SOME LOGICAL PROBLEMS IN ARTHUR DANTO'S

ACCOUNT OF EXPLANATION

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Abstract:

In this paper we examine the theory of historical expla-
nation presented by Arthur Danto in his book, <u>Analytical
Philosophy</u> <u>of</u> <u>History</u> (1965).

Our thesis is that Danto is mistaken in his assertion
that a phenomenon can be covered by a general law only inso-
far as we produce a description of it which contains no
uneliminable particular designations of it. It is possible
to cover such particular statements with general laws pro-
vided one can bridge the logical gap between the two types
of sentence with other statements which need not be re-
descriptions of the phenomenon but can be independently
established premises for a deductive argument.

We further show that some of the analogies which Danto
attempts to make between deduction and narrative are mistaken
because of errors in Danto's understanding of logical theory,
specifically, Danto's notion that no predicate may appear in
the conclusion of a deductive argument which is not anteced-
ently contained in the premises and his claim that the same
variable must be replaced by the same constants throughout
an argument.

Some Logical Problems in Arthur Danto's

Account of Explanation

In his important and influential recent book <u>Analytical</u>
<u>Philosophy</u> <u>of</u> <u>History</u>, Arthur Danto says some things about
the "covering law" model of explanation which are both
interesting and important. But he also says things that
are false.

Danto gets to his position by first noting that "Phe-
nomena <u>as</u> <u>such</u> are not explained. It is only phenomena as
<u>covered</u> <u>by</u> <u>a</u> <u>description</u> which are capable of explanation,
and then, when we speak of explaining them, it must always
be with reference to <u>that</u> description."[1] This fact, which
I do not dispute, leads him to conclude, "If there are in-
definitely many possible descriptions of a phenomena, there
may be indefinitely many possible different explanations of
that phenomena under which it cannot be explained at all."[2]
He goes on to add, "However, there are in principle, de-
scriptions which might cover them (events) which logically
prevent them from being covered by general laws."[3]

What sort of description of an event would <u>logically</u>
prevent it from being covered by a law and thus explained?
Danto's answer is that any description which contains un-
eliminable particular designations cannot be covered by a
general law. "By Hempel's own criteria for a general law,
a proposed law L must contain 'no essential - i.e. unelim-
inable - occurrences of designations for particular objects'.
Hence insofar as a description D of a phenomena E contains
such designations, it cannot, under D, be covered by a
general law."[4]

[1] Arthur Danto. <u>Analytical</u> <u>Philosophy</u> <u>of</u> <u>History</u>.
Cambridge University Press, 1965, p. 219.

[2] p.219

[3] p.219

[4] p.219

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He reiterates this point when he says "a phenomenon can be covered by a general law only insofar as we produce a description which contains no uneliminable particular designations of it. Or briefly, we can cover an event with a general law only once we have covered it with a general description."[5]

This is a crucial point in any nomological theory of explanation. It is true that it is impossible to move directly from a general law which contains no particular designations to the explanation of a particular historical event. If we have a law that states that every overpopulated nation is expansionist, we cannot move directly to the conclusion that China is expansionist. The most we can move to directly from the law, even assuming the principles of logic as additional rules of inference, is the statement that if China is overpopulated, then China is expansionist. But how do we know that China is overpopulated? We must have another premise in our argument which states that China is overpopulated. This additional premise must be established on independent grounds.

It is important to notice that this additional premise has by no means eliminated the particular designation, in this case the proper name "China". And yet this additional premise allows us to move from the general law to a particular statement about an individual.

If I have interpreted Danto correctly in his theory of explanation, then surely his theory is mistaken. Even if we suppose that no law may contain any uneliminable designation for a particular object, it is by no means true that we cannot deduce a conclusion which does contain such a designation from a law which does not. It all depends on the other premises of the argument.

While something is needed to bridge the logical gap between a law and a conclusion which contains a particular designation, this does not mean that no conclusion of a deductive argument can contain a particular designation. All it means is that not all of the premises of the argument can

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be general laws. There must be at least one premise which specifies the "initial conditions," i.e., brings the particular designations under some general description. Of course, this is not the case when the conclusion of the argument contains no such particular designation. In this case all the premises can be entirely general.

Danto thinks that if the description we have given an event contains essential particular designations we must redescribe the event in order to explain it. "But it does not follow that the model is as such incorrect or that the events in question are unexplainable. Only unexplainable under the descriptions which have been given them. But then to explain these events requires a redescription of them. Indeed, to be able to redescribe the events is already, in a sense, to have explained them. For often we can only carry through the redescription when we know the explanation, and typically, again, the redescription entails a covering law."[6]

At this point, Danto gives a rather elaborate example to illustrate this process of redescription which assumes such importance in his theory of explanation. The event to be explained is the display of the American flag alongside the flag of Monaco at the last fête nationale monégasque. He offers us a triad of descriptions "at different levels of the event E:

a. The Monégasques put out American flags side by side with Monégasque flags.
b. The Monégasques were honoring a sovereign of American birth.
c. The members of one nation were honoring a sovereign of a different national origin from their own.[7]

Danto's claim is that C is the only one of these three explanations which can be covered with a general law "It is the latter (referring to C) which serves to put the event under a formal law."[8]

[6] p.220

[7] p.221

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The law which he offers us is:

"L. Whenever a nation has a sovereign of a different
national origin than its own citizens, those citizens will,
on the appropriate occasions, honour that sovereign in some
acceptable fashion."[9]

This is fine <u>but</u> my point is that there is no more reason
to think that one can deduce c above from the law L than a or
b. Certainly, <u>as it stands</u>, we cannot cover any of the 3 de-
scriptions with the law. Danto goes on to say "We assume,
as independently known:
  K-1 The sovereign Princess of Monaco is of non-monegasque
  origin.
  K-2 The fête nationale monegasque is an appropriate
  occasion for honoring sovereigns of Monaco.
  K-3 Putting out the flags of a person's native country is
  an acceptable way of honoring that person as a native of
  that nation."[10]

He goes on to state "there is no reason to doubt that we
could in the end, exhibit C as a deductive consequence of
all of them together".
  Now this is exactly my point. Of course we could deduce c
from L along with K-1, K-2, K-3 . . . K-x, but there is no
reason why we could not deduce a or b as well given the right
"K" statements which are assumed as independently known. The
"K" statements which represent the initial conditions are
fairly bristling with essential particular designations like
"Princess of Monaco" and "fête nationale monegasque".

In some instances it <u>is</u> advantageous to redescribe an
event in order to bring it under a covering law. Suppose that
we witness a male Cardinal vigorously flying into a window
pane and repeatedly beating it with its wings and pecking at
it. Naturally, we seek an explanation for this unusual
behavior. We know of a law that male Cardinals will vigor-
ously attack any object which sufficiently resembles a male
Cardinal and which enters their breeding territory during the
breeding season. If we can redescribe the event as "attacking
a rival male" rather than "attacking a window pane", then we

[9] p.221

[10] p.222

can cover it with the law. We can redescribe the event in these terms by postulating that the Cardinal saw his own reflection in the glass, took it for a rival male, and attacked.

Of course, it is impossible to redescribe the peculiar behavior of the Cardinal unless we already know the explanation. Thus, while we cannot agree with Danto that no description can be deduced from a general law unless it is a completely general description containing no particular designations, we can agree with him that it is sometimes advantageous to redescribe events in order to bring them under covering laws.

This redescription is often crucial in deciding which premises are relevant in a deductive explanation. Unless we can furnish the "correct" description of an event, then it is impossible to know whether a general law is relevant or not. In the above example, suppose that I told you only that Albert attacked the window pane. It is impossible to bring this event under the general law that Cardinals will attack rival males in their territory unless we also know that Albert is a male Cardinal. My disagreement with Danto is that he seems to think that what is necessary is a redescription of the same event in a way that will eliminate all the particular designations from it.

"A phenomenon can be covered by a general law only insofar as we produce a description which contains no uneliminable particular designations of it. Or, briefly, we can cover an event with a general law only once we have covered it with a general description."

If we are allowed to examine Albert, we can quickly supply the premise "Albert is a male Cardinal," which is not a redescription of "Albert attacked the window," but an independently established premise. Note that it too contains the particular designation "Albert". With several such additional premises we can explain the attack by deducing it from the law.

L. In the breeding season, a male Cardinal who has

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established a breeding territory will attack any object within the limits of his breeding territory which resembles a male Cardinal.

K-1. Albert is a male Cardinal.

K-2. The reflection of a male Cardinal in a glass window resembles a male Cardinal.

K-3. April 19 is within the breeding season for Cardinals.

K-4. The glass window is within the boundaries of Albert's breeding territory.

On April 19, Albert attacked the window.

We can only conclude that Danto's modification of Hempel's theory represents some important insights. In some cases it is necessary to redescribe an event in order to explain it. In many cases, we must already know the explanation before we can furnish a description which will bring the event under a law. But Danto is misleading in that he suggests that no description can be covered by a general law which contains particular designations. It is possible to move from a general law which contains no particular designations in some cases, if we have some descriptions which will serve to bridge the logical gap. It is not necessary in every case to redescribe a phenomenon in completely general terms in order to deduce it from a general law.

Turning from explanation in general to specifically historical explanation we find Danto defending the view that narrative is a form of historical explanation. He attempts to draw three analogies between bad narratives and invalid deductions which will further illuminate the relationship between narrative explanations and deductive explanations. He thinks these three analogies will strengthen his case for narrative as a form of explanation. "That there are these analogies between deductive arguments and narratives help support my claim that a narrative is a form of explanation if a deductive argument is."

Let us look at the second analogy first. Danto says, "It is a commonplace in logical theory that no predicate may appear in the conclusion of a deductive argument which is not antecedently contained in the premises." Danto feels that the putative logical fallcy of introducing predicates in the conclusion of an argument which do not appear in the premises is analogous to the process of having "gaps" in a narrative, i.e. having important events in the conclusion of the narrative which are left unexplained in the beginning and the middle of the narrative. The explanation in this case would be incomplete.

I agree that it is a flaw to leave important events unexplained in constructing narratives, but the analogy with deductive arguments fails because it is far from true that no predicate may appear in the conclusion of a formal deductive argument which is not antecedently contained in the premises. Consider the following argument:

(1)   (x)   (Fx⊃Gx)
(2)   Fa   /Ga v Qb
(3)   Fa⊃Ga   1, U.I.
(4)   Ga   2 - 3, M.P.
(5)   Ga v Qb   4, Add.

Step (5) of the above argument is validly inferred from Step (4) by the addition rule which says we may add any expression whatever to a true expression and the resulting expression will still be true. Thus, if the premises are true and allow us to infer some expression p, then p v q will be true whether q is true or false.

There are other ways in which predicates may occur in the conclusion of valid deductive arguments which do not contain these predicates in the premises.

(1)   (x)   (Fx⊃Gx)
(2)   Fa   /Qb⊃Ga
(3)   Fa⊃Ga   1, U.I.
(4)   Qb
(5)   Ga   2, 3 - M.P.
(6)   Qb⊃Ga   4 -5, C.P.

This logical device is known as the strengthened rule of conditional proof and takes advantage of the fact that a true statement is implied by any statement whatever. Thus if the premises of an argument are true and allow us to infer some expression p, then any expression q implies p whether q is true or q is false.

It is even possible to have valid deductive arguments with no predicates in the premises at all. This is because it is possible to have valid deductive arguments with no premises at all! Take the following argument.

(1)		/Fa⊃Gb) ⊃ (~Fa v Gb)
(2)	Fa⊃Gb	
(3)	Fa	
(4)	Gb	1 - 2, M.P.
(5)	Fa Gb	2 - 1, C.P.
(6)	Fa v Gb	4, Impl.
(7)	(Fa⊃Gb) ⊃ (~Fa v Gb)	1 - 5, C.P.

It is possible to prove the truth of any tautology with no premises at all using the strengthened rule of conditional proof. Thus we see that Danto's second analogy fails due to his mistaken ideas about formal logic.

While we must insist that the analogy between formal logic and narrative fails in the sense that we have indicated, this does not mean that Danto's point with respect to narrative is not a true and important point. It is quite true that it is a flaw in narratives to have gaps in them which leave important points unexplained. We do not wish to challenge this point in the least. The only point I wish to make is that Danto has attempted to make this point in a manner which is somewhat misleading.

In the logic of the syllogism, Danto's point would have been sound. One of the rules for the validity of the syllogism is that a valid syllogism can contain no more than three terms, each of which appears exactly twice in the syllogism but not more than once in any one sentence of the syllogism. In the theory of the syllogism it would have been impossible to introduce any term into the conclusion which did not occur in one of the premises. But in the newer theory which underlies modern logic, the only thing that really matters is the

preservation of truth value. In modern logic any argument is valid, no matter how counter-intuitive or incomplete, if it has a structure such that the conclusion must be true if the premises are true.

Danto's first analogy fails for similar reasons. This is Danto's attempt to account for the fact that narratives must have a subject whose identity remains constant throughout the narrative. Danto first states a simple deductive argument:

(1) (x)   (Fx⊃Gx,)
(2) Fa,
(3) Ga.

Using this argument as an example, he then tries to make his point in the following words, "Suppose we were to replace (2) with Fb. This would be a violation of a rule in natural deduction, and the premises would no longer entail Ga. But similarly, suppose we were to replace (3) with Gb. This conclusion would no longer be entailed by (1) and (2). Logically, we want the same variable to be replaced by the same constants throughout. The narrative analogue might be spoken of as <u>unity of subject</u>. In the above argument, no constant can appear in the conclusion which does not antecedently appear in the premises."[11]

While this last may be true of the simplest cases such as the example supplied by Danto, it is by no means true of deductive arguments in general, as we have just shown. As for Danto's point that we want the same constants to replace the same variables throughout, this doesn't happen to be true either. It is true that we want to replace the same variable with the same constant throughout a given <u>statement form</u> but it is not true that we must replace the same variables with the same constants throughout the argument, as Danto clearly supposes. This is because variables are <u>variables</u> and can stand for any number of different individuals. Therefore, one variable can stand for more than one individual.

Consider the following argument, which is perfectly valid but can be shown to be so only by substituting different constants for the same variable in two different premises.

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Let me again emphasize that this procedure would be unac-
ceptable if we were substituting the same constant for two
different variables in a single line of the argument, but this
is perfectly acceptable in two different lines of the argument.

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 (1)   (x)  (Fx⊃Gx)  .  (y) (Fy⊃My)
 (2)   (x)  Fx               /Ga·Mb
 (3)   (Fa⊃Ga) · (y) (Fy⊃My)          1, U.I.
 (4)   (Fa⊃Ga) · (Fb⊃Mb)              3, U.I.
 (5)   Fa                             2, U.I.
 (6)   Fb                             2, U.I.
 (7)   Fa ⊃ Ga                        4, Simpl.
 (8)   Ga                             5 - 7, M.P.
 (9)   Fb ⊃ Mb                        4, Simpl.
(10)   Mb                             6 - 9, M.B.
(11)   Ga · Mb                        8 - 10, Conj.
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In Step (5) we substituted the constant a for the variable x.
In Step (6) we substituted a different constant, b, for the
same variable, x. Thus Danto's first analogy between narratives
and deductive arguments also fails.

Danto's third analogy holds, but it does not seem to be a
very important analogy. His third point is that one shouldn't
include premises in a deduction that one does not need in order
to make the deduction. Not that there is anything logically
wrong with including extra premises, it will not make an argu-
ment invalid but it violates certain aesthetic criteria of
deductive elegance to have redundant or irrelevant premises in
one's deductions. Danto finds an analogue to narrative in the
fact that "it is a flaw in a narrative if it contains episodes
which fail to contribute to the action."[12]

It is true of both narrative and deduction that one should
avoid unnecessary entities, but I fail to see that it particu-
larly illuminates the relationship between narrative and de-
duction because it seems to be true of practically everything
else as well. If I want to go from Tallahasse to New York, it
would surely be unnecessary to go by way of Paris, but I fail
to see that this gives us any particularly close analogy
between narrative and travel routes. Danto's third point
seems to be merely an expression of the principle of parsimony

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which operates pretty generally throughout human affairs, not just in narratives and deductions. Thus, while Danto's third point is generally true, it fails to illuminate us about the character of narrative and deduction.

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