RESEARCH STATEMENT
Tyrus Fisher

Overview

In broad terms, my research is unified by a desire to understand whether and how (if at all) the semantical facts about the languages we use should impact what we believe about the world. In the philosophy of language, this motivates my research on the meanings and logics of the conditionals we use when reasoning about the world. In the history of analytic philosophy, this motivates my work on Quine's views about meaning and language and how those views helped shape his views in the philosophy of science and ontology.

My dissertation, *Counterfactual Dependence and Causation's Arrows*, primarily concerns the relationships between Modus Ponens and other inference principles involving conditionals. The dissertation delivers three important results: (1) a semantic proposal that handles both backtracking and counterlegal counterfactuals; (2) A defense of Modus Ponens for counterfactuals and a diagnosis of why apparent counterexamples are attractive; and (3) a normative constraint on semantic theories, which brings out the invalidity of an almost universally accepted inference pattern—the inference from the indicative to the material conditional. I elaborate on the dissertation project at the end of this document. (1) and (2) are published as Fisher 2016b and 2016a, respectively. A paper corresponding to (3) is under review.

Directly below is a description of current article-length projects that are independent of my dissertation research.

1   Current Research

Right-Embedded Conditionals, Ambiguity, and Modus Ponens

Angelika Kratzer's theory of modals and conditionals constitutes one of the standard views in linguistic semantics. It has been shown (in, e.g., Khoo 2012) that the theory appears to predict the invalidity of Modus Ponens and the validity of the Exportation principle. In this paper I argue that the core of Kratzer's theory coupled with a commitment to compositionality predicts that at the level of surface form, right-embedded conditionals are ambiguous between two logical forms. I argue that the logical form that validates Exportation and that appears to invalidate Modus Ponens on the Kratzer view is not the form relevant to the question of Modus Ponens' validity. In Part 1 of this paper, I show how the ambiguity arises and argue it is genuine. I then use the ambiguity to explain what goes wrong with counterexamples to Modus Ponens for the subjunctive conditional. In Part 2, I consider whether the ambiguity can explain away McGee's (1985) famous counterexample to Modus Ponens for the indicative conditional.

Reverse Sobel Sequences are Evidence for Static Semantics

It is widely thought that the infelicity of Reverse Sobel Sequences is evidence for dynamic semantic theories, such as those of von Fintel (2001) and Gillies (2007), and against static Lewis-Stalnaker style theories of conditionals. We give two arguments for an opposing view. First, we argue that the infelicity of Reverse Sobel sequences is an instance of a more general phenomenon that both dynamic and static accounts can handle only by appeal to certain pragmatic effects. This result favors a Lewis-Stalnaker account augmented with a Moss (2012)-style pragmatic story on

grounds of explanatory parsimony. Second, Reverse Sobel sequences are dynamically inconsistent, but there are contexts in which the sentences of such sequences are knowably true, irrespective of order, yet the infelicity is still generated. Static accounts can explain the infelicity on pragmatic grounds while predicting the correct truth values for the sentences involved, but dynamic accounts cannot.

Quine's Indeterminacy Theses and his Scientific Realism

Quine is described as a scientific realist by most. Indeed, he described his scientific realism as "robust", professing his commitment to the existence of atoms, electrons, and the like. I argue that Quine's semantic views preclude his scientific realism from being anything of the sort that the word 'robust' would lead most of us to expect. Indeed, it is questionable whether the word 'scientific realist' is appropriately applied to Quine at all. In this paper I put forward and defend the view that Quine may be thought of as a realist about theories in the sense that he thinks we should count our best scientific theories as approximately true. But Quine's views commit him to a certain kind of empirical adequacy being a sufficient condition for the truth of a theory. Moreover, Quine's semantic views lead to a view according to which the content of existence claims about unobservable entities is so thin as to preclude attributing to Quine any substantial version of entity realism about theoretical entities.

Semantic Indeterminacy for Philosophical Naturalists

Although Quine's naturalism and his semantic indeterminacy theses are both motivated by his empiricism, they are at apparent odds with each other. Quinean naturalism counsels us to accept the ontologies given by our best scientific theories. In linguistics some of our best scientific theories of meaning make reference to meanings/propositions. But Quine's indeterminacy arguments are arguments for meaning skepticism. I argue that some of the Quinean indeterminacy arguments are forceful when construed as attacks on traditional Frege/Carnap conceptions of meanings. However, certain naturalized conceptions of semantic content are unscathed by this Quinean argument. The upshot is that a contemporary naturalist of the broadly Quinean sort can, and perhaps should, accept certain versions of the indeterminacy arguments against traditional Frege/Carnap conceptions of meaning, while accepting that the contemporary sciences of meaning can have ontologies that are perfectly respectable from a Quinean-naturalist perspective.

2   Dissertation Research

In my dissertation I begin by highlighting an overlooked limitation of previously-available semantic theories of counterfactuals—those that handle counterlegals cannot handle backtrackers and vice versa. The difficulty here is principled: Roughly, to handle backtrackers a semantics must hold laws (or some general principles) fixed, but to handle counterlegals, some allowance for law-breaking must be made. This work is published in Fisher (2016b). My first result is that both backtracking and counterlegal counterfactuals can be interpreted within a single semantic framework, which I provide. To elaborate, a semantics for counterfactuals should be able to appropriately evaluate conditionals such as:

(B) If Scotty were in Canberra now, he wouldn't have joined us for dinner this evening (here in California).

and

(C) Even if the temperature hadn't risen, that bottle containing that liquid would have burst had its internal pressure risen above 150 psi.

(B) is a *backtracking counterfactual*—it tells us how an earlier time would be different had a later time been different. (C) is a *counterlegal*—its antecedent is inconsistent with some set of laws. Oddly, for other theories if they can handle backtrackers, they cannot handle counterlegals.

The surprising key to the solution amounts to thinking of a "normal" (i.e. non-counterlegal) counterfactual as a special kind of counterlegal rather than the other way around. The semantics I develop interprets a given counterlegal relative to a causal-model, M, representing the causal system the counterlegal is about, and relative to a class of models that are *minimally-illegal* (relative to M). Loosely, a causal-model is minimally-illegal just in case it represents a minimal violation of M's laws while satisfying the antecedent of interest and maximally preserving M's assignment of values to its variables. Non-counterlegals are then treated as degenerate cases of counterlegals—cases in which the set of violated laws is empty. In such degenerate cases, my semantics agrees with Hiddleston's (2005), a semantics that does well with backtrackers. This work is published in Fisher (2016b).

The next two results bear on the validity of Modus Ponens. I provide counterexamples to influential semantic theories that invalidate Modus Ponens when applied to right embedded counterfactuals— the interventionist theories of Pearl 2000 and Briggs 2012—and use my counterexamples to reveal what goes wrong with the intuitive apparent counterexamples to Modus Ponens used to buoy the aforementioned formal accounts. Consider, for example:

(M) If the match had lit, then if it hadn't been struck, it would have lit.

There are natural contexts relative to which this conditional comes out intuitively false. But interventionist theories admit no falsifying model.

I go on to show that the reason interventionist theories cannot adequately handle such conditionals is exactly the reason they cannot handle backtrackers, and, moreover, the reason they invalidate Modus Ponens. My counterexamples thus provide a route to a philosophical response to the interventionist's proposed counterexamples to Modus Ponens. They also show that the property of interventionist theories that makes them unable to interpret backtrackers and that invalidates Modus Ponens also makes them unable to adequately interpret some non-backtrackers. These points are made in Fisher (2016a).

In the final part of my dissertation, I argue that an apparently valid inference that has guided much theorizing about indicative conditionals is, in fact, invalid, This is the inference from the indicative conditional to its material counterpart. I show that the apparent validity of this inference is only supported by illicitly encoding metaphysically-prejudicial assumptions in one's semantic framework. These are assumptions that rule out certain extra-semantic theses such as indeterminism. But whether indeterminism holds or not is an extra-semantic matter, and there are forceful arguments from indeterminism to the failure of bivalence for future contingents. I then utilize the premise that a semantics should admit models that give rise to truth-value gaps and argue for the conclusion that the indicative conditional does not entail its material counterpart. Here is a case to support this claimd failure of entailment:

Consider a world with some genuine chanciness, and consider a coin flipping device wired so that the coin will be flipped just in case a sufficient quantity of radioactive material decays. Then there is some chance the coin will be flipped in the next hour and some chance that it will not. Now suppose Heidi has bet that the coin will be flipped within the hour. Because of the posited indeterminacy involved, there are familiar arguments to the conclusion that both"The coin will not

flip within an hour" and "Heidi will win the bet" are neither true or false. The classical connectives are truth functional and, so, have no defined output for cases involving gappy sentences. Hence "The coin will not flip within a minute or Heidi will win the bet" is neither true or false. Nonetheless, the indicative conditional "If the coin will flip within a minute, then Heidi will win the bet" is true. So the indicative conditional does not entail its material counterpart.

I go on to provide a formal semantic framework for a conditional connective that validates Modus Ponens along with all the controversial principles involved in three of the best-known direct arguments. It follows, against orthodoxy, that the failure of the above entailment is consistent with the validity of Modus Ponens and one may coherently grant the key principles of the direct arguments without being forced to accept an attendant collapse of the indicative conditional into the material conditional.

In addition to philosophy of language and conditionals, I maintain a research interest in the history of analytic philosophy. My work here primarily concerns Quine's philosophy of language and its interaction with his views in other areas of philosophy, especially philosophy of science. I have published work on Quine's philosophy of language in the journal *Philosophia* (Fisher 2011) and (with Adam Sennet) in Harman and Lepore's *A Companion to W.V.O. Quine* (Wiley-Blackwell) (Sennet and Fisher 2014).

Core Dissertation Chapters

Backtracking and Counterlegal Counterfactuals

A counterlegal is a counterfactual conditional containing an antecedent that is inconsistent with some set of laws. A backtracker is a counterfactual that tells us how things would be at a time earlier than that of its antecedent, were the antecedent to obtain. In the second chapter of my dissertation, titled "Counterlegal Dependence and Causation's Arrows: Causal models for backtrackers and counterlegals", I argue that the failure of, the more or less standard, Lewis-style semantics to allow appropriate evaluation of backtrackers is a serious one. I also argue that it is a failure of Hiddleston's (2005) causal-model semantics that it evaluates all counterlegal conditionals as true (vacuously). So much is typical—theories that evaluate counterlegals appropriately typically can't evaluate backtrackers properly, and vice versa. I then take up the task of working out what a good causal-model semantics for both counterlegals and backtrackers should look like. The core contribution of the chapter is a means for evaluating counterlegals relative to minimally-illegal models. This chapter appears in publication at *Synthese* (as Fisher 2016a).

Causal Counterfactuals are not Interventionist Counterfactuals

In this chapter, I present a limitation inherent to the kind of causal-model theories that stand as the major competitors to the theory I develop. These competitor theories are what may be called *strictly-interventionistic* causal-model semantic theories for subjunctive conditionals. There too I offer a line of response to Briggs' (2012) intuitive counterexample to Modus Ponens for the subjunctive conditional, which is a counterexample ratified by strictly-interventionistic theories. The chapter also contains some discussion of backtracking counterfactuals and backtracking interpretations. The limitation inherent to strict interventionism is brought out via a class of counterexamples.

A causal-model semantics is strictly interventionistic just in case the procedure it gives for evaluating a subjunctive conditional requires making the values of the variables implicated in the antecedent independent from the values of the parents of these antecedent variables. Most causal-model semantic theories that have gained attention (e.g., that of Pearl (2000) and Briggs (2012) are

strictly interventionistic).

Roughly, the recipe for generating counterexamples to strictly-interventionistic theories is to produce a right-embedded counterfactual such that some event described in the consequent is of a sort that counts causally against some event described in the antecedent. For example, suppose I hold up a match. I strike it and it does not light. Suppose I then say, "If the match had lit, then if it hadn't been struck it (still) would have lit". There are ways of filling in the details here so that the counterfactual comes out intuitively false, but strictly-interventionistic theories admit no such falsifying model. Moreover, this class of counterexamples is revealing of two further philosophically-substantial points: First, these counterexamples are helpful for diagnosing why Briggs' (2012) counterexample to Modus Ponens should be judged uncompelling. Second, the counterexamples help to show that features of a semantics that preclude adequate treatment of backtrackers also preclude adequate treatment of some non-backtrackers. This chapter appears in publication at *Synthese* as Fisher (2016b).

Does the Indicative Conditional entail the Material conditional?

In this chapter, I turn from subjunctive conditionals to indicative conditionals. I argue against orthodoxy that the indicative conditional does not entail its material counterpart. In service of this conclusion, I offer intuitive counterexamples to the validity of the entailment claim at issue. These counterexamples importantly involve sentences that *may* realize truth-value gaps. I also present a (toy) causal-model semantics in service of exploring how the failure of the entailment claim at issue bears on the cogency of the so-called direct arguments for the material-conditional analysis of the indicative conditional. Among the upshots of this chapter are that, against orthodoxy, (1) it is coherent to deny that the indicative conditional entails its material counterpart while endorsing the validity of Modus Ponens, and (2) even if the controversial inference patterns involved in the best of the direct arguments are valid, the arguments do not entail the truth-conditional collapse of the indicative into the material conditional. This paper is under review.

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