event, it is possible to state an indefinite number of true causal\textsubscript{e} or causal\textsubscript{nc} claims about it. So the claims that we bother to state had better be claims having some special position of relevance with respect to the purposes and interests of ourselves and our audiences. No doubt there are many and various ways that a causal claim can achieve sufficient importance to be worth stating. The point that I wish to emphasize is that with respect to both causal\textsubscript{nc} and causal\textsubscript{e} claims there is a difference between the conditions under which the claims are worth stating, and the conditions under which the claims are true. I have offered a precise proposal for the truth conditions of causal\textsubscript{nc} claims, but I am afraid that I could offer only vague remarks regarding the circumstances appropriate for their utterance.

Now let us consider the cases where the negative event is an effect of an ordinary event. I will use the term 'cause\textsubscript{ne}' to identify such cases. Again it seems that a certain counterfactual claim is involved. For it to be true that T's being drugged caused her not to feed the baby, it must be the case that if T had not been drugged, she would have fed the baby. This kind of counterfactual claim may be all that is involved in 'caused\textsubscript{ne}' claims, but it is not appropriate for weaker 'was a cause\textsubscript{ne} of' claims.

Suppose that several factors combined to result in John's not noticing the stop sign: there was Harold's chatter, its being a dark,
rainy day, and there being a slight mist on the windshield. None of these factors alone would have caused \( \text{ne} \) John's not noticing the stop sign, but all of them together did. Under such circumstances it would be true to say that Harold's chatter was a cause \( \text{ne} \) of John's not noticing the stop sign. I propose the following as an analysis of 'cause \( \text{ne} \) claims:

\[
(\text{NE}) \text{ e is a cause } \text{ne} \text{ of x's not F-ing iff e is one of a set of occurrent events } e_1, \ldots, e_n \text{ such that if each of } e_1, \ldots, e_n \text{ had not occurred, x would have F'ed.}
\]

Are there any true causal claims where both the cause and effect are negative events? Suppose that Mary's not going to the party caused Sam's not going. Most likely here, it is Sam's learning or hearing that Mary would not be going that caused \( \text{ne} \) his not going. Another possibility is that Mary's not going caused \( \text{nc} \) some event \( e \) and that event \( e \) caused \( \text{ne} \) Sam's not going. I can think of no examples that cannot be explained by the apparatus we already have available.

The cost of my approach has been to suppose that some claims seeming to refer to negative events are not straightforward causal claims at all. Now I do think that the burden of proof is on one who claims that certain types of sentences cannot be read in a straightforward, literal sense. But I hope that I have discharged that burden, first, by pointing out that our intuitions suggest that there is some difference in the sense in which negative events and ordinary events cause things, and, second, by showing that accounts that try to maintain the literal sense of such claims run into severe problems.
We have seen above that Thomson's notion of "event-ownership" is not essential to explaining away negative events. But I think that some concept of event-ownership is the key to explaining the nature of other events, events that I shall call events of object causation. In the concluding portion of this chapter, I will sketch out a theory of object causation.

The sense in which an object causes an event is not the same sense in which an event causes another event. Let me use the term 'causeo' for object causation. Now I think that Thomson's earlier discussed thesis about causation is the appropriate starting point for explaining the notion of object causation:

\[(OC)\ x \text{ is a cause}_o \text{ of } e \iff \text{there is an event } f \text{ such that } x \text{ owns } f \text{ and } f \text{ is a cause}_e \text{ of } e.\]

This explains object causation in terms of event-ownership and event causation. Of course, Thomson's notion of event-ownership will not do, but this is where our account of events comes to the rescue. Given the concept of object constituent, one can define event-ownership as follows:

\[(EO)\ x \text{ owns } f \iff f \text{ is an event having } x \text{ as its sole object constituent.}^5\]

One could also define a notion of event-co-ownership by replacing the words 'its sole' by 'an' in the above. But it is event-ownership that is the key notion in explaining object causation. In those cases where an event involving two or more object constituents was a cause_e of an event e, we would not say of any of those object constituents that it was a cause_o of e unless there was some further event having
that object as its sole constituent which also was a cause of e.

If we combine (OC) and (EO), we get the following version of (OC):

\[ x \text{ is a cause of } e \iff \text{there is an event } f \text{ such that } \]
\[ x \text{ is its sole object constituent and } f \text{ is a cause of } e. \]

The application of this principle in most cases is perfectly straightforward. If T kills the baby by strangling it, then there is some event having T as the sole object constituent, for example, one of the bodily movements of T involved in the strangling, such that that event was a cause of the baby's death. Thus, by (OC), we can claim that T was a cause of the baby's death. On the other hand, if T's only connection with the death of the baby was her failure to feed it, then there is no event owned by T that was a cause of the baby's death. If the bolt's snapping caused the collapse of the bridge, then, since the bolt owns the bolt's snapping, we can conclude that the bolt caused the collapse of the bridge. On the other hand, there is no event owned by the sprinkler system that caused the destruction of the building by fire. The sprinkler system was a cause, but not a cause, of the destruction of the building.

There are some cases, however, where an object can be both a cause and a cause of the same event. Consider our case in which John's not noticing the stop sign was a cause of the accident. We have seen that on the basis of this claim, we can say that John was a cause of the accident. However, there are also events which John owns, e.g., his bodily movements involved in keeping his foot on the gas pedal, that were a cause of the accident. So John is also a cause of the accident. It is one of the advantages of this account
that it allows us to distinguish between cases where the agent is only negatively involved (T's not feeding the baby) and cases where the agent is also positively involved (John and the accident).

We should note that a sense of a part of Thomson's claim about event-ownership follows from (OC) and (EO). If x owns f, then x will be a cause of every event that f causes. It does not follow, however, that if x is a cause of every event that f causes, then x owns f. For example, let f be the baby's death, and let us suppose that f resulted from T's strangling the baby. Now T is a cause of every event that f causes, since T is a cause of f; but T does not own f. While event-ownership is a concept that is central to determining whether certain causal relations hold, event-ownership itself is not basically a causal notion. The relationship between an object constituent and the event which it owns is not a causal relation. Of course, the object constituent may also be causally related to an event which it owns by virtue of owning some other event which is a cause of it.

Let me summarize our discussion in this chapter. A problem concerning negative events arises because, on the one hand, there are true causal claims that seem to make reference to negative events, but, on the other hand, there are good reasons to eschew the existence of negative events. Among these reasons are difficulties in establishing their time of occurrence, difficulties in seeing how so many events can fit together in the world, difficulties in determining why some of the negative events are causally efficacious and others are not, and difficulties in seeing how a negative event
can participate in full-blooded causal relations at all. Furthermore, there is a basic opposition between the view of events that we have developed and the supposition that negative events exist.

An attempt made by Thomson to explain the truth of the relevant causal claims by supposing that they referred to negative states of affairs rather than negative events, runs into severe difficulties. Negative states of affairs are subject to many of the same problems as negative events, and Thomson's attempts to handle these problems are not satisfactory. The problem is better handled by supposing that the sense of 'cause' involved in the claims is a non-literal sense, a sense which does not entail that there is any causal relation involving any kind of strange entity.

In line with this insight, we distinguished two distinct non-literal senses of 'cause', 'cause_{nc}' and 'cause_{ne}', which together are capable of explaining how causal claims that seem to refer to negative events can be true even if negative events do not exist. Finally, we noted that Thomson's concept of event-ownership can be stripped of debilitating circularity by defining the concept in terms of a certain kind of object constituent relation, and that the concept, thus recast, can serve as the basis for an account of object causation (causation_{o}). Now let us go on, in the next chapter, to look at the special case where an agent causes an event and to that special type of event called an action.
Notes

1. Letting $e$ be $[\text{John, does-not-notice-the-stop-sign, } t]$ and $f$ be $[\text{John, notices-the-stop-sign, } t, \text{ does-not-occur, } t]$, by (GIC) (3) we have $\text{John}=\text{John}, \Box(\text{notices-the-stop-sign, does-not-occur}) \Rightarrow \text{does-not-notice-the-stop-sign}$, and $t=t$.

2. This property would be analyzed as the property $\text{does-not-occur}$ being exemplified by the event of noticing the stop sign. Of course, the property $\text{does-not-occur}$ can be exemplified only by events which do not exist ($\text{occur}$).

3. It may be that (NC) needs to be amended and complicated to provide for cases where there is a long causal chain of events between $x$'s failure to $F$ and $e$ or cases of overdetermination. For a discussion of such problems relating to a counterfactual analysis of event causation, see Swain (1978). If such problems arise for (NC), something analogous to Swain's method may be used to avoid them.

4. The notion of "conversational implicature" originates in Grice (1967).

5. Since events can be object constituents of other events, conditions (OC) and (EO) provide that events may be object-causes of other events. I see no harm in this. In general, an event will not be an object-cause and an event-cause of the same effect.
6. ACTIONS AND INTENTIONS

To begin we should note that not all events of object causation are actions. While most of the examples we discussed in the last chapter involved persons, there is no reason why an inanimate object cannot be an object-cause. If one billiard ball strikes another, causing the second to move, then the first billiard ball is an object-cause of the movement of the second; and condition (OC) provides this result. But, surely, no action has taken place.

Why is it that no action has taken place? For one thing, it is clear that the agent in an action must be something capable of having certain psychological states, such as desires, wishes, and intentions. Billiard balls do not have such states. It is not enough, however, to require that the object-cause be something that is capable of having psychological states. As we shall see, persons can sometimes be object causes without being the agents of actions. Somehow the person's having certain desires, wishes, or intentions has to be involved in the event for the event to count as an action.

Now our account of events suggests that the typical way that one event is "involved" in another is by being part of it. Following up on this suggestion, we may take our project to be specifying the way in which events of desiring, wishing, intending, etc. take part in actions.
Let us start by comparing a clear-cut case of an action to a case where a person is merely involved in an event of object causation. Suppose that Jones desires to see Smith dead, and this desire leads Jones to push Smith out a ten story window. Smith happens to fall on Johnson, who was walking below, causing death to both.

Now, clearly, both Jones' pushing of Smith out the window and Jones' killing of Smith were actions. Just as clearly, Smith's falling on Johnson was not an action of Smith's. An event involving Smith (Smith's landing on Johnson) was a cause of Johnson's death; and, therefore, by condition (OC), we can say that Smith was a cause of Johnson's death, and perhaps even that Smith killed Johnson. But we can say this only in the sense that we could say of a brick that had fallen from the tenth story that it was a cause of Johnson's death, or that it killed Johnson. Smith is only a cause of Johnson's death.

What distinguishes Jones' involvement in the events from Smith's? Clearly Jones' desires are causally involved in the events in a way that Smith's are not. What is that way? One is tempted to say at first that Jones' having certain desires caused his actions. This suggests the following general characterization of actions: X'ing is an action of A's just in case A's desire to X causes A's X'ing. This, however, is both too narrow and too broad, and it also contains an additional fundamental; albeit subtle, error.

That the conditions are too narrow can easily be demonstrated. In our story, it is Jones' desire to see Smith dead that causes him to push Smith out the window. This means that Jones' pushing of Smith out
the window fails to meet our conditions for being an action, but it surely is an action. Now one might reply that while Jones' intrinsic desire was to see Smith dead, Jones also had an extrinsic desire to push Smith out the window, since he believed that pushing Smith out the window was a good way of satisfying his intrinsic desire to see Smith dead. Therefore, Jones did have a desire to push Smith out the window, and that desire was a cause of his pushing Smith out the window. So this event meets our conditions for being an action after all.

In this case, it may be reasonable to claim that Jones had an extrinsic desire to push Smith out the window; but there are other cases in which claiming that an extrinsic desire exists is far less plausible. For example, suppose that in order to push Smith out the window, Jones must step through some wet paint. There is no doubt that stepping through the wet paint is an action of Jones' in this case; but even given that Jones believes that this action is required to achieve his ultimate goal, it is not plausible to claim that Jones' stepping through the wet paint is caused by his desire to step through the wet paint. We are free to suppose that Jones does not have a desire (even an extrinsic desire) to step through the wet paint.

Moreover, one can think of cases where Jones' pushing Smith out the window was not motivated by a desire to kill Smith. Suppose that Jones places a very high value on human life. Suppose, further, that Jones believes that Smith is about to murder hundreds of innocent people and that the only way to prevent this is to kill Smith by pushing him out the window. In this case Jones' action of pushing
Smith out the window is motivated by the desire to save lives. It would be implausible to claim that Jones has a desire (even an extrinsic desire) to kill Smith.³

In consideration of such cases, our conditions should be broadened to allow for the possibility that actions are caused by desires other than the desire to perform that particular action. But, of course, we cannot simply say that X'ing is an action of A's just in case A's having some desire causes A's X'ing. This condition might well be satisfied by Smith's falling in our original example. Suppose that Smith's desire to get to work on time caused his walking past the window where Jones lay in wait. Then Smith's desire to get to work on time was a cause of his getting pushed out the window, and hence a cause of his falling. But Smith's falling is not an action of Smith's.

Moreover, it can be shown that even our original conditions are too broad in this respect. Suppose that Smith has a desire to commit suicide by jumping out the window, and this is the desire that caused his walking into the vicinity of the window near which Jones lay in wait. So Smith's desire to go out the window was a causal factor in Smith's going out the window. This case thereby satisfies the original conditions stated above. But going out the window was not an action of Smith's. Note that this is so even if Smith knows that Jones lies in wait and intends to push him out the window. (Perhaps Smith believes that he does not have the courage to jump out the window himself, and he wants to have Jones push him out.) Why is it that Smith's going out the window in such circumstances is not
an action of Smith's?

One suggestion that is sometimes made is that an action must include some basic bodily movement or activity, called a basic action, on the part of the purported agent. A well-developed theory of action that makes use of the notion of basic action has been propounded by Alvin Goldman (1970). Earlier in this work, we discussed Goldman's views on event individuation, and I defended Goldman's views against the more "coarse-grained" views of Davidson, Anscombe and others. The account of events that I developed was designed, in part, to provide a basis for a Goldman/Kim "fine-grained" view of event individuation. Since Goldman's view of events figures prominently in his theory of action, we might expect that his theory of action will fit in nicely with the view of events that has been developed here; and it will be instructive in any case to take a serious look at Goldman's theory.

In rough outline, for Goldman an action is any event that is either a basic action or is "generated" from a basic action. For an event to be "generated" from another is for the generated event to result from the other event's occurring under certain circumstances. Goldman identifies four varieties of generation: causal, conventional, simple and augmentation. The following are examples of each:

(1) causal: turning the crank in circumstances in which this causes the window's opening generates the act of opening the window,
(2) conventional: extending one's arm out the window in circumstances in which a signaling convention is in effect generates the act of signaling,
(3) simple: jumping six feet in circumstances in which George has previously jumped less than six feet generates the act
of outjumping George, and (4) augmentation: saying "hello" in circumstances in which the "hello" is said loudly generates the act of saying "hello" loudly. Goldman notes that the generation relation is asymmetric, irreflexive and transitive. He also notes that the events related are such that neither is temporally subsequent to, nor a temporal part of, the other.\(^5\)

Goldman's account does not attempt to explain generation in terms of any other single, familiar kind of relation. But our account of events allows us to view generation as simply a particular variety of event-part relation. If \(e\) generates \(f\), then \(e\) is a part of \(f\). That this relationship holds can be seen easily with respect to the four examples of generation given above. The event of opening the window would consist, on our view, of the event of turning the crank causing the event of the window's opening. Likewise, the event of signaling would consist of the event of extending one's arm out the window occurring in circumstances in which the appropriate signaling convention applies, the event of outjumping George would consist of one's jump being longer than George's jump, and the event of saying "hello" loudly would consist of the event of saying "hello" being loud. In all cases, \(\text{EPPC}\) would provide that the generating event is a proper part of the generated event. This explains why the generation relation is asymmetric, irreflexive and transitive and why neither of the events is temporally subsequent to the other.

Goldman characterizes a basic action as an action of a type that the agent could perform simply by desiring to perform it, and which, in fact, is caused, in the appropriate way, by the agent's desire to
perform some act that the agent believes would be performed if he
were to perform the basic act. Now if we look back at our question
as to why Smith's going out the window is not an action of Smith's,
one might propose that the answer is that Smith performs no basic
action that generates his going out the window. However, Smith does
perform some basic act (moving his limbs in a certain way) that
causes Smith's going out the window and, hence, causally generates
Jones' pushing Smith out the window. This same basic act, in the
circumstances cited, causes Smith's death and, therefore, causally
generates Jones' killing of Smith. Goldman's account also provides,
properly, that the action of Jones' killing of Johnson occurs in our
story. Jones, we may suppose, did not intend to kill Johnson - he had
no idea that Johnson would be walking underneath the window at that
time. Nevertheless, he did kill Johnson, and not merely in the object
causal sense in which Smith killed Johnson. This result is assured
by Goldman's account since Jones' killing of Johnson was causally
generated by the same basic action that causally generated Jones'
killing of Smith. Finally, stepping though the wet paint is also an
action of Jones', since it is generated (by simple generation) by
that same basic action.

These are impressive results; and, indeed, I think that Goldman's
account is close to the correct approach. There is nothing in
Goldman's account, so far as I can see, that is incompatible with the
view of events that I have developed here. Nothing blocks my adopting,
mutatis mutandis, Goldman's definition of basic action; and I can
explain Goldman's generation relation as a particular kind of event-part
relation. But I think that my account also provides the means for improving and simplifying Goldman's account.

One fundamental problem with Goldman's account is his claim that basic actions are caused by desires to do things. This, it seems to me, is not always true. For example, my desire to raise my arm does not cause my action of raising my arm; it causes the bodily movement of my arm's rising. My action of raising my arm in this case consists of my desire to raise my arm causing my arm to rise. Thus, both my desire to raise my arm and my arm's rising are constituents of my action of raising my arm. If this is so, however, it cannot be that my desire to raise my arm causes my action of raising my arm; for this would amount to an event being caused by one of its own parts.

Goldman's account, as it stands, offers no resources for explaining the nature of the relationship between my action of raising my arm and the event of my arm's rising. They would not be identical events on Goldman's view (they have different object constituents, for one thing), nor would they be related by generation (only actions are related by generation, and my arm's rising is not an action). But surely the events are related in some intimate way. It falls out neatly from my proposal that the action of raising my arm consists of my desire to raise my arm causing my arm's rising, that my arm's rising is a part of my raising my arm.

Moreover, the proposal I make offers a conciliatory bridge to the people who have claimed that intentions are not conceptually distinct from actions. While such people would claim that this is because actions are simply bodily movements which are described in such
a way as to entail a connection with intentions, I would claim that
the conceptual connection results from the fact that actions have the
having of intentions as parts, and the determination of what parts
actions (or any other events) have is, in part, a matter of conceptual
analysis. This measure of conciliation is achieved without denying
the causal efficacy of intentions. Intentions, however, do not cause
actions; rather actions consist of intentions causing other events.
My account of events comes into play in providing the event-part
conditions needed to be able to say of any particular action (or
event) of what it consists.

Let me try, at this point, to make my proposal more precise.
First, I will offer a definition of basic action.

(BA) Event a is a basic action of agent A iff a
consists solely of A's having a desire to do
something causing some event.

This definition may at first appear much too broad. Suppose,
for example, that my desire to take a bath leads me to take off my
clothes. In doing so, I carelessly leave my shirt too close to a
space heater. The shirt catches fire, and sets the house on fire.
Surely, in such a case, my setting the house on fire is not a basic
action of mine.

But (BA) would not produce the result that it was. Setting the
house on fire consists of one's doing something that causes the house
to catch fire. It does not consist solely of one's having a desire
causing some event. Nor is even taking off one's clothes a basic
action. Taking off one's clothes consists of one's doing something (moving one's hands, legs, and body in a certain way) that causes, in the appropriate way, the clothes coming off one's body.

The hedge phrase, 'in the appropriate way', is needed here because there are various ways of causing your clothes to come off your body that would not constitute actions of taking off your clothes. For example, you might give a hand signal to a confederate, who then strips off your clothes. You have not taken off your clothes in that case. The concepts that we use to identify types of actions typically require not only that a certain kind of event be caused, but also that the causal chain involved be of a certain kind. The kind of causal chain permitted is going to vary with the particular concept involved, and for many concepts it is going to be very difficult to give precise boundaries for this.

For example, suppose that future science develops a "declothing" machine. At a flip of a switch, the machine will almost instantly strip the clothes from the person standing in front of it. Does the person who flips the switch on this machine perform the action of taking off his clothes? Suppose the machine has the following automatic feature. It can be placed by a doorway so that it will automatically strip the clothes from anyone walking through. Does one who walks through the doorway perform the action of taking off his clothes? I suspect that intuitions will differ on the answer.

We shall have occasion to return to this feature of actions later in this chapter. For now we should note that even basic actions require that the causal chain, in this case a process within the agent, be of a certain kind. Suppose that I become very hungry,
and my desire to eat causes my body to tremble and shake. I have not performed any action in this case, even though these bodily movements are caused by my having a certain desire. The bodily movements were not caused in the right way for an action to have occurred. This is why we need the hedge phrase in conditions (BA). It may be, as Goldman says about his similar hedge phrase (1970, p. 62), that we will have to wait for advances in neurophysiology to be able to say with any precision what the "appropriate way" is.

Although, for want of a better term, I continue to use the expression 'basic action', I do not think that the concept defined by (BA) is the same as Goldman's concept of basic action, nor do I think that the concepts are even co-extensive. The following recursive definition of action does not require Goldman's concept of basic action.

\[(AA) \begin{align*}
\text{(1) If } a \text{ is a basic action of agent } A'\text{s,} \\
\text{then } a \text{ is an action of agent } A'\text{s.} \\
\text{(2) If } a \text{ consists of an action (or actions) of agent } A'\text{s causing some event, then } a \text{ is an action of agent } A'\text{s.} \\
\text{(3) If } a \text{ consists of an action of agent } A'\text{s exemplifying a property, then } a \text{ is an action of agent } A'\text{s.} \\
\text{(4) Nothing else is an action of agent } A'\text{s.}
\end{align*}\]

Note that (AA) makes no explicit mention of a generation relation. Clause (2) takes care of cases that would count as cases of causal generation under Goldman's account. Jones' killing of Smith, for
example, consists of Jones' pushing Smith out the window causing Smith's death. Jones' pushing Smith out the window, in turn, is an action since it consists of Jones' making certain arm and leg movements which cause Smith's going out the window; and Jones' moving of his arms and legs in that way is a basic action since it consists of Jones' desire to kill Smith causing his arms and legs to move in that way.

Clause (2) also takes care of cases that would not count as cases of causal generation. Suppose that Jones is convicted of his crime, and, while in prison, writes a book about the crime, working on it a little each day for more than a year. Jones' writing of the book is an action, by (AA), since it consists of actions of Jones' causing the book's coming into existence. This event would not count as a case of causal generation under Goldman's account, since there is no single basic action involved. Goldman provides for such cases by adding a clause to his definition of action that makes temporal sequences of actions an action (pp. 45-6). Our conditions automatically provide for such cases.

Furthermore, there are cases covered by clause (2) where an action is neither causally generated nor a temporal sequence of actions. Clause (2) allows for the possibility of actions that include the actions of others or non-action events. To return to an example from an earlier chapter, A may build his own house without doing everything himself. Probably all that is needed is for A's planning and overseeing the construction to cause the house's being built. Thus, A's action of building his own house can include the actions of
contractor's employees and non-action events, such as the concrete's drying. Still, A's building his own house consists of actions of his causing some event, and, thus, qualifies as an action by clause (2) of (AA).

Clause (3) of (AA) takes care of the other kinds of generation. For example, Jones' stepping through the wet paint is an action since it consists of Jones' action of stepping exemplifying the property of being a stepping through the wet paint. Likewise, Jones' committing of the tenth killing of the month would consist of Jones' killing of Smith being the tenth killing of the month.

What about the troublesome case discussed earlier, where Smith's desire to commit suicide by jumping out the window caused him to be near the window, and thus was a cause of his being pushed out the window by Jones? What actions did Smith perform in this case? Certainly Smith's walking near the window was an action, and it would qualify as such by clause (1) of (AA) since it consisted of Smith's having a desire to kill himself causing certain bodily movements. Smith's going out the window was not an action of Smith's, since it simply consists of Smith's going out the window, however that might have come about. Consider, however, the purported action of Smith's jumping out the window. Smith does perform some action that causes his going out the window. Why doesn't this qualify, by clause (2), as the action of Smith's jumping out the window?

The answer, simply enough, is that the action of Smith's jumping out the window did not occur. For an event to count as a jumping, a certain kind of causal sequence has to occur, one that includes
the agent's tensing of his leg muscles causing his body's rising off the ground in a particular way. That kind of causal sequence did not occur in our story.

Now it is true that clause (2) of (AA) commits us to saying that Smith performed some action in the story, viz., the action consisting of his walking near the window causing his being pushed from the window. What this action should be called is another question. Without being too misleading, I think we could say that Smith performed the action of getting himself pushed out the window.

Let me return at this point to a claim I made earlier which needs additional comment. I said, in criticism of Goldman, that it isn't the case that basic actions are always caused by the agent's desire to do something. Rather, a desire to do something must be a part of the basic action. This is true, but there is a way in which an agent's having certain desires frequently does cause actions of the agent. For example, Jones' desire to kill Smith may bring about Jones' desire to push Smith out the window. Since the latter is part of the action of Jones' pushing Smith out the window, one can say that Jones' desire to kill Smith was a cause of Jones' pushing Smith out the window. In such a case, however, Jones is only an object-cause of his action of pushing Smith out the window.

This may sound strange, for surely Jones is the agent of his pushing Smith out the window. We must distinguish, however, between being the agent of an action and being the agent-cause of some event. Someone is the agent of an action by being the object-cause of some event in the particular way specified in conditions (BA) and (AA).
Someone is an agent-cause of an event by being the agent of an action that causes \( e \) that event. Thus, Jones is an agent-cause of \((\text{causes}_a)\) Smith's death by being the agent of the action of pushing Smith out the window, which causes \( e \) Smith's death. Jones does not cause \( a \) Jones' pushing of Smith out the window. Jones' desire to kill Smith causes \( e \) Jones' pushing of Smith out the window, but Jones' having the desire to kill Smith is not an action of Jones'. In general, an agent causes \( a \) an event by doing something which causes that event. Jones does something which causes Smith's death, but Jones does not do anything which causes his pushing of Smith out the window.

There might be exceptional cases where a person does cause \( a \) one or more of his own actions. For example, Jones might have himself hypnotized so that he will be able to push Smith out the window. In such a case, Jones is a cause \( a \) of his action of pushing Smith out the window. But in our original example, Jones does not cause \( a \) his pushing of Smith out the window; he simply does it.\(^9\)

Let us formalize the notion of agent causation in the following way:

\[
(AC) \quad \text{A is an agent-cause of } (\text{A causes}_a) \text{ e iff A is the agent of some action which causes}_e \text{ e.}
\]

We now have available four conditions, (OC), (BA), (AA) and (AC), which, together with the primitive notion of event causation, allow us to characterize the relationships that are typically involved in someone's performing an action. If A does action \( a \), then A is the object-cause of some event (normally, a bodily movement) by virtue of having a desire that causes \( e \) that event. Again, by virtue of this,
A is the agent of a. Finally, if a causes some event e, then A is the agent-cause of e.

We have not as yet, however, touched on the area that some would feel is the most important aspect of an account of actions. What is it for an action to be intentional? It is clear, I hope, that not all actions are intentional. In our original story, for example, Jones' killing of Johnson was an action, but it was not an intentional action. Jones did not desire to kill Johnson, nor did he even expect to kill Johnson, by pushing Smith out the window. What further element, then is needed for an action to be an intentional action?

On the account we have developed above, an action consists, in part, of the agent's having a desire to do something. As an initial proposal, we might consider the claim that an action a of A's is intentional just in case a consists in part of A's desire to do a. This would provide us with the right results in our original example. Jones' killing of Smith consists in part of Jones' desire to kill Smith, and so it is intentional. Jones' killing of Johnson, on the other hand, does not consist in part of Jones' desire to kill Johnson, although it does consist in part of Jones' desire to kill Smith; and so it is not intentional. The proposed condition, in fact, would be true of a great many intentional actions; unfortunately, it is both too strong and too weak to capture all and only intentional actions.

The proposed condition is too strong because, just as an agent need not desire to do a for a to be his action, so an agent need not desire to do a for a to be an intentional action. For example, we
may suppose that Jones' pushing of Smith out the window required considerable physical effort on Jones' part, effort that Jones, being a particularly lazy person, did not desire to exert. Yet exerting that effort clearly was intentional on the part of Jones.

One might suggest that the way to correct our conditions is to allow that any act that the agent performs because he believes that it is required to perform a desired act is intentional. Unfortunately, this makes our conditions too weak. Suppose that Jones believed that stepping though the wet paint, hence getting paint on his shoes, was required for pushing Smith out the window. Even though Jones fully expected to get paint on his shoes and believed that this was unavoidable in order to do something that he wanted to do, we would not want to say that Jones got paint on his shoes intentionally.

Our account provides a way to focus on just the cases of intermediary actions that we want to count as intentional. What we need to say is that any act is intentional which the agent performs because he believes that doing some act that he wants to do will consist in part of the former act. Jones' making the physical effort required to push Smith out the window was a part of his pushing Smith out the window. On the other hand, Jones' getting paint on his shoes was not a part of his pushing Smith out the window. Getting paint on his shoes plays no causal role in Jones' pushing Smith out the window; it is simply an epiphenomenon of one action, stepping through the wet paint, that does play a causal role. Not all of the causal effects of intentional actions, even those that are anticipated and expected on the part of the agent, are intended.
There is still a problem with our conditions, however. There are actions—which consist in part of the desire to do that action, yet which are not intentional. Suppose that instead of pushing him out the window, Jones decides to do Smith in by shooting him. Jones realizes, however, that he needs to improve his marksmanship in order to accomplish this deed, so he goes out into the woods to practice. It so happens that Smith, unknown to Jones, is walking about in the target area, and an errant shot ricochets off a rock, strikes Smith, and mortally wounds him. Now there is an action in this case of Jones' killing of Smith. Moreover, Jones' desire to kill Smith is a constituent of this action, since it is a constituent of Jones' shooting at the target. But Jones did not, in this case, kill Smith intentionally.

A case like the above has to be contrasted with other kinds of cases where the way the desired effect was achieved was also unexpected on the part of the agent, but where the agent's action was intentional. For example, suppose that Jones tries to kill Smith by running him down with an automobile. As a matter of fact, Jones misses Smith, but Smith is caused to have a fatal heart attack by the near miss. In such a case, it seems clear that Jones killed Smith and that the killing was intentional. How can we distinguish between these kinds of cases?

The best way, it seems to me, is to require that an action that is in fact a part of the action that the agent wants to perform is an action that the agent believes will be part of the action the agent wants to perform. In the first example, Jones does not believe that
his shooting at the target will be a part of his killing Smith; but in the second example, Jones does believe that his driving the car at Smith will be a part of his killing Smith. An agent needs to be partly, but not totally, right about his expectations for his action to be intentional.

Let me try to capture all of this in the following analysis of intentional action:

(IA) A does a intentionally iff:

1. A is the agent of a; and either
2. a consists, in part, of A's desire to do some act b, where a≠b; and A believes that his doing b will consist, in part, of his doing a; or
3. a consists, in part, of A's desire to do a; and there is some event b, where b is a proper part of a, such that A is the agent of b, and b consists, in part, of A's desire to do a, and A believes that his doing a will consist, in part, of his doing b; or
4. a consists, in part, of A's desire to do a, and a does not consist of A's doing any action other than a.

Clause (2) takes care of intermediary actions that are not themselves desired, clause (3) takes care of the standard case where an action is performed because it is desired and where it is performed by performing other actions, and clause (4) takes care of basic actions that
are desired for their own sake.

One might object to conditions (IA) as being too broad. To see why, make the following changes to our story above. Suppose that Smith knows that Jones is out to get him. Without revealing his reasons, Smith hires Johnson to impersonate Smith and follow Smith's normal daily routine. It is Johnson that Jones hits with his car. Johnson is not fatally injured; but he is so upset at being used as a decoy that, after recovering from his injuries, he shoots Smith and kills him. Now Jones believes that his hitting the person in the street with his car will be a part of his killing Smith, and his hitting the person in the street with his car is, in fact, a cause of Smith's death; but, surely, Jones' killing of Smith is not intentional in this case. Jones' desired result came about purely by accident.

Now I think that our intuitions that Jones did not kill Smith intentionally in this case are due not to the fact that what Jones did was unintentional, but to the fact that Jones did not kill Smith in this case. As we said earlier in this chapter, a particular kind of action typically requires that a certain kind of causal sequence occur. In this case, the causal sequence between Jones' hitting the person in the street with his car and Smith's death is too indirect to constitute a killing.

Consider a much simpler indirect case. Suppose that Jones had hired a gunman to kill Smith. In such a case, Jones would not have killed Smith (although he would be causally and morally responsible for Smith's death and legally guilty of murder); he would have had Smith killed. In the case where Jones' hitting Johnson brings about
Smith's death, Jones certainly is a cause of Smith's death, and it seems clear to me that his being a cause of Smith's death was intentional. If it is not the case that his killing of Smith was intentional, that is because his killing of Smith did not occur.

Now one might question whether even Jones' being a cause of Smith's death was intentional, given that Jones was so drastically in error about how his actions would bring about Smith's demise. One might suggest that we distinguish between intentional and unintentional actions on the basis of how accurate are the agent's beliefs about the nature of the causal sequence that his actions initiate. But this is not a very promising line. As Thomson points out (1977, p. 257), an agent can be very much mistaken about the nature of the causal sequence without that shaking our intuitions about the action's being intentional. For example, Jones may think that hitting a person with a car driven at high speed kills the person by knocking all the air out of him, causing him to suffocate. If Jones killed the person he hit, Jones' drastic error about the nature of the causal process he initiated would not sway our judgment that the killing was intentional. Even if (IA) produces some results that grate against some intuitions, I see no other line that offers more plausible results. This may just be one of those areas where any basis for making a clear-cut distinction is going to grate against someone's pre-theoretical intuitions.

The discussion of the above case may have suggested to some readers an aspect of intentional actions about which we have not as yet talked. I am referring to the intensionality of intentional
actions. Jones hit the man in the street intentionally, but Jones did not hit Johnson intentionally, even though the man in the street was Johnson. (IA) has no special problem accounting for such facts. The conditions in (IA) all require that the agent have some belief or desire regarding the contemplated action. Jones did not hit Johnson intentionally because he did not have the appropriate beliefs or desires about Johnson. He did, however, have the appropriate beliefs and desires about the man in the street. The intensionality of intentional actions derives from the familiar, albeit troublesome, intensionality of belief and desire states.

We have seen how the conditions built into (IA) allow us to make correctly some rather fine distinctions about intentional actions. Let me close this chapter by examining a case discussed by Thomson (1977, pp. 270-2), which will further reveal the resources of our account. Thomson's story concerns a serum that is needed in order to save the lives of a number of children. There are two different variants on the story. In case (1), the serum is available only by extracting a certain substance from a certain type of dog while the dog is in pain. In case (2), the serum is available by extracting a certain substance from the dog in any condition, but, as a matter of fact, there is no anesthetic available and the extraction process is painful.

In both cases, the doctor decides to extract the substance in order to make the serum. In case (1), the doctor causes pain to the dog intentionally. This result is assured by (IA) clause (2), since the causing of pain to the dog consists in part of the doctor's desire
to save the children's lives, and the doctor believes that his saving the children's lives will consist in part of his causing pain to the dog. In case (2), even though the doctor is well-aware that the dog will experience pain and even though the doctor feels that this cannot be avoided if the children are to be saved, he does not cause the dog pain intentionally. The doctor does not believe that his saving the children will consist in part of his causing pain to the dog. The causing of pain to the dog plays no causal role in the saving of the children; it is merely an unfortunate epiphenomenon.\[11.0pt]\hfill \break

Notes

1. This is not to say that no inanimate object can have such states. I want to allow for the possibility that computers and other kinds of goal-directed machinery may have such states, and perhaps even be the agents of actions.

2. While it is true (I think) to say that Smith killed Johnson, it is misleading to say it, because making such a statement of a person normally implicates that some measure of agency is involved.

3. I owe this example to Marshall Swain.


5. See (1970), ch. two. Goldman's full definition of 'generation' is given on p. 45.


7. So far as I can see, there is nothing in Goldman's definitions that requires that the act-tokens all be act-tokens of the same agent. This seems to be an oversight. While, as I show in the text below, some actions can include the actions of others, we certainly would not want such things as the temporal sequence of John's singing and Mary's chewing gum to be an action.
8. No doubt this is somewhat misleading, as there is a tendency to assume that Smith did this intentionally; but this need not be the case. If one says of a soldier that he got himself killed in the war, one does not imply that the soldier got himself killed intentionally.


10. Consider this case suggested to me by Marshall Swain. Jones' desire to kill Smith leads him to push Johnson (whom he believes to be Smith) out the window. Johnson falls on Smith, killing him. Our conditions would provide the result that Jones killed Smith intentionally. (Jones believes that his pushing the person in front of the window out the window will be a part of his killing Smith, and it is.) I would have no difficulty finding Jones guilty of the premeditated murder of Smith in this case, but this verdict may grate against some readers' intuitions.

11. My account of intentional action owes a great deal to both Goldman (1970), ch. Three, and to Thomson (1977), ch. XIX.
7. THE RELATIONSHIP BETWEEN A THEORY OF EVENTS AND A THEORY OF SEEING

What is it for a person to see an object? Certainly, a person's seeing an object is some kind of an event, within the sense of event with which we have been concerned. Where the person is A, the object d, and the time at which the seeing occurs is t, the event can be represented in canonical notation as 
\[ [A,d; \text{sees-} \Theta; t] \].
What more does our theory of events allow us to say about an event of seeing?

As we have seen, our theory of events not only provides conditions for determining identity of events, it also allows one to uncover the structure of complex events by identifying the parts of that event and their relationships to each other. So, if \([A,d; \text{sees-} \Theta; t]\) is a complex event, our theory of events may provide the means to uncover its structure; and this would provide at least an answer to the question, "What is it for a person to see an object?". A method by which this could be accomplished should by now be familiar. We could analyze the concept of seeing, and this would allow us to determine whether there is an event identical with \([A,d; \text{sees-} \Theta; t]\) whose complexity is explicitly revealed in its canonical representation. Let us suppose that we find an event \([e_1,e_2,e_3; \text{R-} \Theta; \text{R'}-\Theta; t]\) that is identical with \([A,d; \text{sees-} \Theta; t]\). Then we would
have determined that this event of seeing consists of events e1, e2, and e3 standing in the \( 1-R-2-R'-3 \) relationship to each other.

But how would this be relevant to a theory of seeing? Well, in one sense, it seems to me that it would be a theory of seeing. The analysis of the concept of seeing would allow us to identify the underlying structure not only of \([A,d; 1-sees-2; t]\), but of any event of a person's seeing an object; and I think it is fair to say that that is more than many of the extant theories of seeing have been capable of doing. Many philosophers have offered analyses of the concept of seeing, but few have bothered to try to explain how their analyses tell us anything about events of seeing. Our theory of events fills this lacuna.

Now it is true, of course, that most of the work will be done by the analysis of the concept of seeing. Given an analysis of the concept of seeing and the apparatus of conditions (GIC) and (EPC), determining the structure of any event of seeing is purely mechanical. But without the apparatus of conditions (GIC) and (EPC), it is not clear how an analysis of the concept of seeing says anything about events of seeing.

Furthermore, the viewpoint made possible by our theory of events offers a new way of looking at the process of conceptual analysis. Let us suppose, as our subsequent examination will reveal, that the ordinary concept of seeing is vague and seriously inadequate for the philosophical work we want to accomplish. There are important distinctions, we may suppose, which are obscured or confused by the ordinary use of the term 'see'. So, giving an adequate account of seeing may
involve some conceptual "engineering" - we may have to restructure the relevant concepts or even introduce new concepts to cover the same area covered by the ordinary concept of seeing.

Now our theory of events allows us to say what it is to "cover the same area." Ordinary uses of the term 'see' serve to pick out some class of complex events. But there may not be any philosophically interesting characteristics that all and only events in that class have in common. So we may make conceptual changes which subdivide the class of complex events so as to reveal important differences between events that are lumped together in the class (this would correspond to distinguishing different senses of 'see' or different types of seeing), or which reorganize the constituent events comprising the complex events so that we have the means to talk about some complex events of which we had taken no note before. This does not mean, of course, that making such changes introduces new events, or shows that the events that the existing terms pick out do not exist. It merely means that we are finding it to our purposes and interests to pick out some events that we had not explicitly noticed before, and to ignore some events that we had tended to notice previously.

Perhaps consideration of the following figure will help to clarify what I have in mind here:

```
  e1    f2    e3    h4    f5    e6
  |      |      |      |      |
  f1    g2    f3    f4    g5    h6
  |      |      |      |      |
  g1    g3    g4    g5    g6
```

Figure 2. The composition of "ordinary" events of v-ing.
Let us suppose that the six columns represent six complex events, each having the constituent events indicated. And let us suppose that there is some term 'v' that in ordinary usage, would apply to each of these events - each event is a v-ing.

Now one step of conceptual engineering might involve distinguishing two kinds of v-ing, which we could label as 'v1' and 'v2'. Event 2 and event 5 are v1-ings, and the remainder are v2-ings. This would make a distinction based on structure that is obscured by calling all of the events v-ings. Another step of conceptual engineering might involve noticing that events 1 and 3 are different in certain respects from events 4 and 6. Perhaps the term 'v2' should be restricted to events 1 and 3, and events 4 and 6 handled in some other way. Now, parts of events 1, 3, and 4 are v1-ings, so we can distinguish these parts as separate events. Event 6 is very like a v2-ing except that its middle event is an h-type event rather than an f-type. But perhaps there is some event f6, not included in the original class of events, and by taking this event into consideration, we can pick out another v2-ing. This would leave h4 and h6 unattached. It may be that they are best omitted from consideration. But it also may be that we should have another term 'v3' to apply to an h-g-type event.

Our conceptual engineering results in the reorganization of the original events that is depicted in Figure 3. It is easy to see the sense in which our new terms 'v1', 'v2' and 'v3' cover the same area previously covered by the ordinary term 'v'. With a few exceptions (f6 has been introduced into the group and h4 and h6 might have been omitted), the new terminology covers the same events previously
Figure 3: The results of conceptual engineering on the concept of v-ing

covered by 'v'. I see no reason to deny that a process such as this may count as an analysis of the concept of v-ing, or even as a theory of v-ing. I will have something like this process in mind when I turn to analyzing the concept of seeing.

In all of this I have been assuming that there are events "underlying" events of seeing. Conceptual engineering may result in these events being organized differently than they are by the ordinary language concept of seeing. The latter may offer no single, coherent plan of organization at all. But what is to say that events of seeing are not perfectly simple? Take the event [A,d; \(1\)-sees-\(2\); t]. Why should we think that this event has any event constituents?

One reason, as we shall see in the next chapter, is that there is a great diversity of situations in which we talk about a seeing taking place; and it is difficult to see how these diverse cases can all consist of the same simple event. There is also another reason. According to scientific theory, seeing involves a great number of physiological and other physical events interrelated in extremely complex ways. Our theory of events suggests that the 'involves' here may be read as 'consists of', and this would mean that current scientific scientific theory informs us that seeing is a complex event.
One might, however, question the relevance of current scientific theory to an analysis of the concept of seeing. Certain concepts, like, that of seeing, are concepts that one might say are highly "scientific-theory neutral." These concepts are used more or less correctly by a wide variety of people who have little or no knowledge of the relevant scientific theories. So it is highly implausible to think that the conditions for proper use of the appropriate terms are provided by those scientific theories. Analyzing or explaining the nature of these concepts is a philosophical rather than a scientific enterprise.

These considerations pose a particular problem for someone who, as I do, supposes that a philosophical theory can tell us something about the event of seeing as well as the concept of seeing. How can a philosophical account of the event of seeing co-exist with a distinct scientific account of seeing? The scientist is telling us about the constituent events and structure of the event of seeing. Once the scientist has told his story, what further story is there to tell?

There are various answers that one can give to these questions. One approach, which can be called the Traditional or Cartesian approach, is to claim that the philosophical account applies to an event that is totally distinct from the occurrences with which the scientist concerns himself. In the case of seeing, this is a mental event whose nature we can observe by introspection without need for scientific equipment or paraphernalia. The mental event and the physical and physiological events are on the same level (they causally interact and neither comprises or is any part of the other), though, of course, they are viewed as being of very different types. The
philosophical account must be appended to the scientific account to give a full account of seeing.

A slightly different answer is provided by the Epiphenomenalist or Parallelist. Here again the philosophical account applies to events that are distinct from those with which the scientist is concerned, and they are events of which we have knowledge by introspection rather than through scientific experimentation. But these events are not causally related to the physical occurrences (except, perhaps, as effects). On this view, there are no causal gaps in the scientist's account.

No one, to my knowledge, has ever shown that these answers are incoherent or totally untenable. But consideration of parallel cases in which scientific theory gives an account of a purely physical phenomenon which is also identifiable by ordinary concepts, shows that these answers will not suffice to explain all cases. And if we can show how a distinct philosophical account of a physical phenomenon can co-exist with a scientific account of that same phenomenon, then we will not be limited to the Cartesian or Epiphenomenalist view in the case of seeing.

To take a familiar example, let us consider the phenomenon of lightning. Science has given an account of lightning in terms of events of electrical discharge. But people had a concept of lightning long before anyone knew about electricity; and currently, people with no familiarity with electrical theory use the concept of lightning correctly. Certainly there is a perfectly good sense in which one need not be an expert in electrical theory to understand what
lightning is. So it seems that there must be some account of lightning that is distinct from the scientist's account. But we are not tempted to think that there is a distinct event of lightning over and above the scientist's events of electrical discharge. Lightning just is certain events of electrical discharge. This throws us back to our original problem. If lightning just is certain events of electrical discharge, then how can there be distinct accounts of lightning?

Another aspect of the problem becomes apparent when we look at such identifications from the standpoint of a theory of events. To claim that lightning is a certain kind of electrical discharge is to claim at least that each event of lightning is identical with an event or complex of events of electrical discharge. But how can a theory of events justify such identity claims? Consider, for example, Kim's identity conditions, which hold that events are identical just in case they have the same object, property and time constituents. Now identity of time constituents does not present a problem. Nor does identity of object constituents, provided that it is acceptable to talk about a segment of space as an object constituent. (A segment of space would clearly qualify as a particular, on my account.) But there is a problem in making the claim that the property constituents are identical. True, Kim has eschewed a synonymy criterion for property identity, so he is absolved from the need to claim (very implausibly) that 'displays lightning' means the same as 'displays a certain kind of electrical discharge'. But then what basis would there be for claiming that the property displays-lightning is
identical with the property displays-a-certain-kind-of-electrical-discharge?

One could claim, I suppose, that just as scientists discover identities of substances (e.g., water and \( \text{H}_2\text{O} \)) and identities of events (e.g., lightning and electrical discharge), so they discover identities of properties. (So far as I know, Kim does not claim this.) But I find such a response question begging. The evidence that the scientist would have for the identity of properties would be just the evidence that he has for the identities of the events. The identification of the properties would ride "piggy-back" on the identification of the events, and it seems that the only justification for having a notion of theoretical identification of properties is that this is required to make one's theory of event identity compatible with the desired results. Moreover, if it is true, as I have claimed, that one can understand the concept of lightning without having any understanding of electrical theory, this seems to represent strong evidence that the respective properties are not identical. Finally, the claim that the properties are identical leaves no room for distinct accounts of lightning, so we have not resolved our original problem: How can a scientific or theoretical identification of events be compatible with the existence of distinct accounts of those events?

I think that we can get a clue as to how to solve this problem by taking a closer look at the scientific identifications. I said above that the scientist must at least claim that each event of lightning is identical with some event or complex of events of electrical discharge. Now I see no reason for the scientist to have
to claim any more than this. This would be enough to support the claim that lightning is nothing over and above a certain kind of electrical discharge. In particular, there is no need to claim that the event-type of lightning is identical with the event-type of a certain kind of electrical discharge. If the event-types are distinct, it leaves open the possibility that one can understand the concept of lightning, and be able to identify events of lightning, without understanding the nature of events of electrical discharge. An event of lightning is comprised of an event (or complex of events) of electrical discharge. But we need not understand what a thing is comprised of in order to identify it or understand (in one ordinary sense) what it is. I can understand what an automobile or jet plane is without having any but the most superficial knowledge of what materials they are comprised and how the parts go together. Still, the automobile or jet plane is nothing over and above their constituent parts and the relationships of the parts to each other.

If the sense in which lightning is identical with a certain kind of electrical discharge is the sense in which each event of lightning is comprised of events of electrical discharge, then there can co-exist a scientific-theory-neutral account of lightning that explains what it is in a way that entails the truth of nothing more than the most rudimentary of scientific theories and a scientific-theory-specific account that explains the nature of the events constituting an event of lightning. Still, lightning is nothing over and above (has no event parts distinct from) events of electrical discharge.
But what does it mean for events of electrical discharge to "constitute" an event of lightning? The theory of events that we have been developing provides a clear-cut answer. A set of events constitutes another event just in case it is a set of object constituents of that event. This seems to raise some immediate problems, however. We said above that it was reasonable to think that the object constituent of an event of lightning was a segment of space. If this is so, then how can events of electrical discharge constitute an event of lightning by being its object constituents? An event of lightning already has a non-event object constituent.

This objection, however, ignores the fact that an event, just like a physical object, can have various levels of structure. On one level of structure, my desk consists of a rectangular, flat piece of wood on top of two box-shaped structures on either end. Another, deeper, level of structure would involve mention of drawers and the relationships that these bear to the parts of the remaining structure. We could go on to talk about individual nails and globs of glue, and we could go on further to talk about molecules and atoms. So the fact that on one level of structure the object constituent of an event is a segment of space does not mean that on some other level of structure the object constituents might not be a set of events. The identity conditions (GIC) clearly allow for such multiple levels of structure. We have seen numerous cases in the preceding chapters where the same event has different object constituents under different canonical descriptions. Each true canonical description of an event represents its structure at some level.
But a major problem remains. Can we, in fact, show, assuming the truth of our scientific theories, that any event of lightning does have events of electrical discharge as object constituents? Let us consider a particular event of lightning \([s, \text{ displays-lightning}, t]\) (where 's' names some particular segment of space). Now to display the deeper structure of this event, we need some scientific-theory neutral account of lightning. Let us say that for a certain segment of space to display lightning is for a certain event (or events) to take place in that segment of space which appears as a bright flash in the sky, which is of a type that typically occurs during rain storms and preceding the sound of thunder, and which is capable of causing fires and killing animals or people and shattering trees and ... (and here one would have to fill in all the proto-scientific folk knowledge about the nature of lightning). Scientific theory tells us that the event which has these characteristics is an electrical discharge. That is to say that some event of electrical discharge has the property of being an event that occurs in s and appears as a bright flash in the sky, occurs during a rain storm, etc. This complex event can be described canonically as \('[s, \text{ displays-electrical-discharge}, t],\)\ occurs-in-s-and-appears-as-a-bright-flash-in-the-sky-and-... , t\].\) But (GIC) produces the result that this event is identical with \([s, \text{ displays-lightning}, t]\). So, (EPC) produces the result that \([s, \text{ displays-electrical-discharge}, t]\) is a part of \([s, \text{ displays-lightning}, t]\)\.

The technique involved here is quite general and the basic idea is hardly new or revolutionary. The idea, for example, that mental
concepts are "topic neutral" was proposed a number of years ago by J.J.C. Smart (1962, p. 167), and something like this idea is involved in D.M. Armstrong's (1968) causal analyses of mental terms. But I have suggested that not only mental terms but a wide variety of ordinary terms are scientific-theory neutral. Also I have given a sense to how ordinary entities and scientific entities can be "identified." People have long suspected that there is something anomalous about such identities because they seem to violate Leibniz' Law of the Indiscernability of Identicals. Many of the properties which we commonly apply to ordinary entities (e.g., color, shape, solidity) do not apply, or, at best, apply in a strained way to the scientific entities which are supposedly identical with them. And many of the properties of the scientific entities (e.g., charge, spin, etc.) do not apply to the ordinary entities. Such problems are resolved if the scientific entities are identical to the ordinary entities in the sense that they comprise the ordinary entities. The properties of the parts are not necessarily properties of the whole and vice versa. (I do not mean to imply that this offers a way of resolving all problems concerning such identifications. For example, it says nothing about the question of whether the whole can have properties that are not reducible (in some sense) to properties of the parts.)

Our theory of events allows this line of reasoning to be extended to the case of the theoretical identification of a scientific event with an ordinary event. Moreover, each ordinary event can be identical with (comprised of) some set of scientific events without it being
the case that there is any independent way of identifying a type of scientific event that is identical with the relevant type of ordinary event. This is important if certain cases of scientific identification are to be plausible.

For example, it has been argued against the identity theory of mind that it is implausible to think that a certain type of mental state (e.g., a pain) is always correlated with the same type of neurophysiological state in different people or different organisms capable of having that mental state. Suppose that there are extraterrestrial beings who have a neurophysiological system completely unlike ours. Does the fact that such beings cannot be in the same type of neurophysiological states as us rule out, a priori, the possibility that they have mental states? Our theory would allow for the possibility that a certain type of mental state has no single type of neurophysiological state correlated with it. It may be that even within the same person, the same type of mental state can be comprised of different types of neurophysiological states at different times. Still, every mental event could be comprised of neurophysiological events, and this would justify the claim that a mental event is nothing over and above the occurrence of neurophysiological events. Moreover, it would also leave open the possibility that a distinct philosophical account of mental events co-exists with a scientific account of the events comprising those mental events.

In the following chapters, I will attempt to develop a philosophical account of the event of seeing an object. Such an account
is compatible, I claim, with the existence of a distinct scientific account of what goes on when someone sees an object, even though the scientific account may be complete in the sense that it leaves out none of the events comprising seeing on its level. The philosophic account I offer will also strive to say what goes on during an event of seeing, to identify the events involved in an event of seeing and the nature of their relationship to each other, but it will be working on a different level of structure from the scientific account. To refer back to the analogy with the structure of a desk, to say (on one level of structure) that a desk has three parts, a top and two sides, is compatible with saying (on a deeper level of structure) that that same desk has 300 parts: 50 boards, 200 nails, and 50 globs of glue.

My account will involve conceptual analysis, but it is not to be taken as an attempt at conceptual analysis of the ordinary concept of seeing. I have been arguing that an adequate scientific theory of seeing leaves room for a distinct, full-fledged, philosophical theory of seeing. The philosophical account is not limited to an examination of ordinary language. It can take the range of events roughly picked out by the ordinary concepts (in this case, the events would represent the phenomena of seeing), and formulate whatever new concepts and hypotheses about seeing are needed to best classify, sort and explain that range of events. There is, indeed, conceptual analysis involved in an integral way in the application of my identity conditions. But the needed conceptual analysis can be built into the terms that we develop to express our theory.
I have one last parenthetical remark before embarking on the project. I do not wish to overemphasize the distinctness of the philosophical and scientific accounts of seeing (or of any other ordinary phenomenon). There is no sharp line to be drawn between scientific phenomena and ordinary phenomena. A philosophical account must be compatible with the discoveries of science, and the scientific account, in its own way, is guided by some philosophical account or other. To use Wilfred Sellars' terms, I think that there is no clear, unchanging boundary between the Manifest Image and the Scientific Image of the world. But until the Images merge (if they ever do, or can), there will be room for, and need for, philosophical theories of the events and objects of the Manifest Image.

Notes

1. This isn't quite true. There is at least one philosophically interesting characteristic that all and only the events picked out by the ordinary use of the term 'see' have in common, namely, the fact that they are all picked out by the ordinary use of the term 'see'. Our current interest, however, is not in such linguistic matters, but in the structurally revealing characteristics of the events.
8. THE PHENOMENA OF SEEING AND SOME
INADEQUATE THEORIES OF SEEING

Let us begin by examining some of the phenomena that we want a
theory of seeing to explain or account for. Consider the following
cases. We shall suppose for all cases (except where specifically
noted otherwise) that there is a red book on a table a short distance
in front of A, that the lighting is standard, that A is conscious with
his eyes open and directed upon the book, that A's eyesight is normal,
and that A's beliefs (if any) are brought about, in part, by the
causal interaction of the red book with A's eyes in the customary way
associated with vision (whatever that way might be).

I. A believes that he is seeing a red book and that there
is a red book in front of him.

II. There is no object at all on the table immediately in
front of A, but A believes that he is seeing a red book
and that there is a red book in front of him.

III. A believes that he is seeing a red brick and that there
is a red brick in front of him.

IV. The lighting is not standard. There is a blue light falling
on the book, and the background is such as to disguise the
fact that the lighting is not standard. A believes that he
is seeing a purple book and that there is a purple book in
front of him.

V. The situation is the same as IV, except that A is aware of the nature of the lighting. A believes that he is seeing a red book and that there is a red book in front of him, and that the book looks like a purple book.

VI. A believes that he is seeing some kind of red object and that there is some kind of red object in front of him, but A does not believe that he is seeing a red book or that there is a red book in front of him because A does not understand what a book is.

VII. A has no beliefs with respect to the red book or with respect to his perceptual state.

Let us suppose for the sake of argument that each of these cases is a case of A's seeing the red book. Case I is a case of veridical perception. Case II is a case of hallucination/delusion. Case III is a case of misidentification. Cases IV and V are cases of illusion. Case VI is a case of conceptual inadequacy. Case VII presents the possibility of perception without belief. These cases will serve to illustrate in one way or another the major features that must be accommodated in any adequate theory of seeing.

For a theory to do justice to these various phenomena, it seems that it must offer some way of talking about the ways that things look or appear to perceivers. Omitting case VII from discussion for the time being, a theory of seeing must be able to account for the fact that there is a phenomenological similarity between cases I, II, III, and VI, which differs from the phenomenological similarity that cases
IV and V bear to each other. The casual way of expressing this (at least in part) would be to say that in cases I, II, III, and VI something appears or looks red to A, whereas in cases IV and V something appears or looks purple to A. It has been pointed out by Chisholm (1966, ch. 6) and others that this way of speaking is liable to dangers, since it leads us to suppose that there must be something to appear to us, even in cases of hallucination like case II. Such philosophers recommend that instead of talking about something looking or appearing P to A, we should talk in terms of A's being appeared to P-ly (or in a P manner).

While I agree that it is necessary for an adequate theory of seeing to provide some way of accommodating the fact that things look or appear to seers in certain ways (or that seers are appeared to in certain ways), I shall not be satisfied with a theory, for our purposes, that simply takes the ways that things appear, or the ways that seers are appeared to, as a primitive, unexplained notion. The reason is that leaving the notion of appearing as a primitive does not provide the slightest hint as to how a scientific account of the neurophysiological events that take place during seeing can relate to the philosophical account of the event of seeing. How could we ever have a neurophysiological account of the event of being appeared to P-ly? Even if there were a perfect correlation between the occurrence of a particular type of neurophysiological event and the occurrence of events of being appeared to P-ly, many philosophers have felt that at best we could claim that certain neurophysiological events have the mental (scientifically inexplicable) property of
occurring φ-ly.² On my account A's being appeared to φ-ly, if not further analyzable, offers no apparent basis for being incorporated into the scientist's account. Either it must be added to the scientist's account, or it must be eliminated in favor of the scientist's account. Since I do not think that either of these alternatives are correct, I think that an adequate theory of seeing must offer some way of explaining what an event of A's being appeared to φ-ly is.

For this reason, I shall eliminate from consideration accounts like those of Dretske (1969) and Soltis (1966), which take as primitive the notion of something looking in some way to a perceiver. These accounts perform a valuable function in clearing up conceptual confusions regarding the notion of seeing and in trying to make clear how seeing relates to acquiring knowledge, but they will not do for our purposes.

It may seem that traditional sense-datum accounts do offer an analysis of events of appearing. Typically, such accounts would say that an event of something's appearing φ to a seer A is analyzable into an event of A's "immediately seeing" a sense-datum that is φ. Now if the sense-datum theory takes the notion of immediately seeing a sense-datum as a primitive, signifying something with which we are each directly acquainted in our own perceptual experiences and about which nothing more can be said, then there is no gain over the notion of something's appearing in a certain way to a seer. Usually, however, sense-datum theories, either explicitly or implicitly, take sense-data to be objects of some sort. This would allow one to say that an event
of being appeared to consists of a seer standing in a certain kind of relation to a certain kind of object.

The appearance of helpful analysis here, however, is merely an illusion, for both the nature of the relation and the nature of the object remain obscure. If the relation is anything like the relation in which a seer stands to an object in seeing that object, then it is hard to see how talk about the relation can play any effective role in explaining what the nature of an event of seeing is. Some have said that the relation is like the relation of acquaintance or direct contact. But this again conflicts with the explanatory role that the relation is supposed to play. In order to play the explanatory role, the relation must be such that whenever something appears \( \phi \) to \( A \), \( A \) must immediately see a sense-datum that is \( \phi \). But how can an encounter (such as acquaintance or direct contact) between a perceiver and an object be such that the perceiver cannot misapprehend or misidentify the object encountered? Other attempts at explaining the nature of the relation (such as saying that it is a relation of inherence) either abandon the notion that the sense-datum is an object, or fail to be coherent at all.

I do not contend that these brief remarks represent a refutation of sense-data theories of perception. But I feel that they are sufficient to show that there is little promise in pursuing further a sense-data line with respect to our interests in uncovering the constituents of an event of seeing.

A relatively new approach in perceptual theories offers considerably more promise. This approach can be called an "epistemic"
approach. Its basic tenet is that the nature of perception can be explained in terms of the acquiring of beliefs.

I think this approach is promising for two reasons. First, it seems reasonable from a biological standpoint that the acquiring of beliefs is involved in events of seeing. The biological function served by seeing is to provide a certain sort of information about its environment to the seer. Given a broad, dispositional notion of belief, one can claim that it is only insofar as the information is present in the content of the organism's beliefs that it can be utilized by the organism in reacting intelligently to its current environment. Second, to the extent that events of seeing involve events of acquiring beliefs, there should be no problem in principle in providing a scientific account of seeing. We already have computers that have the capacity to exhibit sophisticated discriminative behavior, and which thus have beliefs in the relevant sense.

Exactly what is the relevant dispositional sense of belief is a question that often receives inadequate treatment. Roughly, we can say that a belief, in this sense, is a state of something that provides that thing with the capacity, in part, to exhibit discriminative behavior of some kind. Beliefs provide only partial capacities or dispositions to exhibit behavior, because actual behavior is not usually produced by beliefs alone. The thing must also have the desire or interest and, of course, the physical capacity, to exhibit the behavior. It is extremely hard, however, to be precise on just what kind of partial capacities count as beliefs, and this may give reason to question the viability of this approach. Consider, for
example, the case of certain flowers and plants that "follow" the sun. If one accepts a broad, dispositional account of beliefs and desires, is one committed to ascribe to such flowers and plants the desire for sunlight and the belief that the sun is moving from east to west? If so, doesn't that provide a clear reductio on the broad, dispositional account of beliefs and desires?

I think there are some who would be willing to "bite the bullet" even on this case. For example, Daniel Dennett (1978), if I read him correctly, would be willing to admit that there are circumstances under which it would be perfectly proper to ascribe desires and beliefs to a flower. Moreover, such beliefs and desires would not be mere metaphors, pale shadows of the full-blooded variety that you and I have. There is no more full-blooded variety. One can justify taking the "intentional stance" toward an object (i.e., ascribing beliefs, desires, intentions, etc. to it) whenever taking such a stance is useful in making predictions about the behavior of the object. We are not inclined in general to ascribe beliefs and desires to a flower, because there aren't a great many circumstances in which taking the intentional stance toward a flower is likely to pay off. Likewise, the intentional stance pays off less often with respect to an infant or an animal than it does with respect to a sane adult. But in the circumstances in which the intentional stance does produce reliable predictions, we can forthrightly ascribe intentional states to the objects involved, be they flowers, humans, or computers.

The clear-cut nature of such a stand has a certain appeal, but I do not think that anyone holding a dispositional account of beliefs
and desires is forced to adopt this line. One can distinguish between the case of flowers and sane adults on the basis of relative complexity and flexibility of response, resistance to deception, adaptability, and on a number of other bases (and, of course, Dennett realizes this). No one to my knowledge, however, has offered any precise account of such a distinction.

Now the issue of the nature of beliefs enters into theories of seeing in a central way. For example, there are two prominent accounts of seeing whose purportedly non-epistemic analyses of 'see' would count as epistemic analyses if we take a sufficiently broad view of beliefs. These are the accounts of Dretske and Soltis, which I indicated above were not suitable for our purposes. Soltis says that his schema "S simply-sees x" is to have no implications with respect to whether any beliefs are acquired by the observer (1966, p. 62), and Dretske says that his schema "S sees x" does not entail that S has any specific belief (1969, p. 17). But both Soltis (p. 62) and Dretske (p. 20) require that a person be able to distinguish or discriminate an object from its environment in order to see it. If one has a broad, dispositional view of beliefs, then the person's capacity to discriminate x from its environment justifies ascribing a belief about x to the person.

Let me give a concrete example where this question about the nature of the relevant concept of belief enters in. In criticism of the view that acquiring beliefs is essential to seeing, Dretske offers the example of an infant who fixates its eyes on its mother and follows her movements around. Surely, says Dretske, the infant sees its
mother; but it would be ridiculous to think that the infant has any beliefs about its mother, or its current visual state, for that matter (p. 10). Now whether it is ridiculous to ascribe beliefs to the baby depends upon one's notion of belief. The baby's visual state, by hypothesis, has provided the baby with the capacity to exhibit discriminative behavior toward its mother. Again, this is enough, if you have a dispositional view of beliefs, to justify ascribing beliefs about its mother to the infant.

The issue here is particularly sticky and complex. On the one hand, people like Dretske and Soltis can claim that those who hold a broad, dispositional view of belief are stretching the concept of belief beyond all recognition. Surely, flowers and plants, at least, just do not have beliefs. Organisms that have beliefs are typically consciously aware of those beliefs. They can express their beliefs in language, and they can deliberate about them and change them based upon that deliberation. On the other hand, it can be argued that restricting the notion of belief in this way is taking a parochial and chauvinistic viewpoint. The concept of belief is far too fertile a theoretical concept to be limited in its application to relatively sane, adult humans. The essential feature of the state of believing is the role that the state plays in mediating between sensory input and other mental states to produce behavioral output. Animals and infants, at least, have states that play this role; and, therefore, animals and infants have beliefs. It may be that the belief states of sane, adult humans typically have additional features and enter into more complex interactions with other psychological states; but they
are belief states because they play the essential mediating role between sensory input and behavioral output.

As the reader may have guessed, my sympathies in this dispute lie with those who espouse the broad, dispositional view of belief. But I have nothing additional to say here that will resolve the dispute. The dispute may eventually be resolved on the basis of whether the dispositional view of belief proves itself to have the kind of theoretical fertility vis-à-vis philosophical and psychological theories that its adherents claim. It would be desirable for the dispositional view to be able to distinguish clearly between cases involving instinctive or reflex behavioral responses and cases where it is appropriate to talk about beliefs being involved in the production of the responses. Perhaps, however, additional psychological, biological, and physiological data is needed before this distinction can be drawn in a very precise way.

Even if the dispositional view of beliefs is correct, I think that there is considerable merit to drawing a distinction between the typically conscious, language-encoded states to which some would restrict the term 'belief', and the other merely dispositional belief states. I will draw such a distinction later in this work and use it to resolve certain problems facing theories of seeing. I reveal my bias in the dispute over the nature of beliefs by calling both kinds of states belief states, but I do not want my theory of seeing to hang on this point. If the reader should feel that I am stretching the term 'belief' beyond appropriate and reasonable bounds, the reader is free to substitute any new term of his choosing. It may be, in that
case, that I no longer can claim to have an epistemic theory of seeing; but I have no stake in whether my theory qualifies for that particular label. I do have a stake in showing that events of seeing can be analyzed, in part, into dispositional events or states of a type that pose no particular problem for a scientific theory. Even if some of those dispositional events and states are improperly labeled, the important aspects of my theory can emerge unscathed. For now, let us return to our consideration of epistemic theories by looking at a particular attempt at an epistemic theory of perception, one developed by David Armstrong (1961 and 1968).

Instead of talking about something's looking or appearing in a certain way to a perceiver, Armstrong talks about the perceiver's having a sense impression of a certain kind. This locution allows him to talk about cases like II, where there is nothing to look or appear to A in any way. But the locution is not meant to imply that a sense impression is an object of any sort that stands in any relation to the perceiver. A perceiver's having a sense impression is, typically, the perceiver's acquiring some set of immediate beliefs. Immediate beliefs are beliefs which are not inferred from or suggested by other beliefs. Typically, in the case of vision, the set of immediate beliefs will be beliefs about those qualities of the object of vision that are proper to the sense of sight, such as its color, two-dimensional perspectival shape and relative position. A's belief that he is seeing something red and rectangular is an immediate belief. A's belief that he is seeing a red book is a mediate belief that is inferred (not necessarily consciously) from or suggested by A's immediate beliefs.
and by A's background beliefs.

Let us investigate Armstrong's account further by seeing how it would attempt to account for our seven phenomena of seeing. The phenomenological similarity of cases I, II, III and VI can be explained in terms of A's having the same sense impression (acquiring the immediate belief that something in front of him is red and rectangular) in all four cases. In case I and II, A's mediate belief that he is seeing a red book is inferred from or suggested by his immediate beliefs. In case I, the mediate belief is true; in case II, it is false. In case III, A's belief that he is seeing a red brick is again inferred from or suggested by his immediate beliefs. In case VI, A is prevented by conceptual inadequacy from acquiring the belief that he is seeing a book even though he has the same type of sense impression as in cases I, II and III.

Armstrong's account can also explain case IV rather neatly. A has a different sense impression in case IV than he has in cases I, II, III and VI. In case IV we may suppose that A acquires the belief that there is something purple and rectangular in front of him. His false mediate belief that there is a purple book is suggested by his immediate belief. Case V, however, presents a problem. We would want to say intuitively that A has similar perceptual experiences in case V and in case IV, but in case V apparently A does not believe that he is seeing anything that is purple and rectangular. (This case, by the way, shows that not all beliefs about the visual qualities of an object are immediate beliefs. Here A believes that he is seeing something red, but he is presumably not having a red sense impression.
His belief that he is seeing something red is a mediate belief.) How can Armstrong's account explain the fact that the book looks purple to A in case V?

Case VII presents an even more acute form of the problem. It would seem to be impossible on Armstrong's account for A to have a red rectangular sense impression in case VII. Since having a sense impression is merely acquiring certain immediate beliefs, if A has no beliefs, he has no sense impression. But, on the surface, it seems very implausible to claim that A could not be seeing anything that looked red and rectangular in case VII. We saw in case VI that a person who did not have the concept of book was not prevented from having the same kind of visual experience as a person who did. Suppose that A has neither the concept of red nor the concept of rectangular, so that A cannot recognize anything as red and rectangular. Surely this should not prevent it from being possible that something presents a red and rectangular appearance to A. How could A ever acquire the concepts of red and rectangular if he could not have experiences of things presenting red and rectangular appearances without first having the relevant concepts? Moreover, at least the logical possibility of case VII seems to be independent of the supposition of conceptual inadequacy on the part of A. It should, one would think, be possible, however psychologically implausible, for a conceptually competent A to be appeared to in a red and rectangular manner while withholding all beliefs about his current visual perceptual state and its causes.

Armstrong attempts to handle apparent counterexamples like these by broadening his notion of having a sense impression. One need
not actually acquire certain immediate beliefs in order to have a sense impression. It is sometimes the case that having a sense impression is simply acquiring inclinations to have certain immediate beliefs. In case V, it may be that A does have a purple and rectangular sense impression, because A may have the inclination to believe that he is seeing something purple and rectangular. This inclination is blocked from becoming the belief that there is something purple and rectangular because of A's knowledge about the lighting conditions, etc. Likewise, in case VII, A may have the inclination to believe that he is seeing something red and rectangular even though he doesn't actually acquire any beliefs.

It seems reasonable to ask at this point how we can tell whether A has acquired any such inclinations. In case V, we have supposed that A believes that the book looks like a purple book, but this is not adequate to ground the claim that A feels any inclination to believe that the book is purple. It seems entirely possible that A should feel no inclination whatsoever to believe that the book is purple, even though he readily admits that it looks purple.

Furthermore, there seem to be cases where a seer does not acquire certain beliefs or inclinations to believe because the seer already has those beliefs. Suppose that A stares at the book from t₁ to t₄, and the book appears red to A throughout t₁ to t₄. How can Armstrong explain the book's looking red to A at t₄? A believes that the book is red prior to t₄, so he does not acquire at t₄ the belief that the book is red. Nor need we assume that A acquires at t₄ the belief that the book is red at t₄. A, not seeing any reason why the book should
change color, may have this belief prior to $t_4$. But, perhaps, A acquires at $t_4$ the belief that the book is now red. The idexical temporal reference is tricky here, as is the matter of identifying beliefs; but I do not think that this suggestion will relieve the problem. In one sense, A has throughout $t_1$ to $t_4$ the belief that the book is now red. In any case, Armstrong takes another tack.  

Armstrong suggests that both of the above problems can be handled by supposing that one can acquire a disposition to acquire a belief without feeling any inclination to believe and even if one already holds that belief. Why, however, should we think that seers acquire such dispositions?  

Armstrong claims that the acquiring of such dispositions is marked by the fact that certain types of counterfactuals become true of the perceivers in such cases. In the case where the perceiver does not acquire the beliefs, the counterfactual is of the form, 'But for the fact that the perceiver had other, independent, beliefs about the world, he would have acquired certain beliefs - the beliefs corresponding to the content of his perception' (1968, p. 222). In the case where the perceiver already has the belief, the counterfactual is of the form, 'If the perceiver had not already had the relevant belief, then he would have acquired it' (cf. 1968, p. 224).  

For Armstrong, any time that a counterfactual is true of an object at some time $t$ that was not true of that object prior to $t$, there must be some actual event taking place at $t$ to ground the fact that the counterfactual has become true. The event, in the case of such perceptual counterfactuals, is the acquiring of a disposition to
acquire a belief, or, as Armstrong sometimes puts it, the acquiring of a "potential belief" (1968, pp. 222-3).

Let us start to examine Armstrong's proposal by asking whether Armstrong has correctly characterized the form of the counterfactuals that purportedly become true of a perceiver in such cases. George Pappas (1977b) suggests that limiting the relevant counterfactuals to this form is unsatisfactory, since there are circumstances other than possessing certain beliefs which prevent visual perceptions from producing the expected beliefs. For example, there are cases where inattention or conceptual inadequacy prevents one's perception from being belief-producing (pp. 156-7). Our previously discussed case VII might be such a case.

Now I am not sure that Armstrong would grant the existence of such cases. With respect to conceptual inadequacy, for example, Armstrong holds that concepts are abstractions from judgments (1961, p. 126). So Armstrong may wish to hold that conceptual inadequacy would not prevent one from making the relevant judgments and acquiring the relevant perceptual beliefs. A different line is available to Armstrong with respect to cases of inattention. Given Armstrong's dispositional conception of belief, it is quite possible to acquire beliefs of which we are not consciously aware. A person who walks down the street while engrossed in deep thought, who nevertheless avoids bumping into people, telephone poles, and street signs, and who waits at the corner for the light to change, must, it seems, have seen the other people, poles, signs, and light. By the same token, however, the person's actions show that he has acquired certain beliefs with respect
to the people, poles, signs, and light. He may not be able to give any description of them, or even remember them at all; but his behavior is inexplicable unless we ascribe to him certain beliefs and desires. Of course, it may be that the person is so deeply engrossed in thought that he does walk into a pole or passerby. But, then, it seems reasonable to claim that he did not see them.

I think that Armstrong's best move here, however, is to broaden the range of relevant counterfactuals to include any whose counterfactual supposition concerns any psychological states of the putative perceiver. Let us call such counterfactuals psy-counterfactuals. Then we can state Armstrong's claim as the claim that any time a seeing experience occurs and no belief or inclination to believe is acquired, it is, nonetheless the case that some psy-counterfactual becomes true of the seer. This claim seems adequate for Armstrong's purposes, and it avoids problems relating to cases involving conceptual inadequacy or inattention. I assume in the following that Armstrong would agree with this. None of the additional criticisms that we will discuss hang on this point.

I see no reason to contest Armstrong's claim that any time that a counterfactual becomes true of an object, some event has taken place. There are counterfactuals which can be true of an object at a time without it being the case that the object has undergone any change in dispositional properties. Consider, e.g., 'If A had been born into a royal family, then he would be rich' (Pappas (1977b), p. 155). But I can think of no such counterfactuals which are such as to become true of the object.
I do see reason, however, to contest Armstrong's claim that the event which takes place when the appropriate kind of counterfactual becomes true of a perceiver can be properly described as acquiring a disposition to acquire a belief or acquiring a potential belief. Consider, for example, the type of case discussed above, where the seer already holds the relevant belief. How can one acquire a potential belief or a disposition to acquire a belief when one already holds the belief in question?

Moreover, it can be claimed that there are cases where a counterfactual’s becoming true of an object is not a guarantee that the object has acquired some disposition, for it may already have that disposition. Pappas (1977b) offers the following counterfactuals as presenting a problem of this kind:

(1) If it had not been for the fact that, at $T_0$, A was forcefully restrained by Jones and Smith, A would have walked across the street.

(2) If it had not been for the fact that, at $T_1$, there was so much traffic going by, A would have walked across the street (pp. 154-5).

We can assume that A has the disposition to walk across the street throughout $T_0$ to $T_1$, so the fact that counterfactual (2) becomes true of A at $T_1$ does not mean that A has acquired the disposition to walk across the street (or any other disposition, for that matter).

The problem that I have with Pappas' example is that if we suppose that A has the same disposition to cross the street throughout
To T₁, it isn't clear to me that counterfactual (2) was not already true of A at T₀. Consider (2) amended in the following way:

(2*) If conditions were such as they would be at T₁, except that there was not that much traffic going by, then A would walk across the street.

It seems clear to me, under the supposition that A has the same disposition to cross the street throughout T₀ to T₁, that (2*) is true of A at T₀. The only difference between (2) and (2*) is the way that the temporal references are handled. To avoid problematic temporal references such as those in (2), Armstrong could restrict the range of counterfactuals to those whose antecedents suppose changes only in conditions present at, or prior to, the time at which the event identified in the consequent would have taken place.

There are other examples, however, which Armstrong could not avoid in this way. Make the following changes to case V. At t₀, A is told by B that the book will be purple at t₁. A would have believed B but for the fact that A had previously overheard B telling C that he would be lying to A. So while A does not believe at t₀ that the book is purple at t₁, there is a psy-counterfactual that becomes true of A at t₀, and which we may suppose is still true of A at t₁: 'If A had not believed that B was lying when he told A that the book was purple, A would have acquired the belief that the book is purple at t₁'. So in Armstrong's terms, A has at t₀ the disposition to acquire the belief that the book at t₁ is purple.
Now, at $t_1$, a new conditional becomes true of A, but it is rather complicated to spell it out. If the foregoing events had not occurred, we could simply say that if A had not believed that the lighting was non-standard, he would have believed that the book was purple. But given the story we have told, this counterfactual is false. A believes that B was lying when he told A that the book was purple, so even if A had not believed that the lighting was non-standard he still would not have believed that the book was purple. We can enlarge the counterfactual to: If A had not believed that B was lying and had not believed that the lighting was non-standard, then he would have believed that the book was purple. The problem is that this counterfactual was true of A at $t_0$. The best that I can offer is the cumbersome: If A did not believe that B told him that the book was purple, and A did not believe that B had planned to lie to him, and A did not believe that the lighting was non-standard, then A would have believed that the book was purple. This is a psy-counterfactual that becomes true of A at $t_1$; but A already has the disposition to believe that the book at $t_1$ is purple, so A does not acquire the disposition to believe that the book at $t_1$ is purple.

We may summarize the problem we have posed for Armstrong as follows: While it is plausible to think that every event of seeing is a case where either the seer acquires some belief, or some psy-counterfactual becomes true of the seer, it is not plausible to think that every time a psy-counterfactual becomes true of a seer the seer has acquired a disposition to acquire a certain belief. In particular this is not plausible in cases where the perceiver already has that
belief, or where the perceiver already has the disposition to acquire that belief.

If we look closely at the way that Armstrong characterizes the acquiring of a disposition to acquire a belief, we can see one of the underlying bases for the problem. Armstrong says that the acquiring of a potential belief is an event that would be the acquiring of a belief but for the existence of other beliefs (1968, p. 223). It seems that what Armstrong is saying is that the acquiring of a potential belief is an event that would have been describable as the acquiring of a belief, if the circumstances in which the event occurred had been different. This suggests the Anscombe/Davidson view of events, which provides that an event can acquire a different generic description by occurring in certain circumstances. We have already criticised that view of events, and there is no need to repeat those criticisms here. Nevertheless, it is instructive to see why that view is dissatisfying when applied to this particular problem.

Armstrong says that the events that take place when a counterfactual becomes true of someone are events that would be describable as the acquirings of beliefs if certain conditions, which did not in fact hold, had held. One feels the justifiable urge to demand here: Never mind what the events would have been describable as; tell me what they are. Armstrong leaves completely open the nature of these events, just as, I have argued, anyone who adopts the Anscombe/Davidson view of events leaves open, in a very unsatisfying way, the nature of the events that are purportedly being described.
I see two moves that Armstrong might make here, neither of which are adequate. First, Armstrong might say that the events in question are the acquirings of psy-counterfactual properties. If the psy-counterfactual 'If A had not been in psychological state \( \phi \), then A would have acquired belief \( \phi' \) becomes true of A at \( t \), then my account of events provides that at least the following event occurs: \[ A, \text{if-} \underbrace{\text{had-not-been-in-psychological-state-} \phi \text{-then-} \underbrace{\text{would-have-acquired-belief-} \phi \text{-at} \ t} \text{.} \] I have said previously that, due to problems concerning negative events, material conditional properties are not eligible to be property constituents of events. But I think that at least some subjunctive conditional properties are eligible, and I am inclined to think that events of the above type do occur. Unfortunately, the knowledge that such events occur doesn't shed much light on the composition of the event of seeing. The fact that such events occur tells us no more than that a certain counterfactual has become true of the subject.

The other move that Armstrong might make is to claim that it is up to the scientists and neurophysiologists to tell us what these events actually are. The philosopher has done his job once he has given a "neutral" way of identifying the events, and perhaps describing the events as the acquiring of psy-counterfactual properties will do.

I, however, do not think that it will do. Psy-counterfactual events are too neutral. They present almost no constraints on the scientist's account. Moreover, it is implausible to think that such events play the role that Armstrong needs them to play. First, it seems that they occur only when the seer does not acquire the relevant
beliefs. But the events that comprise a seer's being appeared to in some way are events that occur even when the seer acquires beliefs. Second, as Pappas has pointed out (1977b, pp. 160-1; 1979, p. 227), being appeared to in some way is an experience that is phenomenologically rich in content, whether or not one believes one's eyes. But it isn't clear that psy-counterfactual events have any content at all.

This last point is directed only to those putative cases where seeing does not involve the acquiring of beliefs. There is a perfectly straightforward sense in which an event of acquiring a belief has content. Namely, the event has the content of the content of the belief that is acquired. Furthermore, since a typical event of seeing would involve the acquiring of a great many beliefs, it would be an event rich in content. Nevertheless, some may feel that the content of our perceptual beliefs never does full justice to the content of our perceptual experiences. Perceptual experiences have a phenomenological richness that is at best outlined in our perceptual beliefs. I agree that this is a very pervasive feeling and an account of seeing must provide some explanation for it. But I think that a certain kind of epistemic account can provide such an explanation.

In the next chapter I shall try to develop an adequate epistemic account of seeing. My principle point of departure from Armstrong's account shall be to claim that talk about acquiring dispositions to acquire beliefs is unnecessary. All events of seeing include events of acquiring beliefs. Events of seeing, however, also include much more. I propose that, methodologically, we make a fresh start. My view of events leaves open two different ways of arriving at an
understanding of a certain type of event. If the property constituent of that event-type is a fairly clear concept, then analysis of it will be relatively easy and that analysis will reveal what types of events (if any) the event has as constituents. On the other hand, we may be more familiar with what events comprise an event than we are with the concept of that event-type. In such cases, examination of the event parts may shed light on the concept of that event-type. I will use both of these approaches at times in the next chapter, but my basic strategy will be to build up an understanding of the nature of an event of seeing by examining its parts.

Notes

1. I must ask the reader's indulgence in accepting the plausibility of cases IV and V. It is well known that moderate changes in lighting do not affect our perception of color; and when changes of lighting do affect our perception of colors, they probably do not do so in the simple way I have assumed they do in these two cases. Nevertheless, these are at least possible cases, and the various refinements that would be needed to make the cases more plausible scientifically would not affect the plausibility of the arguments I shall develop.

2. For example, Chisholm (1966, p. 102); Cornman (1975, Appendix); Shaffer (1963); Stevenson (1960).

3. For a more detailed criticism of the "object" view of sense-data, from within the sense-data tradition, see Ayer, (1940, ch. II). I think that Ayer's view, involving taking sense-data talk as a mere façon de parler, leads rather naturally into a view like Armstrong's, which I shall be discussing below. Ayer's view on sense-data need not lead to Ayer's phenomenalism.

4. I am indebted throughout this chapter and the next to a perspicuous discussion of epistemic theories of perception in several articles written by George Pappas (1976, 1977a, 1977b, 1979). Many of the criticisms of epistemic theories that I shall consider are derived from those discussed in one or more of Pappas' articles. As will
become clear later, I do not agree in all cases with Pappas' evaluation of the strength of these criticisms. For more on the distinction between epistemic and non-epistemic theories of perception, see, in particular, Pappas (1976).

5. In (1961), however, Armstrong made some attempt to defend the position that some new specific belief is always acquired (see pp. 108-9).

6. For more on the notion of a counterfactual property, see Lewis (1973), pp. 36-8.
Let us return at this point to our central question and see what we can say about an event of a person’s seeing an object. I shall take it as needing no argument that for a person A to see an object d it is necessary for d to be causally involved in bring about some psychological state of A. One could object to the necessity of a causal connection, I suppose; but more often one hears objections to including mention of a causal connection in an analysis of seeing not because there is no causal connection, but because of the recognized difficulty of saying enough, but not too much, about what the nature of the causal connection must be. Clearly, not just any kind of causal connection will do. On the other hand, it is difficult to be very precise at all about the nature of the causal connection without eliminating at least logically possible cases of seeing.

For example, a fairly common, and seemingly uncontroversial, proposal is that the causal chain between the object and the perceiver's psychological state must involve the perceiver's eyes. But even this is subject to question. One might ask, with Armstrong (1968, p. 211), whether it isn't logically possible that we might see with our ears, or without the use of any particular sense organ at all. Suppose that at some time in the future we come across extra-terrestrial beings who see or "see" by means of organs that are nothing like our eyes. What would
be the basis for saying that such beings see or "see"? I can think of at least two factors that we would take into consideration: (1) the process of seeing involves light, and (2) seeing typically provides the seer with information not only about the relative positions of objects, but also information about their color or at least relative contrast of light and dark. These conditions offer a rough, non-circular way of talking about visual organs. Visual organs need not be eyes, but they must be like eyes in function, where that function involves the utilization of light to provide the organism with a certain kind of information (cf. Armstrong's more general discussion of sense organs in (1968), pp. 211-3). So if an extra-terrestrial being has organs nothing like our eyes, it at best "sees".

As a more down-to-earth example, consider the case of bats. Bats "see" by means of something like radar. Bats do not see, I suggest, because their "seeing" does not use light as the medium for obtaining information, and the information obtained does not include information about the relative contrast of light and dark of objects. Even though I do not know what it is like to be a bat, I do not think it is species chauvinism to claim that bats do not see. However unkind and cruel the phrase "blind as a bat" may be, it has basis in fact.

No doubt the vivid imagination of philosophers can provide innumerable hypothetical cases that are much more difficult to decide than the case of bats. But, for our purposes, consideration of such hypothetical cases need not detain us. We are concerned with discovering what events of seeing an object that take place at the actual world consist of. I shall assume that such actual events of seeing consist,
in part, of a causal chain of events involving light and holding between the object seen and the visual organs of the seer. In fairness, I should note that this assumption does conflict with claims that some philosophers have made. For example, some claim that experiencing a visual hallucination is a case of seeing an object, albeit a private one (e.g., Dretske, 1969, pp. 45-6). So much the better, I think, for my assumption.

There are remaining problems, of course. Not every type of causal chain involving light and holding between an object and the eyes of the perceiver is eligible to be a part of an event of seeing the object. Refer back to our examples of seeing phenomena at the beginning of the last chapter and consider the following case. A and B are in different rooms. B is in the room with the book. B comes into the other room and reports to A in sign language the color and shape of the book. So there is a causal chain involving light and holding between the book and A's eyes, but it is not a part of the event of A's seeing the book, because no such event occurred.

One might try prohibiting the existence of any other seeing thing in the causal chain between the seer and the object seen, but this would be too strong a restriction. For example, B might hold a mirror in the doorway between the rooms at the right angle so that A can see the book. Perhaps, then, we should merely prohibit any event of seeing in the causal chain between the seer and the object seen. Since we are trying to explain what an event of seeing is, however, this introduces an undesirable circularity; and it would be too weak in any case. It would allow one who has seen an object in a movie taken by an automatic
camera to have seen the object.

One cannot require that there be no intermediary object of any kind in the causal chain because we do sometimes see by means of mirrors, glasses, microscopes, telescopes and the like; but there are limits as to what we will allow. To see a photograph or movie of an object is not to see the object. Whether we see an object if we "see" it on television is not such a clear-cut case. If we are watching a taped television show, then clearly we are not seeing the actors. But what if I have a television surveillance system installed in my house. Even though I am in an upstairs bedroom, may I not claim to see, by means of my monitor, the burglar who is at this time attempting to crack my living room safe? Perhaps the difference is to be accounted for in terms of whether the events seen are contemporaneous with the seeing. But what about television images sent to earth from a spacecraft orbiting Jupiter. Even though a significant time lag is involved here, are we not seeing Jupiter's surface?

I suspect that intuitions differ on such cases. One could try to improve on ordinary usage here and reserve a sense of 'see', called directly see, which required that there be no object in the causal chain between the seer and the object seen that is itself directly seen. I don't think that this would introduce any undesirable circularity. We can tell independently of our definition of 'directly see' whether there are any other objects in the causal chain. If there are no such objects, then a fortiori there are no other objects that are directly seen. If there are such objects, then we apply the definition of 'directly see' to these objects. Some of the objects (e.g., photons
(if there are such)} could be eliminated as being directly seen, because they are not seen in any sense. If some of the objects are seen, then we determine whether there are any objects between these and the seer in the causal chain. If so, we go through the entire process again. I see no reason to think that such an iterative process would not provide an answer as to whether any particular object was directly seen.

It may be, however, that this proposal would produce some undesirable results. Suppose that in seeing an object through a telescope or microscope, I happen to directly see some part of the telescope or microscope. Does this fortuitous incident prevent my having directly seen the object I am viewing? If so, we have produced a rather capricious sense of 'see'.

In any case, I shall not pursue this proposal any further. I shall let our account of seeing "float" with ordinary usage here by using the hedge phrase 'right kind of causal chain' to pick out whatever cases ordinary language will allow. The vagueness introduced by this should not affect the value of our account in picking out the constituents of whatever events ordinary language would pick out as seeings.

So, to summarize to this point, we can say that any event of seeing an object requires that a causal chain of the right kind hold between the object seen and the visual organs of the seer. Now we must extend the causal chain into the seer, and this is where our discussion in the previous chapter will come to bear. For a seeing to take place, the causal chain must lead to some psychological event in the seer. But what must this event be? Is the event simple or complex?
One event that we can eliminate as the terminal event of the causal chain is the event of the seer's visual organs being stimulated. Science (and perhaps even proto-science) tells us that such an event occurs in the process of seeing. But such an event is not the event we are trying to identify. For one thing, such an event is not a psychological event. Moreover, there are blind people who are the subjects of such events.

Probably, there are psychological events taking place later than the event of sensory stimulation, but prior to the terminus event that we want to identify. Psychologists working in the field of perception talk about a great deal of complex processing going on "under the surface" in perception. Stimuli are stored briefly in "iconic memory" to allow, first "parallel processing" by "feature detectors", and, later, a sequential process of "hypothesis generation and confirmation" (see Neisser, 1967). These are not the events we want for a number of reasons. First, they are not events that are appropriate to uncovering the structure of an event of seeing at the philosophical level. These events are the theoretical posits of sophisticated psychological theory. Second, it seems intuitively that the event we are looking for as the terminus of the causal chain involved in seeing must be the product of these events. A person who is undergoing such events has not yet seen anything. We must be careful here, however, to avoid begging any questions. Certainly, we are not aware of any kind of construction process going on in visual perception. Our visual perceptions generally come to awareness as a fait accompli. But we have not yet said what role awareness plays in seeing. It may be that there is a
basic event of seeing that doesn't require awareness. As a matter of fact, as I understand the nature of these processing events, it seems likely to me that the event we are looking for may overlap with them. At least the non-parallel part of the processing seems to involve a series of operations where the product of each operation provides the input for the next. It may be that the event we are looking for includes these sub-products, but excludes the processing involving them.

In any case, we are getting closer to the event that we want; and it may be a good strategy at this point to abandon temporarily our attempt to add to the causal chain from the object seen in favor of identifying some psychological event that we know is at least typically a product of seeing, and working backwards from it. The event that I have in mind, of course, is the acquiring of beliefs. The following diagram will indicate the status of our investigation to this point.

![Diagram of the composition of an event of seeing](image)

**Figure 4. The composition of an event of seeing**

What is the '?' event? One familiar answer is that it is an event of d's looking in some way to A or A's being appeared to (or sensing visually) in some fashion. This event purportedly provides the basis for any perceptual beliefs that A might acquire, but does not itself in
any way involve the acquiring of beliefs. A's seeing (in some basic sense) d takes place provided that the causal chain extends through this event, whether or not A acquires any beliefs (although typically A will).

Now I said in the last chapter that I would not be satisfied with an account that simply identified an event as something's looking or appearing in a certain way to a perceiver. My reason was that I saw no way that such an event can be accounted for totally at a scientific level. Scientists might be able to identify some neurological event that occurred when and only when something looked $\phi$ to a perceiver, but this in itself would not account for the phenomenological $\phi$ quality of the event. My account of events, at least, would give no way of identifying the neurological event with the event of something's looking $\phi$, nor any way of saying that the latter consisted of the former, unless there was some way of analyzing the property of looking $\phi$.

It may be, of course, that, pace my account of events and other philosophers' arguments, there is some way of showing that unanalyzable events of something's looking $\phi$ are reducible to neurological events. Or it may be that such events simply are not totally reducible to any kind of physical events. But it is certainly worth the effort to pursue other alternatives, and it is also possible to show, on independent grounds, that the existence of totally non-epistemic events of something's looking $\phi$ (or someone's sensing $\phi$-ly) is implausible.

Events of something's looking $\phi$ to a seer or a seer's sensing $\phi$-ly are subject to many of the same problems as sense-data. True, such events are not phenomenal objects (although they may be
phenomenal events or events with phenomenal properties); but they pose
the same basic problems: How does the perceiver gain information
from such things? Does the perceiver "inspect" such events or
objects? What is this process of "inspection"? Is it subject to
error or not?

One of Armstrong's arguments against sense-data suggests that if
there is such an inspection process, it must be subject to error.
Suppose that we have three color patches, b1, b2, and b3, that differ
just slightly in shade of blue. Our perceiver, we shall suppose,
cannot distinguish between b1 and b2 or b2 and b3, and thus believes
that sensing b1-ly is the same as sensing b2-ly and sensing b2-ly is
the same as sensing b3-ly. If the sensing inspection process is not
subject to error, then, for our perceiver, sensing b1-ly is the same
as sensing b2-ly and sensing b2-ly is the same as sensing b3-ly. By
transitivity of identity, then, for our perceiver, sensing b1-ly is
the same as sensing b3-ly. But the perceiver, we shall suppose, can
distinguish between b1 and b3; so sensing b1-ly is not the same as
sensing b3-ly. Therefore, the inspection process must be subject
to error (cf. 1961, pp. 40-2).

These problems can be avoided, of course, by maintaining that an
event of sensing can have phenomenal properties other than those that
it is inspected to have. But this would make inspecting very much like
seeing. Part of the reason for supposing that there are events of
sensing is to explain how we can make errors in seeing. The properties
represented by our sensations are not necessarily the properties of
the objects seen. But then how do we explain errors regarding our
inspection of our sensings? What has (or represents) the properties that we inspect our sensings to have, when these properties differ from the properties that our sensings actually have?

One may try to avoid all of these problems by claiming that there is no process of inspection. Events of sensing need not be temporally prior to the acquiring of beliefs, nor need they in any way provide evidence for the perceiver's beliefs. But then the question is: What role do sensings play?

One might suggest that we must postulate sensings to capture some primitive sense of the way that things look to a perceiver, where that look is independent of any particular beliefs that the perceiver has and independent of how the perceiver would say that things look to him. Isn't it plausible to think that there is a sense in which an infant, a typical adult, and an experienced graphic artist, who are all physiologically normal, have the same seeing experience? The infant may not even be aware that it is seeing and the typical adult may not be able to say with any precision what look things have from his point of view, but they have the same basic seeing experience as the experienced artist who is able to describe the looks of things from his perspective. Things look in that way to the infant and typical adult, even though they are not cognitively aware of it.²

I wish to deny there need be any such basic seeing experience. Now I would admit, of course, that, given that they are all physiologically normal, the infant, adult and artist would all have basically the same pattern of retinal stimulation (a pattern that, for each eye, would be roughly isomorphic to that in a photograph taken by a camera
lens of the appropriate focal length and focused on the same point as the eye). But the event of retinal stimulation presumably is not the basic seeing experience, and I see no reason to think that there need be any kind of identical experience among seers beyond the event of retinal stimulation.

As I said in the last chapter, explaining the phenomena of seeing seems to require talk about the looks that things have to a perceiver. But the looks that we need to talk about are the looks of which a perceiver is aware, not the looks of things as postulated by the laws of optics and perspective. The perceiver need not be aware of the latter at all. The relevant sense of 'looks' is the sense in which the looks of things are affected by the perceiver's other experiences and cognitive states.

We can illustrate this sense quite vividly by referring to certain experiments involving distorting spectacles discussed by Taylor (1962). In one experiment the subject wore spectacles which made straight edges appear curved and tilted. For a good part of the experimental period (which lasted thirteen days) the subject was seated at a desk with a number of objects on it. By the end of the experimental period, during which the subject often manipulated the objects on the desk, the desk and the objects on it no long looked distorted to him, but things at a distance still did. It is the sense in which things on the desk no longer looked distorted that is the sense of 'looks' relevant to explaining the phenomena of seeing.

So I think the path taken by supposing that the '?' event in Figure 4 is an event of being appeared to or sensing, is going to lead to
one dead end or another. Unfortunately, no other likely candidate for the '?' position suggests itself. The reasonable move, I think, is to question whether there is any '?' position. I suggest that we explore the possibility that the event following the processing events in our chain, and the event terminating the event of seeing, is the acquiring of beliefs.

The immediate problem with this, of course, is how to handle all of the objections brought up against Armstrong's epistemic account in the last chapter. We saw that Armstrong's strategies for responding to these objections ran into problems. Can we do any better from our new perspective of trying to build up an event of seeing from its constitutive events?

Let us first try to be more precise on the nature of our supposed terminus event. Let us say that the terminus event is an event consisting of the acquireings of beliefs. I prefer not to say that the event is the acquiring of a single conjunctive belief, because this suggests that all of the beliefs are acquired at the same time, and I want to leave open the possibility that the beliefs are acquired at different times. It may be that beliefs about the shapes and edges of objects are produced early on in the processing steps, and that they are input into processing that results in more sophisticated beliefs. Our event is a complex event that includes all of these events, both the simple and the sophisticated. This was my reason for saying earlier that our terminus event may overlap with the processing events, even though it is in part the product of them.
So far we have not required that any of the beliefs be beliefs about the perceiver's perceptual state. This is to say that nothing we have said so far entails that a seer need be aware of seeing, and I think that is the proper way to leave it. A perceiver can acquire beliefs without being aware that he is acquiring beliefs. Also we should make clear that the beliefs being discussed are beliefs in the broad, dispositional sense discussed in the last chapter.

Now let us return to our troublesome case VII of the last chapter and see what options our account has available. You will remember that case VII was the case in which A was in the proper circumstances to see the book but, by hypothesis, had no beliefs about the book nor any beliefs about his current perceptual state that were caused by the book. We must suppose, given the circumstances of the case, that A's eyes received some pattern of stimulation in which the book had a causal influence. So the causal chain extended at least that far. Suppose the chain extended no further. For some reason or other (perhaps A was intensely engrossed in some other activity), the data received by A's eyes underwent no processing at all. It seems clear that in such a case A does not see the book.

Suppose that the data does undergo processing, but the process stops short of producing any beliefs in A. Now the processing could not have gotten very far, if we are correct in supposing that the initial stage of the processing produces beliefs that themselves take part in the later stages of the processing. But it is conceivable that at least the initial stages of the processing should occur without producing any beliefs. Here, again, it seems clear that A does not
Next suppose that some beliefs are produced, but that A is not aware of them. A has not acquired any belief that he has acquired beliefs. If A is asked whether he saw the book, he will answer "No." But A will be mistaken about this. He did see the book.

So our review of case VII involves holding to the line that case VII, as described, cannot be a case of A's seeing the book. But our account does allow for the existence of a case of A's seeing the book that is very much like case VII, even to the point that A reports sincerely not having any beliefs about the book. I suggest that it is really a case like this that we have in mind when our intuitions suggest that case VII is a possible case of seeing.

No doubt, non-epistemic theorists will be dissatisfied with this account. They will claim that it leaves out the crucial case. This is the case where the irradiation of A's eyes leads to a non-epistemic event in A, which can be called the book's looking or appearing in some way to A (or A's sensing visually in an of-a-book fashion), but where no beliefs at all are produced in A. If this case is possible, they would say, then seeing the book need not involve the acquiring of any beliefs.

Now I think that a case such as the non-epistemic theorist describes is possible. It is possible that there exist non-epistemic events like being appeared to or sensing visually, even though I have argued that there is no good reason to think that such events occur and I have no idea what such events would be like. But I disagree with the conditional claim. Even if such events exist, I see no reason to think
that their occurrence is sufficient for a seeing (in any ordinary sense) to occur.

Think about a case in which the book appeared in some way to A, but in which A had no beliefs produced in the proper way by the book. Clearly A would not be able to report sincerely that the book appeared to him in some way, for such a report would require that A have some beliefs, at least beliefs about his perceptual state. So A could provide us with no direct linguistic evidence that he had seen the book. What, then, would provide evidence that A had seen the book? Suppose that the book mysteriously levitated off the table and began moving quickly toward A's head. Suppose that A ducks. This is good evidence that A did see the book, even though he was not aware of seeing it. It is also, however, good evidence that A acquired certain beliefs about the book, even though he was unaware that he had acquired those beliefs. Now suppose that A does not duck and the book hits him flush in the face. This would be good, although not incontrovertible (A may have a weird, unconscious desire to be smacked in the face by books) evidence, that A did not acquire any beliefs about the book. But it would also be good evidence that A did not see the book. It would, of course, still be possible that some non-epistemic event of the book's appearing to A occurred. But why should we think on that basis alone that a seeing had occurred?

We must be careful to avoid confusions about terminology here. I want to claim that there is no good reason to think that non-epistemic events of being appeared to occur. On the other hand, we do need to give an account of what it is for an object to look or appear to a
perceiver in a certain way, in order to be able to accommodate all of
the phenomena of seeing. It is my contention that events of being
appeared to are epistemic events involving the acquisition of beliefs.
Let us go on at this point to try to develop an epistemic account of
events of being appeared to.

Armstrong's strategy of accounting for appearances in terms of
immediate beliefs both is, and is not, on the right track. If some­
thing like the psychologist's account of the processing involved in
seeing is true, then there are few beliefs involved in seeing that are
not acquired at least partially as a result of the perceiver's existing
beliefs as well as the visual sensory input. So the term 'immediate'
is somewhat misleading in suggesting that the beliefs that represent
the looks that things have are the immediate (unmediated) result of
sensory input. It may be that certain crude beliefs about the edges,
shapes and colors of things are essentially unmediated by other beliefs.
But I do not think that we want to identify the looks that things
have with such beliefs.

One reason is that the looks of things need not involve beliefs
about the edges, shapes and colors of things. Suppose, for example,
that A glances at the table top, then turns to us and reports seeing
a book on the table. Suppose, further, that A is unable to report to us
the color of the book or even its approximate shape and size in relation
to the table top. Suppose, in fact, that the only answer that A can
give to the question, "What did the object look like?", is to say, "It
looked like a book." One might object here that A must have some more
basic beliefs about the book, even if they are very indeterminate
beliefs. For example, A must at least believe that *something* is located within the spatial range of the table top. He did, after all, report seeing a book on the table. But I see no reason to identify such indeterminate beliefs with the look that the object had to A in this case. Nor do I think that such indeterminate beliefs need be immediate beliefs. It may be that the only reason why A believes that something is located within the spatial range of the table top is that he believes that there is a book on the table and he realizes that this latter belief commits him to the former.

As a matter of fact, for some of us (at least for me), much of the time, the immediate looks of things do not include any very determinate beliefs about the colors and shapes of things. To be sure, we can concentrate on such qualities if we wish or have some particular interest in doing so. But generally we identify the kind of object we are seeing before we bother (and whether we bother) to notice its color and shape.

This is compatible with it being the case that beliefs about colors and shapes are produced earlier in perceptual processing than beliefs about the kind of object, and that the latter beliefs are at least partially produced from the former. Typically, we are not aware of this processing. We are aware of only certain products of the processing, and the first products of which we are aware may be those produced at the last stages of the processing.

These last remarks suggest one way in which Armstrong's account should be amended. The "immediate" beliefs that constitute the looks of things are, roughly, the beliefs first brought to awareness. They
are the beliefs that we believe that we have acquired by means of our eyes. They need not be beliefs that are unmediated by other beliefs. But if such mediation process occurs, it goes on under the surface of consciousness. This account of the looks of things will have to be refined later on to incorporate an important distinction that is required to resolve the problems that seemingly still face any kind of epistemic account. Let us turn now to review those problems.

In the last chapter we noted that it does not seem that perception can consist simply of the acquiring of beliefs since we can conceive of cases where perception takes place even though the perceiver already has the beliefs that he is supposedly acquiring. The move to talking about acquiring inclinations or dispositions to believe does not seem satisfactory since, conceivably, the perceiver might already have those dispositions to believe. This objection can be avoided, I argued, by talking instead about the acquiring of psy-counterfactual properties. It is true, it seems to me, that whenever a seeing is taking place, the seer is either acquiring beliefs or psy-counterfactual properties. The problem is that talk about acquiring such properties does not shed much light on what is going on during perception.

Fortunately, there is a better way to pick out the events that constitute an event of seeing. This way involves making a distinction between different types of beliefs. There are (at least) two different kinds of beliefs that can be attributed to human adult seers. One kind, I shall call evidential-beliefs (hereafter 'e-beliefs'); and the other kind, I shall call theoretical-beliefs (hereafter 't-beliefs'). These beliefs are not distinguished on the basis of their content, rather
they are distinguished on the basis of their respective connections to sensory input, behavioral output, and other psychological states. A seer can have a distinct e-belief and t-belief whose content is the same.

In the process of seeing something, the first beliefs elicited by sensory impingement and resultant processing are e-beliefs. These e-beliefs are not verbally encoded, and they may or may not be the subject of conscious awareness. It is the primary function of e-beliefs to direct motor responses and to mediate the formation of t-beliefs. T-beliefs generally are verbally encoded and conscious (although they need not be neither). T-beliefs are formed by the interaction of e-beliefs with memory and other t-beliefs. Typically, an e-belief will bring about a t-belief with at least partially the same content. I say "partially" because it seems that our t-beliefs often do not do full justice to the content of our e-beliefs. On occasion, the interaction of an e-belief with memory and other t-beliefs will bring about a t-belief with different, or even contradictory content, to the e-belief. Also, on occasion, an e-belief will not elicit a t-belief with the same content because the seer already has a t-belief with that content.

It is the function of t-beliefs to direct sophisticated forms of behavior, in particular and paradigmatically, verbal behavior, whether in speech or writing, or in internal monologue. T-beliefs are the beliefs that, when speaking sincerely, we identify as the beliefs that we hold. It is primarily (perhaps exclusively) t-beliefs that are involved directly in conscious deliberation and reasoning. T-beliefs
exert some control function over perception by ordering gross changes in the orientation of sense organs and changes in attention. But the changes are actually accomplished through the mediation of e-beliefs; and there are changes, such as the rapid eye movements typically involved in seeing, that are totally under the control of e-beliefs. Finally, we may suppose that e-beliefs are very short-lived, whereas t-beliefs can be very long-lasting.

Detailing the respective functions and interrelations of e-beliefs, t-beliefs, background beliefs and desires, and the various processing steps involved in seeing is a task best taken on by a cognitive psychologist who is intimately familiar with the relevant experimental data and who has the capability and expertise to gather whatever additional critical data are needed. Nevertheless, I shall make an amateur's stab at depicting an outline of the process.

Consider Figure 5. Figure 5 shows that both background beliefs and background desires play an integral role in determining whether we see, what we see, and what reaction we have to what we see. The figure also illustrates the nature of the intermediary role played by e-beliefs in producing behavior, in producing more sophisticated t-beliefs, and in affecting directly and indirectly the total belief-set of the seer. I suggest that the distinction between e-beliefs and t-beliefs will prove valuable to those interested in developing psychological theories about the process of seeing. Moreover, I can speak directly and immediately to the philosophical value of the distinction between e-beliefs and t-beliefs.
Figure 5. A rough outline of the processes involved in the event of seeing

It is clear how the distinction resolves the seeming contradictions facing an epistemic account. A seer can acquire an e-belief even though he already has a t-belief with the same content. Purported cases of seeing which do not involve the acquiring of beliefs are cases where no t-beliefs are acquired, but e-beliefs are acquired. I can think of no plausible cases of seeing that do not involve the acquisition of e-beliefs. Any reason that we would have for thinking that someone saw something would also be reason to think that he acquired some e-beliefs. There is no need to talk about the acquiring of dispositions to acquire beliefs, since we can talk about the acquiring of e-beliefs instead; but we can make sense of talk about acquiring dispositions
to acquire beliefs. E-beliefs typically produce t-beliefs, so acquiring an e-belief disposes one, in the relevant sense, to acquiring a t-belief with corresponding content. Cases, like case V of the last chapter, in which the seer is not deceived by the looks of things are cases where a seer's e-beliefs do not produce the corresponding t-beliefs. The object of vision may still look φ to the seer, even though the seer has the t-belief that it is not φ, because the seer has the e-belief that it is φ.

This might be the appropriate point to work through the other cases of the last chapter in order to make clear how our new account accommodates them. Case I is the standard case where A's e-belief produces a matching t-belief that there is a red book in front of him. Case II is basically like case I in terms of the beliefs acquired by A, but in case II the beliefs are false.

Case III brings out some interesting aspects of our theory. Our theory offers two different courses of events that may be occurring in case III. First, it may be that A has the same e-belief in case III as in case I. A's acquiring a different t-belief in case III is explained by A's having a different memory and t-belief set in case III. A seer's e-beliefs are only one factor in determining a seer's t-beliefs. Second, it may be that A has a different e-belief in case III. A seer's e-beliefs are not the immediate outcome of retinal stimulation. They are the result of one or more processing steps; and differences in how these steps occur, and whether malfunctions occur within them, explain how the same retinal stimulation can produce different e-beliefs. Furthermore, our theory suggests that we have a way in
practice of telling which of these two scenarios took place. Suppose that A is informed of his mistake. If the first scenario took place, this information probably would not affect the look of the book to A. A simply didn't know enough about bricks and books to be able to tell the look of a brick from the look of a book at this distance, angle, or whatever. On the other hand, if the second scenario took place, it may be that the information would actually change the look of the object for A. Correcting A's t-belief may produce input to the perceptual processing that changes the processing in a way so as to produce a different e-belief.

It is appropriate at this point to offer a more rigorous account of what it is for an object to look φ to a perceiver. I said earlier, before making the distinction between e-beliefs and t-beliefs, that the beliefs that constitute the looks of things are the beliefs first brought to awareness in seeing. We can now be more precise. For a seer to have something look φ (or to be appeared to visually in a φ way) is for the seer to have the t-belief that something looks φ brought about by the e-belief that something is φ. I think it should be left open here whether 'φ' is to range only over visual properties or over classificatory properties as well. Not only may something look red or rectangular, something may also look like a brick or book. There must be some basic capacity for producing e-beliefs that is shared with infants and animals. But it may well be that learning a language and having its conceptual resources allows one to produce e-beliefs that one could not produce otherwise. I want to leave open the possibility discussed earlier, that the only look a thing might
have to someone under certain conditions is its look as a type of thing. So, for example, something may look like a book without also looking red (or any other color) or rectangular (or any other shape). Of course, one would have to believe that the book had some color and shape. But this belief might be a t-belief and not an e-belief.

To return to our examination of seeing phenomena, case IV is easily handled as a case where A's e-beliefs bring about false t-beliefs. The presumed phenomenological similarity between cases IV and V is explained by the fact that A has the same e-beliefs in both cases. A is not deceived in case V, because he has a different set of pre-existing t-beliefs in case V. A's conceptual inadequacy in case VI prevents A from acquiring the t-belief that there is a book in front of him. But A does acquire the t-belief that something looks red by acquiring the e-belief that something is red; and this explains why, and to what extent, we would want to say that A has a similar phenomenological experience in case VI and case I.

On my theory, the given description of case VII is ambiguous. If we take it to say that A has acquired no e-beliefs, then it does not describe a possible instance of seeing. On the other hand, it is possible for A to see something and acquire no t-beliefs. A may not even acquire the t-belief that he is being appeared to visually. So long as A has acquired some e-beliefs about the book brought about in the proper way by the book, A has seen the book.

So our account is able to handle this admittedly limited range of phenomena, and it demonstrates the flexibility and richness to be
capable of much more. Before considering some potential objections to
the account, let me mention some further important data that initially
seem to present problems for an epistemic account of seeing, but which
are easily accommodated by my theory.

The first is that seeing does not require any complex conceptual
ability. My theory accommodates this by noting that the production of
e-beliefs does not require complex conceptual ability, and by holding
that the acquiring of t-beliefs is not necessary for seeing. At the
same time, my account is compatible with the claim that seeing differs
in important ways for animals and infants versus normal adults. In
addition to acquiring e-beliefs, adults typically also acquire t-
beliefs. Now it may well be that infants and at least some animals
also acquire some t-beliefs in seeing. I am very much inclined to
think that they do. But the complexity and extent of the set of t-
beliefs is much greater in the case of a normal, language-using adult.
Moreover, it may be that the capacity to acquire certain e-beliefs
is affected by experience and conceptual abilities, so that normal,
language-using adults may have the capacity to acquire certain e-
beliefs that infants and animals do not.

A second datum is that we commonly make a distinction between what
we actually see and the beliefs that we derive from what we see. My
account explains this by identifying what we actually see with the
content of the e-beliefs acquired in seeing, and the beliefs derived
from what we see with t-beliefs. Non-epistemic theories are not wrong
in distinguishing between seeing something and acquiring beliefs about
what is seen. They are wrong in assuming that seeing does not itself
involve the acquiring of beliefs.

Connected with this last datum is a further datum that I mentioned at the end of the last chapter. We feel that our seeing experiences are often far richer than our verbal descriptions of them. My theory provides for this by allowing that the content of the e-beliefs acquired in seeing may often be far richer than the content of the t-beliefs produced by them.

Finally, there is a set of four data about appearances noted by Chisholm (1966, pp. 97-8):

1. We perceive an object to have the characteristics we do perceive it to have, partly because of the way it appears to us.

2. The appearance of a physical object plays a fundamental role in the context of justification.

3. When we perceive a part of an object, that part of the object appears to us in some way; and when we do not perceive a part of an object that part does not appear to us in any way.

4. The appearances of the parts of an object are included in appearances of the whole.

In terms of my account, as has been said, a person has an object appear to him in a certain way just in case the person acquires the t-belief that the object appears in that way by acquiring, in the right way, the corresponding e-belief about the object. Keeping this in mind, we can respond to Chisholm's four data as follows:
Datum 1. On my account, to see an object to have a certain characteristic is to have a t-belief about the object brought about in part by the e-belief whose content represents the appearance of the object.

Datum 2. What could better play a fundamental role in the context of justification than an e-belief?

Datum 3. This fact can be accommodated by requiring, rather reasonably, that one can see a part of an object only if one has an e-belief whose content contains something about that part of the object.

Datum 4. An e-belief about a whole object includes e-beliefs about its parts in the sense that the content of the latter are contained in the content of the former. If, for example, I have an e-belief that the book's cover is uniformly red, then that e-belief includes the e-belief that the right half of the book's cover is red.

Now let us consider some potential objections.

Objection 1. What justifies calling e-beliefs beliefs? Is this not merely a ploy to avoid the telling objections facing any epistemic account of seeing? You grant much of what the objections claim, yet you persist in calling your events the acquirings of beliefs.

Reply. My reason for calling e-beliefs beliefs is that they perform the function of beliefs. They result from external input, and they interact with other internal states like wants and desires or other beliefs to produce either behavior or some change in those other internal states. This is precisely what beliefs do. Furthermore, like beliefs they are intentional states - they are "about" some object.
It is true that e-beliefs do not have some features that we usually associate with beliefs. E-beliefs are not verbally encoded and they are not reported by perceivers as their beliefs. Moreover, some e-beliefs (those that play roles at the earlier stages of perceptual processing) are such that perceivers are not aware that they have them. The fact that they lack such features, however, does not mean that e-beliefs are not beliefs; it merely suggests that there are two different kinds of beliefs. There are beliefs that we are usually aware of having, that are usually verbally encoded, and that are reported as our beliefs (t-beliefs); and there are beliefs that are not (e-beliefs). Both types of beliefs have the essential functional features of beliefs.

The belief functioning of e-beliefs can be highlighted by returning to examine in more detail the experiment involving distorting spectacles discussed earlier. During the early days of the experiment the subject experienced considerable difficulty, as one might expect, in walking and in manipulating objects. The ground appeared to slope away from him, and objects were seen as both curved and spatially displaced from their real position. But, one might ask, why should we expect the subject to experience such difficulty? After all, the subject never believed, throughout the experiment, that the ground was sloping or that the objects were curved, did he? But his actions in walking and in reaching for things on the table were intentional actions, the kind directed by a person's beliefs and desires. Why were the actions misdirected, if the subject's beliefs were not in error?
The answer given by my account is that the subject's beliefs both were and were not in error. The e-beliefs directing his actions were in error, but his corresponding t-beliefs were not. The e-beliefs that misdirected the subject's actions included the e-beliefs constituting the way things looked to him.

The latter stages of the experiment further bring out the belief nature of e-beliefs. After a few days, the subject reported that a path about a yard wide directly in front of him now appeared level (although the ground continued to appear to slope on either side of the path), and the objects on the desk and the desk itself no longer looked distorted (although objects at a distance still did). The experimenter's explanation for this is that behavioral feedback can alter the looks of things. Moreover, it appears that behavioral feedback plays an important role in determining the looks of things in the standard case of normal vision. It is difficult to explain how this can be if one takes the looks of things to be some non-cognitive, snap-shot-like phenomenon that is basically the same for animals, infants and adults. On the other hand, it is easy to explain why behavioral feedback affects the looks of things, if the looks of things are belief-like in nature. Beliefs are precisely the kinds of things that we expect to be altered by behavioral feedback and experience.

So, various stages of the experiment show that the looks of things play a directing role in intentional actions, just as beliefs do, and that the looks of things are altered by behavioral feedback, just as beliefs are. The simplest explanation for this is that the looks of things are belief-like in nature.
Objection 2. Your response to this last objection uncovers a serious flaw in your theory. Your theory supposes that men often hold contradictory beliefs. Indeed, any time that a man "does not believe his eyes" he is, on your view, holding contradictory beliefs. Surely humans are not so irrational as your theory depicts them.

Reply. I must admit that my theory does have men holding contradictory beliefs whenever they "do not believe their eyes," but in most cases this is a tribute to man's rationality rather than an indication of irrationality. Man's responsibility as a rational being is to avoid holding contradictory t-beliefs. The typical case where a person does not believe his eyes is a case where a t-belief matching the e-belief constituting the looks of things would render the person's t-belief set inconsistent. The person attempts to act, in such cases, in accordance with his t-beliefs. He may not be entirely successful, however, since most nonverbal behavior is at least partially under the control of e-beliefs.

In the vast majority of cases, however, a person does believe his eyes, for the very good reason that his eyes typically provide him with true beliefs. And, as we have seen in the case of the distorting spectacles experiment, cases where the eyes systematically provide false beliefs tend to be self-correcting. From a biological standpoint it is reasonable to expect that the looks of things immediately direct bodily movement - this saves a lot of time when trying to avoid an onrushing bull or trying to hit your target with a spear or arrow - but that the overall general direction of behavior be under a higher system of control that is capable of countermanding the lower system. The
hypothesis of separate systems of e-beliefs and t-beliefs fits into this picture very nicely.

Objection 3. Isn't your theory subject, at a different level, to the same kind of problems that impair Armstrong's theory. Suppose, for example, that a person already has the e-beliefs purportedly constituting his seeing an object. Aren't you ultimately going to have to talk about acquiring inclinations to acquire e-beliefs and face all the problems that come with that?

Reply. I do not think that I am forced to talk about acquiring inclinations to acquire e-beliefs. We must remember that the process of producing e-beliefs is continuous and that e-beliefs themselves are very short-lived. New e-beliefs are continuously being acquired, and they carry in their content information about the current state of the visual field. Even if things in that visual field have not changed, the information that things have not changed is new e-belief information. And this is the case even though the perceiver may have good reason to think that things in the visual field will not change, and, hence, already has the t-belief that things will remain the same. A perceiver's already having the t-belief that \( p \) does not preclude his acquiring the e-belief that \( p \) or, for that matter, the e-belief that \( \neg p \). In such cases, the newly acquired e-beliefs either confirm or disconfirm the t-belief. In those cases where the e-beliefs disagree with existing t-beliefs, either the t-beliefs will be changed accordingly or the e-beliefs will be rejected as illusory.

Objection 4. Fred Dretske (1969) offers a number of examples of cases which seem to present problems for any epistemic account of
seeing. Don't these cases pose problems for your theory as well?

Reply. Let me discuss just three of Dretske's examples. These three examples are interestingly different and represent pretty much the range of cases that might be posed against my theory. The first is the example already mentioned above of the infant who fixates its eyes on its mother but, according to Dretske, cannot be said to have acquired any beliefs (p. 10). Now it may be that it is implausible to ascribe any t-beliefs (or at least any sophisticated t-beliefs) to the infant. But it is not implausible to think that the infant has acquired e-beliefs. In fact, it is very plausible to think that the infant's behavior in following its mother's movements with its eyes is behavior directed by e-beliefs. One might claim, I suppose, that the infant's behavior is instinctive, reflex-like behavior. I don't think that this is very plausible; but if it is true, then surely the infant does not see its mother.

The second case of Dretske's that I want to discuss involves an experiment in which colored shapes were projected on a wall in front of subjects under conditions in which the subjects believed that the colored shapes were hallucinations (p. 8). Dretske's point is that even though the subjects saw the colored shapes, they had no beliefs about them, since the subjects did not believe that the shapes on the wall existed. Now it doesn't seem to me that this case presents an argument against any epistemic theory. Even if it is true that the subjects acquired no beliefs about the colored shapes, they did acquire beliefs about their perceptual states. So this is not a case of seeing without acquiring beliefs. My theory can say more than this,
however. While the subjects may not have acquired any t-beliefs about the shapes, they did acquire e-beliefs about the shapes. The e-beliefs provided the subjects with the capacity to take action with respect to the shapes projected on the wall, even though the subjects' higher level t-beliefs would have blocked the manifestation of any such behavior as being fruitless.

The third case of Dretske's involves reading. Dretske asks us to consider what happens when we read a page in a book. Surely, he says, for each letter on the page, that letter appears in some way to us; but it is ridiculous to suppose that we acquired some set of beliefs about each letter on the page (p. 11). Now one must admit that it is implausible to think that a reader, in a typical case of rapid reading, acquires t-beliefs about each letter on the page. Moreover, experiments seem to show (see, e.g., Neisser, 1976, ch. 5) that it is implausible to think that the reader acquires e-beliefs about each letter, or even about each word. But I take this as no objection to my theory, since the same evidence shows that it is implausible to think that the reader sees every letter or every word when engaged in rapid reading. The only sense in which it is plausible to claim that every letter on the page "appears" in some way to the reader, is in the sense that each letter has some role to play in the pattern of sensory impingement affecting the reader's eyes. But, in this sense, the claim is too weak to justify the claim that the reader saw each letter. Otherwise we should have to admit that there is a sense of 'see' in which a "reader" with eyes and retina intact, but with a severed optical nerve, "sees" the letters on the page. Such a sense of "sight" would be little solace to
Objection 5. Your theory says noting about what beliefs must be acquired in order to constitute a case of seeing an object. Surely, not just any beliefs will do. Suppose that A, in looking at the red book, acquires the belief that there is something green and circular, say a green beachball, in front of him. Surely A has not seen the red book.5

Reply. First, my theory does not hold that just any beliefs will do. To constitute a case of seeing, the beliefs must be beliefs about the object that are acquired in the right way. Now this does leave open the possibility that the beliefs acquired might be rather weird. Such a case as the one described in the objection might be a case of gross misidentification. We do not often make such gross misidentifications, however, and there are good biological reasons why we do not. Any ancestors we might have had who commonly mistook saber-tooth tigers for blueberry bushes weren't around long enough to procreate.

There is also the possibility that the case described in a case of hallucination. What in fact is the case might be difficult to discover, but there would at least be ways that the question could be investigated. For example, one could move the book around. Does the subject report seeing the green beachball move about in a corresponding way? If so, he is probably seeing, but misidentifying, the book. If not, he is probably hallucinating. It may be that my theory departs from ordinary usage in cases like this. Ordinary usage may provide that cases of misidentification cannot exceed certain bounds of weirdness. Beyond
some point, the case must be a case of hallucination rather than a case of seeing but misidentifying, no matter what the causal history of the beliefs. I have no idea how to say what those bounds of weirdness might be. Moreover, I am not convinced that such considerations are very important, so I shall just leave open the possibility that my theory departs from ordinary usage here. In any event, as I said before, cases of gross misidentification are fortunately rare.

There is another feature of my account that mitigates against this objection. That is that e-beliefs do not have the same potential for weirdness as t-beliefs. Any case of seeing is a case of acquiring some e-beliefs; and no matter what weird t-beliefs may result, the e-beliefs themselves are not commonly far off the mark, at least not e-beliefs concerning the presence of objects and their relative positions. This brings out another important feature about e-beliefs. E-beliefs are generally de re beliefs. An e-belief about an object is about that object no matter how that object is described. Thus, with respect to the experiment involving the projected shapes which was discussed in the last objection, the e-beliefs were about the shapes on the wall even though the subjects t-believed that the shapes were hallucinatory. This is appropriate, for the sense of 'see' that I am developing is an extensional sense of 'see', despite the epistemic nature of my analysis. If A sees d, then d exists, and it is true that A sees f for any f=d.

Let us go on now to complete our analysis of events of seeing. The reader may find it helpful at this point to refer back to Figure 4. Most accounts of seeing would maintain that the event of A's seeing d
would consist entirely of events occurring in A (the events depicted in the right hand side of Figure 4). I wish to depart from this traditional view. The event of A's seeing d includes all of the events in the causal chain from the light's leaving d (whether reflected or generated light), through the sensory impingement of A's eyes and retina, through whatever processing steps the data undergoes, and up to the terminus event (the entire causal chain depicted in Figure 4).

We need to say something more precise now about the terminus event of an event of seeing. It is proper to provide that the causal chain in an event of seeing extends through the acquiring of e-beliefs. T-beliefs, in general, are a result of the event of seeing, and not a part of it. Nevertheless, most seeings (at least in sane, adult humans) terminate with the acquisition of the t-belief that the perceiver is being appeared to in some way. In this way we conform to the datum that most seeings (at least in sane, adult humans) include awareness that one is seeing. On the other hand, we have allowed for the possibility of a seeing taking place without the seer acquiring any t-beliefs at all. To accommodate such cases, we shall say that an event of seeing terminates with the acquisition of the t-belief that one is being appeared to visually in some way, if such event occurs, otherwise with the last acquisition in the chain of an e-belief about the object.

My reason for departing from the traditional view about the initial part of the causal chain derives in part from general features of the theory of events that we have developed. It seems clear that the basic structure of the event of A's seeing d is that of a
particular kind of relation holding between two objects, A and d.
In our canonical notation, the event would be represented as \( [A,d; \text{sees}-[2]; t] \). This means that, on this surface level of structure, d is an object constituent of the event of A's seeing d; d, itself, not merely some representation of d, plays a role in the event of A's seeing d. The nature of this role is made clear by analyzing the property constituent of the event. Our analysis produces the following description of the event of A's seeing d: \( [A,d; \text{a-causal-chain-of-the-right-kind-takes-place-beginning-with-light's-leaving-} [2] \text{- and-ending-with-} [1] \text{-acquiring-the-t-belief-that-} [2] \text{-appears-in-some-way,-if-it-occurs,-otherwise-with-} [1] \text{-last-acquisition-in-the-chain-of-an-e-belief-about-} [2]; t] \). Conditions (GIC) and (EPC) provide that any event actually occurring in the causal chain between the beginning and terminus point of the event will be a part of the event of A's seeing d. So our account meets the desideratum discussed two chapters ago of leaving room for the psychologist's, the neurophysiologist's, and the physicist's accounts of seeing; and the seeing will, at some level, consist of their events.

Perhaps additional motivation for looking at an event of seeing in this way can be had by comparing seeings to other complex events that we have previously analyzed. Consider, for example, Adolph's killing of Clarissa. Under our view of events, Clarissa plays some role in this event. The event does not merely consist of Adolph's bodily movements on Tuesday night; it extends up to and includes Clarissa's death on Saturday. Parity of reasoning requires that we view the event of A's seeing d as extending back to and including
It might be claimed that there is a significant disanalogy between the cases of seeing and killing. In a killing, the death of the thing killed is a causal outcome of some actions of the agent of the killing. But in a seeing, the occurrence of the right kind of causal chain between the object of vision and the seer is merely a necessary condition for the seeing of the object to take place.

Now there is a disanalogy between the cases of seeing and killing, but I don't think that it is terribly significant. In a killing the causal chain follows from certain actions of the agent, whereas in a seeing the relevant part of the causal chain precedes the agent's activity. Now one might claim that seeing is an action (we do talk about the act of perception), and that the initial event in any action of an agent must be some action of that agent. I am inclined to think that seeing is an action. Its basic action would consist of a desire for information bringing about the relevant processing activity. But I see no reason to think that the initial event in any action of an agent must be some action of that agent. Clause (3) of our definition of action (AA) requires merely that the action of the agent consists in some action of the agent exemplifying some property. In the case of A's seeing d, there is some action (the processing actions) which exemplifies the property of standing in a certain relation to other events, both preceding and following the action.

Another reason that is sometimes offered for holding that a seeing includes only events taking place in the seer, is that seeing is basically a way of receiving information. An act of receiving does
not begin until the information arrives at the recipient. Suppose, for example, that I have an Uncle Charlie in New York, who posts a letter to me on Monday, and the letter arrives on Wednesday. If someone were to ask me when I received the letter, the answer would clearly be "on Wednesday," not "on Monday through Wednesday." Nothing prior to the letter's arrival is a part of my receiving the letter.\(^6\)

In this case, however, I think that there is a significant disanalogy. Uncle Charlie's letter is an object constituent in the event of my receiving it, just as \(d\) is an object constituent in the event of A's seeing \(d\). The letter, however, is the object that is received; that is the role that it plays in the event. In the case of A's seeing \(d\), there is also a receiving of information involved; but \(d\) does not play the role of being the object received. The vehicle of the information received in the case of seeing is light waves (and/or particles), and they are not seen. If we limit the event to the receiving of this information, we do not have \(d\) playing a role in the event. An event of seeing an object includes an event of receiving information, but it also includes certain preceding events that involve the object that is seen.

We can, if we want, pick out only the events involving the seer. That is usually the portion of a seeing in which we have an interest, so it comes as no surprise that ordinary speech habits should emphasize those events. But our interest here is in the total event of seeing an object; and I see little systematic justification for limiting that event to events within the seer. Moreover, the traditional view, which limits a seeing to events within the perceiver, runs into problems,
notable among which is the so-called "time-gap" problem.

The traditional view holds that seeing an object consists in a certain relation holding between the seer and the object seen. To this extent, our analysis agrees with the traditional view. But in also holding that a seeing takes place entirely within the perceiver, the traditional view leaves itself open to difficulties. For a relation to hold between two things, it seems necessary that both of the things exist at the time the relation holds. Scientific theory, however, tells us that it takes a finite amount of time for light to travel. So it is entirely possible that a distant star, hundreds of light years away, may no longer exist at the time the seer purportedly sees it.

Philosophers, typically, have reacted to this problem in one of two ways. Either they have posited a special "object" that is present at the time that the experiences take place in the perceiver, or they have denied that an object must exist at the time that it is seen. Neither of these ways is especially attractive.

Our view allows us to say, without contradicting scientific theory, that the object itself, not some representative proxy for it, exists at the time of the seeing. The object, however, need not exist at the time that the seer's part in the seeing is taking place. Nor, for that matter, need the seer exist at the time the seeing begins. According to our theory of events, both A and the star are object constituents of the event of A's seeing the star; and an object constituent must exist during a part of the duration of the event in which it takes part. But an object constituent need not exist during the whole duration of the
event. We need not search very hard to find plausible examples. Take any long-lasting event—say, the Hundred Years War. I have no doubt that few of the participants in the Hundred Years War existed throughout its duration. There is no special problem in the case of a long-lasting event of seeing.

One might object here that I have ignored completely one very strong motivation for the claim that an object must exist at the time it is seen. This is that, phenomenologically, it is as clear as anything can be that what we see exists at the time that we are active in perceiving it. If the object in the external world no longer exists at that time, then what we see must be some other "object."

In response, I wish to note that our account offers a natural way of explaining this phenomenological datum. We may suppose that e-beliefs always attribute concurrent existence to the object of vision. This means that in seeing a star, even though the star may no longer exist and even though one t-believes that the star may no longer exist, the star looks like it exists right now. This is similar, I claim, to standard cases of illusion. Even though A t-believes that the stick partially immersed in water is straight, the stick looks like it is bent. Our e-beliefs tend to lead us astray in such cases, and it is up to our system of t-beliefs to rectify the situation. There is no more reason to think, when looking at a star, that what we see must exist right now, than there is to think, when looking at stick partially immersed in water, that what we see is actually bent.

I said two chapters ago that my account of seeing would be an attempt to provide a philosophical account of the event of seeing rather
than an attempt to provide a conceptual analysis of the ordinary notion of seeing. There have been several areas in which I have made no attempt to do complete justice to our ordinary notion of seeing, but I feel that the decisions that I have made in each of these areas are well-justified in view of our goals.

First, I made no attempt to be precise on the nature of the causal connection that must hold between the seer and the object seen. I have given reason to suspect that the criteria presumed by ordinary language are extremely complicated, vague, or imbued with pragmatic considerations. In this respect, I am willing to let ordinary language pick the events that it wants to call seeings. Whatever these events are, given that they meet the remaining criteria of my account, my account will provide an analysis of them into their constituent events.

Second, my account may depart from ordinary language in holding that a belief about the object, which is acquired in the right way, is sufficient for a seeing of the object to take place, no matter how weird that belief may be. If ordinary language does distinguish between cases of seeing, but misidentifying, and cases of hallucination on the basis of the relative weirdness of the perceptual beliefs involved, then the criteria underlying such distinctions are, again, probably either extremely complicated, vague, or imbued with pragmatic considerations. Moreover, such a distinction does not seem to be as important as a distinction made on the basis of whether the beliefs were acquired in the right way.
Third, in talking about seeing an object, ordinary language places emphasis on the event occurring within the seer that is, on my analysis, merely the terminal event of the seeing. For example, ordinary language may date the event of seeing with the date of such terminal events. It is understandable why this should be the case. Most events of seeing take very little more time than their terminal events. And it is only on the basis of relatively recent scientific theory that we have become aware of the fact that some events of seeing take much longer. Nevertheless, the object seen takes some part in the event of the seeing of that object, and this means that that event must include more than merely what goes on in the seer.

It may be easier to understand my comments here and to relate them to what I said in the prior chapter, if I offer a diagram to explain them.

![Diagram of events of seeing]

**Figure 6. A comparison of events of seeing**

In each of the cases 'e1' shall designate a causal chain of events beginning with light leaving 'd' and ending with light reaching 'A's eyes. Accordingly, 'e2' shall designate A's eyes being irradiated, 'e3' shall designate certain processing taking place in A, and 'e4' shall designate A's acquiring certain beliefs. Now what I have said above
is that I am satisfied to let ordinary language decide which, if any, of ela, elb, or elc are the right kind of causal chains to take part in a seeing. Let's say that in case c, the chain involves something (perhaps the transmission of a TV signal) that makes it ineligible to be part of a seeing, but that ela and elb are OK. Second, let us suppose that in case a, e4 is the acquiring of a belief which is very weird, so weird that ordinary language would not count case a as a case of seeing. My account would, nevertheless, count case a as a case of seeing. It has a structural similarity to case b that counts more than ordinary language considerations here. Lastly, it may be that in talking about A's seeing d, ordinary language emphasizes events e4, or the complexes of events e2-e4. My account takes the seeing to be the entire complexes of events e1-e4.

I have not specifically introduced any technical terms, but I have admittedly, and intentionally, done some conceptual engineering on our ordinary concept of seeing. If one should claim that I have not in fact analyzed the concept of seeing at all, rather I have introduced an entirely new concept, I would disagree. But even if the claim were true, our project can still be justified. In that case my claim would be that the events picked out by my concept have a composition and structure that is easier to justify philosophically, and more useful for metaphysical purposes, than that of the events picked out by the ordinary concept of seeing.
Notes

1. See, for example, Dretske (1969), pp. 50-2.

2. This is Mundle's "phenomenological" sense of 'look'. See (1971), pp. 16-23.

3. See pp. 207-22 for a complete description of the experiment. The experiment is discussed by Pitcher (1970), pp. 162-4; and his discussion is discussed by Pappas (1977b), pp. 158-60.

4. Of course, in one sense, most perceivers (those who either are not familiar with my theory or who do not accept it) are not aware of any of their e-beliefs. They do not believe that they have e-beliefs because they either do not know what e-beliefs are or they do not believe that there are e-beliefs. However, insofar as certain e-beliefs cause t-beliefs with corresponding content, there is that sense in which perceivers are aware of those e-beliefs.

5. A similar objection is raised by Pappas in much greater detail in (1977b), pp. 148-52.

10. CONCLUSION

Our project in this work has been to forge a new approach to a number of traditional philosophic problems concerning causation, action, intentional action, and perception. The approach involves looking at what I have called the metaphysical dimension of these problems. The problems were addressed as problems concerning certain non-conceptual, non-linguistic parts of the world, the basic category of which is events.

We first conducted a rigorous investigation into the nature of events. In this, we assumed that there are such things as events. This is not a completely uncontroversial assumption. But if one is not convinced by pre-theoretical considerations, such as the common man's unquestioning acceptance of the existence of such things as birthday parties, football games, actions, and accidents, then the best way to convince him of the existence of events is to show that their nature and composition can be explained in precise terms. This is the preliminary project that we undertook in Chapters 1-4.

We learned that many events are complex, in the sense that they have other events as constituents. We also learned that analysis of the property constituent of a complex event gives some direction for uncovering the nature of its event constituents. This shows us how conceptual analysis can play a role in a structural analysis of
events. In Chapter 2, I criticised Brand's event identity conditions by claiming that they made events too much like physical objects. I wish to make clear, however, that our theory of events does not commit us to the claim that the way that concepts pick events out of the world is totally different from the way that concepts pick physical objects out of the world. In fact, I think it is likely that there are significant parallels here; and it may be that our event identity and part conditions can shed some light on the nature and composition of physical objects.

We found that the most common concept involved in complex events is the concept of causation. We did not attempt to develop here a general account of causation. We assumed that causation is a relation between events and that it involves the existence of a causal chain or sequence holding between the events. It seems likely to me that the causal relation can be analyzed in terms of a certain kind of counterfactual relation. But one needs an independent theory of events to make this approach work. As Kim (1974) has pointed out, there are a number of non-causal counterfactual relations between events. We examined a number of examples of these relations in Chapters 3 and 4. Adolph's killing of Clarissa would not have occurred if his pushing of the plunger had not occurred, but Adolph's pushing of the plunger did not cause his killing of Clarissa. Likewise, Harry's committing suicide would not have occurred if his hopping out the window had not occurred. But Harry's hopping out the window did not cause his committing suicide. A counterfactual analysis of causation should explain why these counterfactual relationships are
not causal relationships.

If one accepts the Davidson line on event individuation, an answer is easily provided. There is no causal relationship between these events, because there is only one event, which is described in different ways. However, we saw in Chapter 3 that the Davidson view has a number of serious drawbacks. Moreover, there is additional reason to think that its answer to this question is suspect. The relevant counterfactuals just do not have the triviality that they should have if truly only one event is involved.

Goldman, as we saw in Chapter 6, would claim that these events stand in a "generation" relation and that the generation relation is not a causal relation. But Goldman does not explain generation in terms of any more familiar relation.

Our account views the relation between such events as a part/whole relationship. This at once explains why the relationship is not a causal relationship (something cannot be caused by one of its own parts), why it supports counterfactuals (if a part of an event did not occur, then that particular event would not have), and why the counterfactuals that it supports are not trivial. A counterfactual analysis must, in any case, require that events be wholly distinct in order to stand in a causal relationship. On our account, this condition would suffice to handle these troublesome cases.

In Chapter 5, we addressed a couple of problems that face any theory of causation: "How can 'negative events' be causes or effects?" and "How can objects be causes?" We saw that it followed from our theory of events, and other plausible considerations, that there are
no such things as negative events. We produced an account of negative event causal claims that explained our temptation to think of such claims as causal claims. These claims, we found, stand in a very similar kind of relation to certain counterfactuals as do causal claims. Furthermore, we found that pragmatic considerations apply to the assertion of these claims and causal claims in much the same way. Many true causal or negative event causal claims are not assertible claims in certain contexts because their assertion in those contexts would violate conversational principles.

In Chapter 6, we developed an account of actions that follows the basic insights of Goldman's (1970) account. However, we were able to do without Goldman's generation relation and present simplified conditions for basic actions and actions which required reference only to event-part relations. Moreover, we made a significant departure from Goldman's account by claiming that intentions are related to actions as parts, not as causes. We were able to retain the causal efficacy of intentions by holding that actions consist in part of intentions causing certain events, while also satisfying the intuitions of many that intentions are not the causes of actions. Our account also, by the way, offers a basis for distinguishing between mere bodily movements and actions. It is not the case that actions are simply bodily movements that are described in a certain way. The distinction between bodily movements and actions has an ontological or metaphysical basis. Our distinction, however, does not necessarily place actions outside the explanatory sphere of the hard sciences.
While we tended to concentrate on rather bizarre actions for our examples, the kind of approach we took in Chapter 6 applies to the analysis of any kind of action or intentional action. There is an abundance of interesting questions that fall into this area. For example, what is the composition of a speech act? John Austin (1962) claimed that a speech act, like persuading someone, included as constituents an "illocutionary" act and a "locutionary" act, and that the latter act itself consisted of a "phonetic" act, a "phatic" act, and a "rhetic" act. Our account of events gives a precise sense to this "consists of" talk; and it, furthermore, provides the basis for investigating Austin's claims and producing insights of its own into the nature and composition of utterances and speech acts. What about events of acting morally or immorally? Our account suggests that such events are complex events, and it provides the means to conduct an interesting, and perhaps fruitful, investigation into their nature.

In Chapters 7, 8, and 9, we went on to investigate in detail a particular kind of event, the event of seeing an object. Our discussion in Chapter 7, however, about the relation between a theory of events and a theory of seeing, touches on the general problem of scientific reduction. How can there be distinct scientific and common sense accounts of the same entity? Answering this question is trouble enough when the entity involved is an object or substance of some sort. But in such cases at least one can say that the object or substance, as identified by common sense and ordinary language, consist of the entity or entities identified by science and theoretic language. And
this allows one to resolve some of the puzzles concerning reduction. The properties of the whole are not necessarily properties of its parts, and one can identify something and know (in one perfectly good sense) what it is, without knowing of what it consists or being able to identify its parts.

Our account of events, at a minimum, places the reduction of events on a par with the reduction of objects in these respects. Obviously, this feature of our account applies to the reduction of any kind of event, not merely to events of seeing. Moreover, our account may lay the ground for a much more comprehensive account of reduction and hold the promise for providing insights into the remaining unresolved problems. I mentioned in Chapter 7 that I had nothing to say on the question of whether the properties of the whole could be reduced (in some sense) to the properties of the parts. But our account may provide the basis for developing an answer. The whole's having some property is an event, and the parts' having their properties are also events; so we might be able to address the above question about properties by addressing the related questions about events.

Recently, Kim (1978 and 1979) and others have begun to talk about the possibility of explaining scientific reduction in terms of a "supervenience" relation that holds between the common sense, ordinary language properties and the scientific, theoretic properties. Roughly, one set of properties supervenes upon another just in case, necessarily, for any property F in the supervening set, and for anything x which has that property, there is some property G in the
other (base) set such that \( x \) has \( G \) and anything which has \( G \) also has \( F \) (cf. 1978, p. 42).

Kim points out that his supervenience account allows there to be different base properties for different instances of supervening properties. To give a concrete example, one particular instance of pain might have a base neurophysiological property \( G_1 \), whereas another instance of pain might have a different base neurophysiological property \( G_2 \). All that is required for supervenience to hold is that any instance of pain will also be an instance of some base property (and that any instance of any of those base properties is also an instance of pain).

We have seen that our account can provide for such "token-token identities" as well. As we analysed the event of seeing, in Chapter 9, for a seeing to occur it is necessary that a causal chain hold between the object seen and the acquiring of e-beliefs in the seer. This chain will involve some kind of processing steps in the seer that perform the function of converting raw sensory data into e-belief content. But the nature of these processing steps has been left open. It may be that the processing steps differ for different seers, or for the same seer on different occasions of seeing. Moreover, each processing step itself would be a complex event consisting of events at some more basic level, which perform the function of which that step consists. A certain type of processing step might consist of certain neurophysiological events on one occasion and different neurophysiological events on another. Or, if we can produce machines that see, the processing steps might consist wholly of physical events.
This kind of account clearly generalizes to other mental and psychological events, and it also applies in basically the same way to other kinds of events. Consider our analyses of various actions throughout this work. A killing, for example, analyzed into an agent doing something that brings about, in the right way, the death of another. Exactly of what actions and other events a killing consists is going to differ from instance to instance.

It may be that our account can explain why certain sets of properties stand in a supervenience relation. One set of properties supervenes on another whenever events consisting of exemplifications of properties in the first set will have as constituents events consisting of exemplifications of properties in the second set. Kim's account says that entities stand in a certain relation (reduction) because sets of properties stand in a certain relation (supervenience). Our account goes on to say that the relation of supervenience holds between sets of properties because certain entities stand in a part/whole relation. Much more, of course, needs to be said about the possible relationship between supervenience and event-part relationships. But it certainly seems to present a promising direction for further research on the nature of reduction.

Our account, in Chapter 9, of seeing an object should generalize to other forms of perception. Touching, tasting, smelling, and hearing all, in their own way, involve (consist in part of) the acquiring of e-beliefs. Again, our account suggests a promising avenue for further research. It also seems to me that the distinction between e-beliefs and t-beliefs suggests a number of interesting
possibilities that we have not been able to explore here. If there are e-beliefs and t-beliefs, why not e-desires and t-desires? Perhaps the realm of t-beliefs and t-desires is the realm of full-blooded consciousness. Perhaps our account of actions in Chapter 6 needs to be amended to provide that only behavior arising from t-beliefs and t-desires constitutes action or intentional action. Perhaps the distinction between different types of beliefs and desires can be used to distinguish between free, responsible action and compulsive or "unthinking" behavior.

I said in the Introduction that my principle concern in this work was to show that a metaphysical approach to traditional philosophical problems had considerable merit. I have taken that approach to a number of such problems, and, in this chapter, I have suggested ways that it might be applied to others. No doubt, the specific answers I have developed to the specific questions I have addressed contain certain errors and difficulties. These are, after all, difficult questions. But I hope to have shown that the approach taken in this work does have considerable promise, and that it is capable of suggesting and guiding research in a wide variety of areas. I shall be satisfied to have achieved this modest, but significant, goal.

Notes

1. However one feels about the doctrine of mereological essentialism as applied to persons or objects, it seems clear that it holds for the event-parts of events.
APPENDIX

The Mechanics of the 'Universals' Operator

The nature of the mechanism of the 'Universals' operator depends upon the logical form given to the predicates expressing the properties. I think it can be most clearly explicated by adopting Davidson's account of logical form, but I do not think that the 'Universals' operator requires that Davidson's account be correct. In Davidson's terms, '(∃e)(Re & A(T)e)' (roughly, 'there exists an event which is a running and (T) is the agent in the event'). '(T)-is-slow' simply becomes 'S(T)'. The result of applying 'Universals' to '(∃e)(Re & A(T)e)' and 'S(T)' is '(∃e)(Re & A(T)e & Se)' or 'there exists an event which is a running and (T) is an agent in that event and that event is a slow running', which is the logical form of 'Universals-running-slowly'.

With this notion of logical form in mind, the mechanics of the 'Universals' operator can be expressed in more general terms as follows: 'Universals' is an operator that takes an m-adic property (expressed by an open sentence with m free variables) and an n-adic property (expressed by an open sentence with n free variables) into a combined ((m+n)-1)-adic property by (in effect) replacing one free variable of the open sentence with n free variables with a bound or free variable of the open sentence with m free variables, conjoining the sentences, and placing any external quantifiers of either sentence in front of the
combined sentence.

Where "F" is "(Qx₁)...(Qxₖ)(...x₁...xⱼ...xᵢ+m...)" and "G" is "(Qy₁)...(Qyₖ)(...y₁...yⱼ...z₁...zₙ...)", "∅(F,G)" is "(Qx₁)...(Qy₁)...(Qyₖ)((...x₁...xⱼ...xᵢ+m...) & (...y₁...yⱼ...z₁...xᵢ...
zₙ...))" (where 1≤i≤j+m and xᵢ replaces some zₜ where 1≤t≤n).

To further illustrate the mechanics of the '∅' operator, I show below, in some detail, how the operator applies in steps (3) and (5) of the derivation of the claim that Harry's hopping on one foot out the window is a part of Harry's committing suicide. (The derivation in on pp. 76-7.)

(3) ∅((₁)-hops-on-one-foot-out-the-window, ₁)-causes-(₂)-to-die) = ∅((∃)(He & A₁e & Fe & Oew), (∃f)(∃g)(Cf₁g & Dg₂)). Now, this entails (∃)(∃f)(∃g)(A₁e & Cfg & Dg₂) (i.e., ₁-is-an-agent-in-an-action-that-causes-₂-to-die.

(5) ∅((₁)-is-an-agent-in-an-action-that-causes-₁-to-die, ₁-is-intended-by-₂) = ∅((∃)(∃f)(∃g)(A₁e & Cfg & Dg₁), I₁₂) = (∃)(∃f)(∃g)(A₁e & Cfg & Dg₁ & If₂) (i.e., ₁-is-an-agent-in-an-event-that-causes-₁-to-die-and-this-is-intended-by-₂).
LIST OF REFERENCES


