



## **Contrariety and Causality in Hume**

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CONTRARIETY AND CAUSALITY  
IN HUME

Hume's notion of contrariety ranks among the most obscure in his theory of relations. To make matters worse, the puzzling account of contrariety he offers can be shown inconsistent in the following way.

The Treatise (T69-82) divides all relations into two disjoint classes - one class containing relations of knowledge<sup>1</sup> (in the strict sense) ascertained by the mere comparison of ideas, the other containing those of probability or 'uncertain knowledge' requiring 'experience' or empirical evidence. Causality is the paradigm of a probability relation - contrariety falls into the class of knowledge relations. Thus unlike causality the discovery of a contrary relation appears to require no experience. Yet in direct contradiction Hume claims that with the exception of existence and non-existence (which are singled out for special attention), all knowledge of contrary relations demands experience:

*no two ideas are in themselves contrary, except those of existence and non-existence.... All other objects, such as fire and water, heat, and cold, are only found to be contrary from experience, and from the contrariety of their 'causes' or effects'. (T15)*

The charge of inconsistency appears inevitable. However, I shall argue that Hume escapes by implicitly operating with two distinct concepts of contrariety: one (which I shall term "logical contrariety") a relation of knowledge, the other (to be called "empirical contrariety") reducible to a peculiar type of causal relation, and therefore a probability relation. To adduce independent grounds for this claim I demonstrate that acceptance of these two concepts is essential if we are to explain why Hume finds it important to place the following restriction<sup>2</sup> on contra-

riety (hereafter, R):

properly speaking no objects are contrary to each other, but existence and non-existence. (T173)

My aim will be to discover what motivates this strange-looking condition R and one result of my explanation is to dissolve the initial inconsistency in the account of contrariety.

In tracing the implications of condition R I shall claim that to apply R is to be forced to identify contrariety with logical contradiction. Thus it will be useful at the outset to recall the standard distinction between these two categories.<sup>3</sup> As a relation between statements, contradiction is customarily defined as the conjunction of a statement p and the negation of that same statement p, where one conjunct must be true and the other false. The paradigm is the familiar:

(1)  $(p \ \& \ -p)$ .

On the other hand, two distinct statements are said to be contraries if both cannot be true but may both be false. Thus contrary statements p and q have the following truth-functional representation:

(2)  $- (p \ \& \ q)$ .

(For example, let 'p' abbreviate "It is summer" and 'q' "It is winter". Our notion of the seasons is such that although it may be neither winter nor summer, it cannot be both, so p is contrary to q.)

What is important in this distinction is that contrariety applies to distinct elements, contradiction only to the same element and its negation. The immediate consequence of R is to restrict the elements entering into contrariety to pairs of existent and non-existent objects. But when these objects are distinct there is no hint of either contrariety or contradiction. Only when it is the existence and non-existence of the same object which is described do we get anything even resembling contrariety. And then the

result is a contradiction in every case.

Because it only makes sense to talk of the existence and non-existence of the same object as being in some way 'contrary', the restriction R can be said to reduce contrariety to contradiction. It is this restricted species of contrariety which I have termed "logical contrariety". The broader concept that is excluded by the restriction R and which obtains between distinct objects is "empirical contrariety".

It is not immediately evident, however, why no distinct existent and non-existent objects are contrary. And if I interpret him correctly, there is at least one recent critic who has a different understanding of the contrariety restriction. According to this author, R simply means that:

*no objects are contrary to one another save where the one has the property of existing and the other does not*<sup>4</sup>

and hence some form of empirical contrariety is compatible with R after all. To test this claim let us analyse the situation in which an existent object x is said to be contrary in the restricted sense to a distinct non-existent object y. Extending our standard definition to existential and negative existential sentences, a sentence asserting the existence of x is contrary to a sentence asserting the non-existence of y if the following statement holds:

(3)  $- ((x \text{ exists}) \ \& \ - (y \text{ exists})).$

But (3) is truth-functionally equivalent to:

(4)  $(x \text{ exists}) \Rightarrow (y \text{ exists}).$

And (4) can hardly be said to represent a form of contrariety between existent and non-existent objects. (Indeed paradox of material implication aside, (4) is an analysis of "x causes y".) Therefore to hold R and still maintain some sense of contrariety between existent and non-existent objects, Hume must restrict contrariety to logical contrariety.

Hume's own remarks bear out my claim. In the Treatise he recognizes that restricting contrariety to existence and non-existence means treating it as contradiction:

*the flattest of all contradictions ...  
(is) ... that 'tis possible for the same  
thing both to be and not to be. (T19, my emphasis.)  
... with contrariety ... No one can once  
doubt but existence and non-existence  
destroy each other, and are perfectly in-  
compatible and contrary. (T70)*

And in the Enquiries he interchanges the terms 'contrary' and 'negation':

*The contrary of every matter of fact is  
still possible; because it can never imply  
a contradiction ... (EU25)  
... No negation of a fact can involve a  
contradiction. (EU164)*

This usage indicates that if p is (logically) contrary to q, p is  $\neg q$ , the negation of q. In this case the conjunction of p and q spells the contradiction (q &  $\neg q$ ).

The definition of logical contrariety we adopt is the same as the definition of contradiction specialized to existential sentences, so we need not state it. It is sufficient to give as a paradigm the following contradiction:

(5) (Mars exists) & - (Mars exists).

Here it is the existence of Mars that is logically contrary to the non-existence of Mars and therefore the contrariety restriction R is satisfied. Again it is only the existence and non-existence of the same object that is logically contrary.

Empirical contrariety is most clearly defined in terms of the Lewis counterfactual  $\Box \Rightarrow$ , where 'O' is a monadic predicate, 'e<sub>i</sub>' and 'e<sub>j</sub>' represent distinct arbitrary events, and "O(e<sub>x</sub>)" means "event e<sub>x</sub> occurs":

(EC)  $e_i$  is empirically contrary to  $e_j$  iff  $O(e_i) \square \Rightarrow \sim O(e_j)$ .<sup>5</sup>

Here it is not the existence and non-existence or occurrence and non-occurrence of distinct events that gives rise to contrariety. Rather it is the existence or occurrence of one event that is empirically contrary to the existence or occurrence of another.<sup>6</sup>

To establish Hume's motivation for framing the condition R in such a way as to identify contrariety with contradiction, I now turn to examine the epistemological ground of the difference between empirical and logical contrariety.

The ontological distinction between empirical and logical contrariety has its epistemological parallel in the cleavage between knowledge and probability.<sup>7</sup> As mentioned earlier, Hume officially regards contrariety as a knowledge relation. Here the contrariety he has in mind is "logical contrariety", and therefore strict knowledge of a contrary relation is tantamount to knowledge of logical contrariety:

*these relations [i.e., three of the knowledge relations: resemblance, contrariety and degrees in any quality] are discoverable at first sight, and fall more properly under the province of intuition than demonstration ... The case is the same with contrariety.... No one can once doubt but existence and non-existence destroy each other, and are perfectly incompatible and contrary. (T70)*

As noted above Hume recognizes a type of contrariety which can only be known through experience - the species of contrariety which we have termed "empirical contrariety". And in the case of both physical and psychological contrariety<sup>8</sup>, Hume states that he proceeds by the method of experience and observation. Yet his official list of probability relations does not include empirical contrariety. How then is it to be accounted for within his theory of relations? One solution is to reduce contrariety

to one of the three probability relations: causation, identity, or contiguity in time and place. The natural candidate is causality; and in the Enquiries Hume in fact claims<sup>9</sup> to reduce contrariety to causality:

*Contrast or Contrariety is also a connexion among Ideas: but it may, perhaps, be considered as a mixture of Causation and Resemblance. (EU24n.)*

The definition of empirical contrariety (EC) tells us that two empirically contrary events cannot occur together. It is reasonable to ask of such events why they cannot occur together. And the answer is obvious: one of them must cause the non-occurrence of the other. Thus we can reduce empirical contrariety to a peculiar form of causation<sup>10</sup>:

(EC)\*  $e_i$  is empirically contrary to  $e_j$  iff the occurrence of  $e_i$  causes the non-occurrence of  $e_j$ .

(If we accept the following as an analysis of contrary causation: the occurrence of  $e_i$  causes the non-occurrence of  $e_j$  iff  $O(e_i) \square \Rightarrow \sim O(e_j)$ , then EC\* is equivalent to EC.)

To illustrate briefly EC\* we borrow Hume's example of the contrariety of fire and water. When water extinguishes fire, the observed contrariety or 'annihilation' is to be analysed in terms of the water causing the fire to go out. A second example is taken from Book II of the Treatise when Hume develops a psychological theory of the contrary passions of pride and humility:

*For as these passions are directly contrary, ... 'Tis impossible a man can at the same time be both proud and humble; and where he has different reasons for these passions, as frequently happens, the passions either take place alternately; or if they encounter, the one annihilates the other ... (T278)*

Recently a commentator has argued that with respect

to this perceptual contrariety:

when two perceptions are contrary each is  
a cause of the non-existence of the other.

And he offers the following formulation which (overlooking its restriction to perceptions) is in essential agreement with EC\*:

two perceptions are contrary if and only if  
the existence of either in a person at a  
given time is a cause of the non-existence  
of the other in the same person at the same  
time.<sup>11</sup>

The author of this definition claims to find certain difficulties<sup>12</sup> with it. However, I believe that those which have a direct bearing on the definition may be avoided by carefully distinguishing between empirical and logical contrariety -- something the above author fails to do.

The reduction of empirical contrariety to causality points towards Hume's theory of causality as a source of explanation. Of crucial importance is Hume's assumption<sup>13</sup> about the nature of any known objective causal connections: if there are any such beasts, they are all necessary connections in which the effect is deducible as an *infallible consequence* of the cause (EU65). When narrowed down to contrary causation his assumption is: to have knowledge of causally contrary events is to be able to make valid inferences from the existence of one event to the non-existence of another causally contrary to it. In terms of modal logic, to have knowledge of causally contrary or causally connected events is to know a certain necessary counterfactual. The isomorphism between Hume's two assumptions about causal contrariety and connection is evident in these formulations:

- (6) X knows that  $e_i$  is causally connected to  $e_j$  iff X knows that  $\Box(O(e_i) \Rightarrow O(e_j))$ .
- (7) X knows that  $e_i$  is causally contrary to  $e_j$  iff X knows that  $\Box(O(e_i) \Rightarrow \sim O(e_j))$ .

Certainly Hume denies that such knowledge is ever acquired. Nevertheless it now becomes clear why he restricts knowledge of contrariety to logical contrariety and excludes empirical contrariety from the class of knowledge relations. For suppose he had not. Then according to his own assumptions, if by the comparing of ideas of fire and water, X somehow came to know of their contrariety, then X would know that there exists an object -- water -- whose existence strictly implies the non-existence or non-occurrence of another object or event -- fire. But for Hume it is axiomatic that there is no category of necessary connection in nature. And by the same token there is no necessary contrariety, no object whose existence implies the non-existence of any other on the basis of our ideas:

*there is no object, which implies the existence of any other if we consider these objects in themselves, and never look beyond the ideas which we form of them. (T86-87)*

*... there are no objects, which by the mere survey, without consulting experience, we can determine to be the causes of any other; and no objects which we can certainly determine in the same manner not to be the causes. (T173, my emphasis)*

Knowledge of causally (i.e. empirically) contrary events implies that there are events E which can never cause certain other events F, simply because events E cause the non-occurrence of events F. But one of the cornerstones of Hume's causal analysis is the dictum: anything may be the cause or effect of anything. Therefore to prevent falsifying this essential corollary of his causal theory<sup>14</sup>, Hume must restrict knowledge of contrariety to logical contrariety. And this is precisely the effect of R - the initial condition on contrariety.

*Any thing may produce any thing.... Nor will this appear strange, if we compare two*

principles explain'd above, that the constant conjunction of objects determines their causation, and that properly speaking, no objects are contrary to each other, but existence and non-existence. Where objects are not contrary, nothing hinders them from having that constant conjunction, on which the relation of cause and effect totally depends. (T173)

In Hume's eyes unrestricted contrariety and objective causal connection are two sides of the same epistemological and ontological coin. Knowledge of unrestricted contrariety would have implied a commitment to necessary contrariety in nature, an ontological category Hume is no more ready to countenance than necessary connection. Only by distinguishing between logical and empirical contrariety can we explain the ensuing restriction; only then can Hume avoid the original threat of inconsistency.

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(Author's note; T: Selby-Bigge edition of Hume's A Treatise of Human Nature; EU: Selby-Bigge edition of Hume's Enquiries concerning the human understanding; EM: concerning the principles of morals.)

1. As a rule throughout this paper by "knowledge" we mean knowledge in the strict sense as opposed to 'probability'.
2. See also (T15,247,249).
3. See W. C. Salmon, Logic, 1963, 101-102.
4. R. A. Imlay, Hume Studies, vol. 1, No. 2, p.34. (my italics).
5. Lewis, D. "Causation", Journal of Philosophy, 70, 1973.
6. The counterfactual is read: If it were the case that  $O(e_i)$  then it would not be the case that  $O(e_j)$ . Any

counterfactual implies the ordinary conditional, so the empirical contrariety of two events  $e_i$  and  $e_j$ , as defined by EC, implies the conditional:  $O(e_i) \Rightarrow \sim O(e_j)$ . The latter is of course equivalent to  $\sim(O(e_i) \wedge O(e_j))$  and here it is obvious from the initial definition of  $\}^j$  contrary statements, that the occurrence of  $e_i$  is contrary to the occurrence of  $e_j$  and not to the non-occurrence of  $e_j$ .

7. Although the theory of relations which lies behind the knowledge/probability distinction is a notorious source of difficulties, I accept the knowledge/probability distinction in what follows for the sake of argument. See e.g., Imlay *op. cit.*, and A. Hausman, "Hume's Theory of Relations", Nous, vol. 1, no. 3, 1967.
8. For example see (T15) as well as Book II, Part II, Section II, "Experiments to confirm this system", (T332-347). Also (T438-448) and (T131) where Hume bases a theory of probability on the contrariety in our experience and observation.
9. Admittedly it is unclear whether Hume intends this 'mixture' to constitute empirical or logical contrariety but since I am at a loss to understand what causality and logical contrariety (i.e. contradiction) have in common I shall extend the analysis to empirical contrariety.
10. For the sake of simplicity we ignore the aspect of resemblance. Presumably the resemblance obtains between separate instances of the same class of event.
11. R. J. Hawkins, "Simplicity, Resemblance and Contrariety in Hume", The Philosophical Quarterly, vol. 26, no. 102, Jan. 76, p. 29.
12. Two of the objections concern the co-existence of passions. However Hawkins himself raises the interesting possibility that what appears to be co-existence is really rapid alternation. His more general objection is a dilemma which arises from his mistaken impression that Hume believes contrariety is only a knowledge relation: either abandon the causal reduction of (empirical) contrariety or conclude that Hume was wrong in treating contrariety as a knowledge relation. Hawkins correctly chooses to cease treating contrariety as a knowledge relation; however under our interpretation this is Hume's implicit position all along with respect to empirical contrariety.
13. Hume regards 'connection', 'necessity', 'production', 'power' and their relatives as synonymous: *the terms*

of efficacy, agency, power, force, energy, necessity, connexion, and productive quality, are all nearly synonymous (T157). Thus unless it can be known that there are necessary connections in nature, i.e., pairs of events in which the existence of the first strictly implies the existence of the second, Hume will deny that there are any objective causal links, any regular operations or actions of one object upon another. More explicitly he says: If we be possest...of any idea of power in general, we must...be able to conceive some particular species of it; and...we must be able to place this power in some particular being, and conceive that being as endow'd with a real force and energy, by which such a particular effect necessarily results from its operation. We must distinctly and particularly conceive the connexion betwixt the cause and effect, and be able to pronounce, from a simple view of the one, that it must be follow'd or preceded by the other... [But]...the human mind cannot form such an idea of two objects, as to conceive any connexion betwixt them...Such a connexion wou'd amount to a demonstration, and wou'd imply the absolute impossibility for the one object not to follow...upon the other (T161-162, my emphasis.) Here it is plain that to justify the attribution of power or operations to objects Hume demands strict knowledge ('be able to pronounce from a simple view') of a necessary implication between cause and effect ('the absolute impossibility for the one object not to follow...upon the other'). See also the Enquiries pages 60-79, e.g., were the power or energy of any cause discoverable by the mind, we could foresee the effect, even without experience; and might...pronounce with certainty concerning it. (EU63)

14. See (T247-249) and also Imlay, op. cit., p. 34.