Chapter 6
Inferentialism and Connexivity

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Abstract This paper investigates the relationships between two claims about conditionals that are often discussed separately. One is the claim that conditionals express inferences, in the sense that a conditional holds when its consequent can be inferred from its antecedent. The other is the claim that conditionals intuitively obey the characteristic principles of connexive logic. Following a line of thought that goes back to Chrysippus, we suggest that these two claims may coherently be understood as distinct manifestations of a single and more basic idea, namely, that a conditional holds when its antecedent is incompatible with the negation of its consequent. The account of conditionals we propose is based precisely on this idea.

Keywords: Inferentialism, Connexivity, Evidential conditional, Incompatibility, Chrysippus.

6.1 Overview

The two claims investigated in this paper have received growing attention in the most recent literature on conditionals, although they have been discussed in quite different circles and from different angles. The first claim, which we call *inferentialism*, is that a conditional $p \rightarrow q$ holds when q can be inferred from p, or equivalently when p provides a reason for accepting q.[1] As long as the term 'valid' is understood in a sufficiently broad way, which includes both conclusive and defeasible reasoning, this claim may be phrased as follows: a conditional holds when the inference from its antecedent to its consequent is valid. The idea that true conditionals amount to valid arguments goes back to the Stoics. Sextus Empiricus reports the Stoic view as follows:

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[1] We take the term 'inferentialism' from Douven and colleagues, see [21] and [12].

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> The conclusive argument is sound, then, when after we conjoin the premises and create a conditional that begins with the conjunction of the premises and finishes with the conclusion, this conditional is itself found to be true.[2]

Iacona uses the term 'Stoic Thesis' to denote the view that an argument is valid if and only if the corresponding conditional is true.[3] Since inferentialists regard the left-hand side of this biconditional as an analysis of its right-hand side, the terms 'inferentialism' and 'Stoic Thesis' may be used as synonymous.

Inferentialism is an intriguing view because it accounts for some central aspects of the ordinary use of conditionals. Consider the following examples, which concern a series of tosses of a fair coin and Real Madrid's football season:

(1) If the first 5 tosses are all heads, there will be at least 5 heads in the first 1.000 tosses.
(2) If Real Madrid loses the first 10 matches, its coach will be fired.
(3) If Real Madrid loses the first 10 matches, there will be at least 5 heads in the first 1.000 tosses.
(4) If Real Madrid loses the first 10 matches, 5+5=10.

Intuitively, (1)-(4) are not all equally compelling: while (1) and (2) seem perfectly reasonable, (3) sounds definitely odd, and (4) may produce some puzzlement at least. These intuitive differences cause explanatory troubles to most extant account of conditionals. On the material account, where $p \rightarrow q$ is read truth-functionally as $p \supset q$, (1)-(4) are all true as long as their antecedent is false, which is very likely. On Adams' probabilistic account, according to which the acceptability of $p \rightarrow q$ is measured by $P(q|p)$, the conditional probability of q given p, (1)-(4) are all highly acceptable, due to the high probability of their consequent given their antecedent.[4] On the Stalnaker-Lewis modal account, according to which $p \rightarrow q$ is true just in case q is true in the closest world, or worlds, in which p is true, (1)-(4) are all true, given that their consequent is true in the closest worlds in which their antecedent is true.[5] A similar result is obtained on the belief revision account due to Gärdenfors and others, according to which $p \rightarrow q$ is acceptable just in case q belongs to the belief state obtained by adding p to one's set of beliefs.[6] All the accounts just considered seem to miss one crucial fact, namely, that in (1) and (2) the inference from the antecedent to the consequent seems justified, while the same does not hold for (3) and (4). This is precisely the kind of intuition that inferentialism intends to capture.

The second claim, which we call *connexivity*, is that an intuitively adequate theory of conditionals should vindicate some central principles of connexive logic. Here we will focus on a set of principles which we take to be prominent, without

[2] Sextus Empiricus, *Against the Logicians*, II, 417, in [37], p. 171. Scholars also agree that the Stoic notion of a valid argument was not restricted to formal validity, and might easily have included inferences that are now broadly classified as inductive rather than deductive. See [2], p. 123.

[3] [19].

[4] [1].

[5] [38], [25].

[6] [15].