Fatalism and the Logic of Unconditionals

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Abstract: In this paper, I consider a variant of the ancient Idle Argument involving so-called "unconditionals" with interrogative antecedents. This new Idle Argument provides an ideal setting for probing the logic of these close relatives of *if*-conditionals, which has been comparatively underexplored. In the course of refuting the argument, I argue that contrary to received wisdom, many unconditionals do not entail their main clauses, yet *modus ponens* is still unrestrictedly valid for this class of expressions. I make these lessons precise in a formal system drawing on recent work in inquisitive semantics. My larger aim is to challenge standard truth preservation accounts of logic and deductive argumentation.

It is bad to be a fatalist unless one has an incontrovertible belief in one's destiny.

–Winston Churchill, *The Dwelling-Place of Light*

1 The New Idle Argument

Since the early eighties there has been a growing movement away from traditional truth-centric theories of meaning and consequence towards more information-oriented theories. Under the "dynamic turn" initiated by Kamp (1981) and Heim (1982) (building on earlier work by Karttunen 1969, 1974, Stalnaker 1974, 1978, and Lewis 1979), truth conditions gave way to dynamic updates on information states and various informational notions of consequence were defined in terms of these "context change

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potentials" (CCPs) rather than truth preservation (see also Groenendijk & Stokhof 1991; Veltman 1996; Groenendijk, Stokhof & Veltman 1996; Beaver 2001). More recently, Ciardelli, Groenendijk & Roelofsen (2013, 2018) have proposed a new "inquisitive turn" of their own, showing how to compositionally assign "support conditions" to both declarative and interrogative sentences relative to states of information in a single unified framework. With support conditions so assigned, a general informational consequence relation can be defined over sentences of both types.[1]

In light of this and related recent developments, I think the time is ripe for reconsidering one of the oldest arguments in philosophy: the "Idle Argument" (also known as the "Lazy Argument").[2] This notorious argument survives in Cicero's *De Fato* (44BCE), where it is associated with the Stoic philosopher Chrysippus, and it also appears in Origen's *Contra Celsus* (248CE).[3] In the modern era, the argument resurfaces in Dummett's classic paper "Bringing About the Past" (1964) and has since been roundly criticized by Sobel (1966), Stalnaker (1975), Schlesinger (1980), and Buller (1995), among others. After millennia of scrutiny, it might seem that there is little to gain from re-examining the Idle Argument—this is well-trodden ground. But I think that taking another hard look at this and related arguments—such as versions of Kolodny & MacFarlane's (2010) Miners Puzzle—through the lens of recent work in formal semantics can bring out some important new lessons about logical inference.

I focus primarily on a new variant of Dummett's argument involving so-called "unconditionals" with interrogative antecedents.[4] This variant

[1] As I see things, the dynamic and inquisitive turns are both part of a broader "informational turn" in logical semantics. As will later become clear, I also think that this informational turn should itself be regarded as part of a broader "cognitive turn" oriented around support conditions on mental representations encoding more than just an agent's information.

[2] The "Idle/Lazy Argument" is best regarded as an umbrella term with a family of related arguments falling in its extension. I consider only a few of these here.

[3] See Bobzien (2001) for a nice historical discussion.

[4] Rawlins (2008a,b, 2013) offers the following taxonomy of unconditionals (König 1986; Haspelmath & König 1998 call these "concessive conditionals"):

(i) *Alternative unconditionals*

a. Whether or not they play Bach, it is going to be a great concert.

b. Whether they play Bach or Chopin, it is going to be a great concert.

(ii) *Constituent unconditionals*

Whoever they play, it is going to be a great concert.

(ii) *Headed unconditionals*

{No matter/Regardless of} who they play, it is going to be a great concert.

is inspired by a structurally similar argument of Charlow (*ms.*) involving *if*-conditionals. Focusing on the unconditional version will help to bring out the core features of my analysis, which I apply to Dummett's original version of the Idle Argument in §8 as well. The new argument also provides a welcome opportunity to explore the logic of unconditionals, which has been relatively under-investigated. Linguists and philosophers have already spilled a lot of ink debating whether *modus ponens*, *modus tollens*, exportation, simplification of disjunctive antecedents (SDA), and other inference rules hold for different species of the *if*-conditional (see Lewis 1973; Nute 1975; Fine 1975, 2012a,b; Ellis, Jackson & Pargetter 1977; Gibbard 1981; McGee 1985; Gillies 2004; Alonso-Ovalle 2006, 2009; Kolodny & MacFarlane 2010; Willer 2010, 2015; Briggs 2012; Yalcin 2012; Khoo 2013; Bledin 2015; Stojnić 2017; Charlow *ms.*; among many others). However, there has been comparatively little discussion about which forms of inference are valid for its sister construction involving interrogative subordinate clauses. (That said, I will say some things about the logic of *if*-conditionals as well.)

Here is the new argument. The setting is London during WWII just as sirens sound warning of an approaching air raid. As you deliberate about whether to cut your supper short and go take shelter, the Fatalist (calm as ever) points out the following:

(1) If you are going to be killed in the raid, then you're better off staying where you are than taking precautions.[5] (After all, if you *are* going to be killed, then you're going to be killed whether or not you take precautions.[6])

He then continues down the other fork:

(2) On the other hand, if you aren't going to be killed, then you're better off staying where you are than taking precautions. (After all, if you *aren't* going to be killed in the raid, then you aren't going to be killed even if you neglect to take precautions.)

Putting this together, the Fatalist infers this alternative unconditional:

The new Idle Argument involves *or not unconditionals* like (i-a), a subspecies of alternative unconditionals.

[5]The Fatalist could also have run his argument using weak necessity modals like *ought* or *should* but these are often taken to be paraphrasable in terms of comparative goodness anyway—"You should stay put" arguably means "Staying where you are is better than not" (Kratzer 1991; Charlow 2016).

[6]The conditional here might be regarded as an extra premise, but I do not require that the Fatalist derive the non-parenthetical conditional from it. I will assess the non-parenthetical part of (1) on its own terms.

(3) So, whether or not you are going to be killed, you're better off staying where you are than taking precautions.[7]

Detaching its consequent, he concludes:

(4) So look, you are better off staying where you are than taking precautions.

Not surprisingly, you sense something amiss with this argument, and so you set off towards the air-raid shelter. But why? What exactly is wrong with the new Idle/Lazy Argument?

It is worth emphasizing that while the Idle Argument is typically put in the mouth of fate-determinists, I don't take my Fatalist to be arguing for fatalism in any full-blooded sense.[8] My Fatalist is trying to convince you neither of the necessity of all events nor the intrinsic absurdity of deliberation and goal-directed activity (though he might believe these strong fatalistic theses himself). He is trying to convince you only that *in the case at hand* it is better to stay where you are than to go take shelter. There is still a puzzle here. If successful, the new Idle Argument supports a kind of fatalistic resignation in the face of uncertain events—this is why I still call its maker "the Fatalist"—and this form of argument can be run in other contexts where a bit of costly effort can go a long way. So, those worried that the traditional Idle Argument could lead

[7]Since the alternatives introduced in the interrogative antecedent of (3) exhaust logical space, the corresponding indicative conditional sounds bad:

(i) ?? If you are going to be killed or not, you are better off staying where you are than taking precautions.

This violates what Ciardelli (2016b) calls "Zaefferer's rule" (after Zaefferer 1991): if the alternatives for the antecedent cover the context set of the discourse, use the unconditional form; otherwise, the regular conditional form is required. To be clear, I still think there is substantial overlap in the logic and semantics of unconditionals like (3) and *if*-conditionals with disjunctive antecedents like (i). On the semantics I offer in §6, these constructions differ only in their presuppositional profile.

[8]In antiquity the Idle Argument was used *against* fate-determinists to show that their view leads to absurd results and has dangerous practical import. Chrysippus's refutation of the argument (reported in Cicero's *De Fato*; discussed below in n. 18) is a defense of his own doctrine of universal fate. However, the Idle Argument has since taken on a life of its own. In Dummett (1964), the argument is introduced as part of an extended exploration into why the idea of trying to change the past—unlike the idea of trying to change the future—is incoherent. In this paper, I'm interested less in fate-determinism and practical reason per se and more in what the new Idle Argument has to teach us about the logic of unconditionals, and more generally about the nature of logic and deduction. In the end, I hope to show that the argument is grist for the mills of logicians and philosophers pushing support-oriented approaches to these subjects, such as Veltman (1996); Ciardelli, Groenendijk & Roelofsen (2013, 2018); Bledin (2014, 2015); Ciardelli (2016a,b, 2018).

the youth to a life of passivity will presumably want to have something to say about why the new argument fails as well.[9]

In the first part of the paper (§2-5), I consider various responses to the argument. I will be kind to the Fatalist—when ambiguity threatens, I will grant him readings necessary to make a premise hold or an inferential step go through. Running through the Idle Argument in this generous spirit, I want to see how far he can get. Spoiler alert: I ultimately conclude that the Fatalist can safely reach (3), but the final step of the argument is then problematic where he infers his conclusion (4) from this unconditional.[10]

I sharpen this diagnosis in §6, where I develop a formal semantics for *iffy better off* sentences on which the premises (1) and (2) both hold and the inference to (3) can go through, but the conclusion of (4) then fails. This semantics draws on recent work in inquisitive semantics (Ciardelli et al. 2013, 2018) and related research, such as Veltman's (1985) earlier data semantics. I also build on recent analyses of unconditionals by Rawlins (2008a,b, 2013) and Ciardelli (2016b), though *pace* Rawlins—who takes it to be a hallmark of unconditionals that they entail their consequents—I argue that the term "unconditional" (due originally to Zaefferer 1987, 1990, 1991) can mislead when applied to (3).

But this isn't the end of the story. It is tempting, I think, to draw a bad moral from the Idle Argument: because the adjunct of (3) appears to be tautological, one might conclude that *modus ponens* (MP) is invalid for *or not* unconditionals.[11] However, I argue in §7 that instead of being a counterexample to MP, the inference from (3) to (4) can in fact be part of a valid application of MP if we let the Fatalist help himself to the extra interrogative premise 'Whether or not you are going to be killed'. This is not to say that you are actually better off refraining from taking precautions; as I will explain, the extended argument establishes only

[9]In fact, I think the new Idle Argument raises a *harder* puzzle than previous versions because traditional responses aimed at the strong fatalistic conclusions of previous versions can fail to undermine the new argument. I consider such a response by Sobel (1966) in §3.1.

[10]This diagnosis might not come as much of a surprise to some decision theorists, who will regard the new Idle Argument as a case of spurious dominance reasoning (i.e., the application of dominance principles to decision problems formulated so that the relevant contingencies—such as surviving or dying—are dependent on the available options; see Charlow *ms.* for more discussion). But, again, I'm interested less in how the new Idle Argument bears on practical normativity and more in its general implications for the logic and semantics of conditional expressions. As we will see, these logic lessons extend to other problematic arguments which cannot be similarly diagnosed as involving spurious dominance reasoning.

[11]Indeed, Charlow (*ms.*) presents a structurally parallel fatalistic argument as a 'counterexample' to MP for the indicative conditional.

that you shouldn't make any costly efforts to change the future when you already know how things are going to turn out. In more picturesque terms, the valid MP-argument demonstrates that if an oracle were to appear and tell you whether you will be killed, then (in your updated cognitive state where you know the future) you're better off staying put and finishing your dinner—hardly a shocking conclusion. Getting clear about this requires a proper understanding of how inference works when it initiates from interrogative premises. Ciardelli's (2016a; 2016b; 2018) support-based account of the logic of questions will be especially helpful.

In the end, I think the Idle Argument is interesting not because of its implications for goal-directed action, but rather because it provides a nice showcase for the explanatory power of support-conditional—as opposed to standard truth-conditional—approaches to logic, semantics, and deductive inference. I conclude in §8 by situating my analysis within broader foundational debates on the nature of logical validity, arguing that inferences with interrogatives give us reason to move away from the orthodox truth preservation view. I also reconsider Dummett's (1964) original Idle Argument, which takes the form of a constructive dilemma.

2 Possible Escape Routes

Moving forward more carefully now, we can observe that the argument (1)-(4) relies on two prima facie plausible principles for unconditionals. The first 'introduction rule' tells us that if you have a pair of conditionals *If* φ*,* ψ and *If not-*φ*,* ψ, then you can infer the *or not* unconditional *Whether or not* φ*,* ψ whose *whether*-clause asks which of the *if*-clauses of the input conditionals holds and whose main clause is the common consequent of these conditionals (König 1986; Haspelmath & König 1998; Rubinstein & Doron 2014; AnderBois 2014; Kaufmann 2017):

(5) **Conditional Additivity (CA) for *or not* unconditionals**[12]

$$\frac{\textit{If } \varphi, \psi \qquad \textit{If not-}\varphi, \psi}{\textit{Whether or not } \varphi, \psi}$$

The second 'elimination rule' states that *or not* unconditionals entail their consequents (Zaefferer 1991; Haspelmath & König 1998; Rawlins 2008a,b, 2013; Rubinstein & Doron 2014):[13]

[12]The label "Conditional Additivity" is from Nute (1980). Thanks to Arc Kocurek for pointing me to this reference.

[13]Hence the moniker "unconditional". Franke (2009) describes *biscuit conditionals* like (i) and (ii) below as having "unconditional readings" because they convey the truth of their consequents:

(6) **Consequent entailment (CE)**

$$\frac{\textit{Whether or not } \varphi, \psi}{\psi}$$

The Fatalist first applies CA to the *if*-conditionals (1) and (2) to derive the alternative unconditional (3). He then applies CE to (3) to reach his troublesome non-conditional conclusion (4).[14]

Anyone looking to escape this fatalistic conclusion must therefore respond in one of the following ways:

(i) Reject one or both of the conditionals (1) and (2). I consider this option in more detail in §3.

(ii) Reject or restrict CA for *or not* unconditionals (of course, this must be done only for readings of the indicative conditional on which the premises (1) and (2) both hold). More on this in §4.

(iii) Reject or restrict CE (for any reading of the unconditional (3) on which it follows from the Fatalist's premises). More on this in §5.

(iv) Play around with form. Because the surface form of a sentence isn't always a reliable guide to its logical form, one might argue that the inference from (1) and (2) to (3) isn't a genuine instance of CA, or that the inference from (3) to (4) isn't a genuine instance of CE.

I bring up the last option (iv) just to set it aside. While the potential for slippage between surface and logical forms opens up some wiggle room in which to resist the Fatalist's argument while maintaining both the CA and CE rules, it is difficult to see how this line of resistance could work. One might insist that the comparative "x is better off..." obligatorily takes wide scope over the conditionals in (1) and (2), such that these sentences are not of the right form to be fed into CA. However, this conflicts with the dominant Lewis-Heim-Kratzer analysis of indicative conditionals according to which their *if*-antecedents restrict the domain

(i) There are biscuits on the sideboard if you want them. (Austin 1956)

(ii) Her dress is too German for my taste, if you know what I mean.

But when I speak of "unconditionals" in this paper, I have only the constructions from n. 4 in mind (I use this terminology for continuity with the linguistics literature, though I argue later that it is somewhat misleading).

[14] Analogous CA and CE rules for *if*-conditionals are obtained by replacing the unconditionals in (5) and (6) with *If* φ *or not-*φ, ψ. While the Idle Argument is more naturally run using the alternative unconditional (3), this and related arguments put pressure on the *if*-conditional rules as well.

of explicit or implicit modals in their consequents (Lewis 1975; Heim 1983; Kratzer 1986; though see Gillies 2010 for a rival account). It also isn't clear why the modal operator in each of the Fatalist's premises *must* take scope over the conditional when this scopal order isn't required in the following sentences, where the conjuncts and disjuncts in the consequents have variable modality (see Thomason 1981; Kolodny & MacFarlane 2010; Yalcin 2012; Stojnić 2017 for related discussion):

(7) If Alfonso invites Barbara to his party, then she'll come but she's better off leaving Carlos at home.

(8) If John has promised to give up smoking, then either he's better off giving up smoking than continuing to smoke, or he will be released from his promise.

There are, of course, other ways to play with logical form, but I don't further pursue the option here.[15]

3 On the Premises

In more traditional formulations of the Idle Argument, the Fatalist first establishes the following:

(9) If you are {fated/going} to die, then any precautions you take (against dying) will be ineffective.[16]

(10) If you are {fated/going} to survive, then any precautions you take will be superfluous.

Assuming the "Principle of Excluded Middle Fate" (as Bobzien 2001 christens it) or the analogous principle for future-oriented sentences

(11) It {is fated/will be} that φ or it {is fated/will be} that *not*-φ[17]

[15] Another nonstarter is to represent (1) and (2) using a triadic operator like this:

(i) $Better_x(V, V'|\varphi) =_{def}$ if φ then x is better off V-ing than V'-ing.

Kolodny & MacFarlane (2010) discuss a similar move and note that it has trouble with mixed sentences like (7) and (8), among other difficulties. For a more sophisticated proposal, see Stojnić (2017), who defends *modus tollens* for the indicative conditional against an alleged counterexample from Yalcin (2012) by working with logical forms involving discourse coherence relations and propositional anaphora devices.

[16] While the arguments in Cicero and Origen use conditionals of the form *If it is fated that* φ, ψ, the argument in Seneca's *Naturales Questiones* (circa 65CE) uses ordinary conditionals of the form *If* φ, ψ.

[17] Fate-indeterminists would have rejected the Principle of Excluded Middle Fate, but Chrysippus and other early Hellenistic fate-determinists had to accept it.

the Fatalist then infers

(12) Therefore, it is {futile/pointless} to take precautions.

Philosophers have tended to resist the argument by rejecting one or both of the conditionals (9) and (10) (a notable exception is Stalnaker 1975, which I discuss in §8). I suspect that many readers will want to follow suit and reject a premise of the new Idle Argument as well. So I would like to begin by reviewing a couple of earlier premise-denying responses to see whether they carry over to the new argument.[18]

3.1 Responses by Dummett and Sobel

Suppose you've already decided to take precautions. You might then object to the second conditional (10) as follows: "Look, if I'm going to survive, then this might be *precisely because* of the precautions that I'm about to take. I accept that if I'm going to survive then I'm going to survive even if I neglect to take precautions.[19] However, because I accept that I'm going to take precautions, I also accept that if I'm going to survive, then I'm going to *die* if I neglect to take precautions.[20] In fact, I accept that if I'm going to survive, then I'm going to survive *if and only if* I take precautions.[21] So even assuming that I'm going to survive, precautions are certainly not pointless." This is essentially how Dummett (1964) responds to the argument.

But let me clarify. In the situation I have in mind, you haven't yet decided on a course of action when the Fatalist chimes in and tries to aid your deliberation from the second-person standpoint of advice. In your state of indecision and uncertainty where you might not take precautions and still survive the bombing, you presumably *shouldn't* accept, on pain of incoherence, that if you're going to survive then you're going to die if you neglect to take precautions, and so you *shouldn't* accept that if you're going to survive then you're going to survive iff you take precautions. In the present context, I don't see how a Dummett-style objection to premise (2) of the new argument can succeed.

[18] Chrysippus would locate the problem in (10): if the fact of your survival and the fact that you take precautions are "co-fated", then the precautions you take will not be superfluous, and so this premise is false. However, I'm interested here not in responses that presuppose fate-determinism but in those that challenge the logic of the Idle Argument.

[19] Assuming that any conditional of the form *If* φ *then* φ *(even) if* ψ holds.

[20] Assuming that if χ holds, then so does any conditional of the form *If* φ *then* ψ *if not-*χ. Note that this works for material conditionals.

[21] This part of the objection uses both assumptions in n. 19 and n. 20.

Turning back to the first conditional (9), one might instead respond to the Fatalist as follows: "This conditional is ambiguous. On one of its readings—call this the *indicative* reading—it says that if I'm going to die then any precautions I actually take will be ineffective in preventing my death. This is obviously true but cannot be what the Fatalist has in mind. Given how the Fatalist is trying to establish that precautions are *necessarily* pointless, he must mean that if I'm going to die then there are no precautions available to me such that if I were to take them I wouldn't have died. However, this *subjunctive* reading might well be false. Furthermore, even if it's true, it certainly isn't *necessarily* true, so the Idle Argument doesn't establish that making efforts as means to desired ends is necessarily futile." This is how Sobel (1966) responds to the argument.[22]

However, this line of reply doesn't help with the new Idle Argument either. For one thing, the corresponding premise (1) in the new argument doesn't appear to suffer from the same alleged indicative/subjunctive ambiguity as (9). More importantly, as I stressed earlier in §1, *my* Fatalist is *not* trying to establish the strong conclusion that it is never worthwhile to take precautions. He is arguing only that in the case at hand it is better to stay put. For this purpose, isn't it enough for him to point out that if you are going to die then any precautions you actually take will not prevent your death? Given that Sobel accepts (9) on its indicative reading, shouldn't he also accept (1)? The weaker indicative reading of (9) is all my Fatalist needs to make his point.

3.2 Reading the Premises Reflectively

Now, in the half-century or so since the publication of Dummett's (1964) "Bringing About the Past", there has been an explosion of research on conditionals and modality (some contemporary classics: Adams 1965, 1975; Stalnaker 1968, 1975; Lewis 1973, 1975; Kratzer 1977, 1981, 1986, 1991; Gibbard 1981; Heim 1983; Veltman 1985; Edgington 1986). So there is more room than ever to debate the Fatalist's premises. However, I'm now willing to grant the Fatalist his premises, for a couple of reasons.

First, there is at least one way of reading (1) and (2) on which both of these premises are difficult to deny—this is perhaps not the most natural reading, but I'm willing to get on board with the start of the Fatalist's argument so long as there is *some* available reading on which his premises hold. It is widely assumed in the modality literature that

[22]Sobel thinks that (10) is likewise ambiguous, but I don't run through the parallel objection here.

sentences involving deliberative modals like *better*—a subspecies of what Portner (2009) calls "prioritizing" modals—are evaluated with respect to the actual or readily available information of some agent or group of agents along with additional structure used in comparing the available options (according to their desirability, compliance with practical norms, or whatnot). The locus classicus for this approach is Kratzer (1981, 1991, 2012), where modalized sentences are evaluated with respect to a "modal base" whose informational output at a world can be further structured by a deontic, bouletic, or other flavor of "ordering source" applied at this world. Furthermore, semanticists commonly implement a version of the Ramsey Test (after Ramsey 1929) when interpreting indicative conditionals by adding the content of their *if*-clauses to information states against which their consequents are evaluated. This Ramseyan updating is at the heart of the influential "restrictor view" according to which *if*-clauses restrict the quantificational domain of nearby modal operators (Lewis 1975; Heim 1983; Kratzer 1986), but it is also present in the rival "operator view" of Gillies (2010).

Now, on the reading I have in mind, the Fatalist's premises depend on your knowledge state, which is provisionally updated in the course of evaluation with the further information that you will be killed (in the case of (1)) or won't be (in the case of (2)). The embedded claims of comparative goodness are then evaluated with respect to your updated knowledge state together with your preferences or desires and perhaps also a method of making decisions. In either subordinate context, how can the *better* claim be rejected? In the first instance where it is being taken for granted that you will be killed, the choice between staying where you are and taking precautions is one between death and death after cutting your dinner short and trudging outside. In the second instance, the choice is between life and life with this bother. Either way, isn't it clearly better to just stay where you are?[23]

[23]In Kratzer's semantics, if (1) and (2) are evaluated against an epistemic modal base whose output at the world of evaluation leaves open stay-where-you-are-and-live possibilities and stay-where-you-are-and-die possibilities together with an ordering source whose value is the set consisting of the proposition that you survive the air raid and the proposition that you finish your dinner, then both of these conditionals hold—the best possibilities after updating with the antecedent in either case are those in which you stay where you are. Given these parameter settings, though, the semantics also predicts that (4) is true, and it isn't obvious how to change the settings to recover the available reading on which it is (unconditionally) better to take precautions than to stay where you are. The Idle Argument thus joins the ranks of Goble's (1996) Medicine Problem, Kolodny & MacFarlane's (2010) Miner's Puzzle (due originally to Donald Regan), Lassiter's (2017) Juliet scenario, and other cases in the modals literature that show how a straightforward application of Kratzer's

Cariani, Kaufmann & Kaufmann (2013) call this kind of reading a "reflecting" reading. Admittedly, there are additional readings on which the premises (1) and (2) do not sound nearly as good. For instance, Cariani et al. also identify a "non-reflecting" reading, that can be brought out for (1) as follows (and similarly for (2)):

(13) If you are going to be killed in the raid, then you are (still) better off taking precautions than staying where you are. After all, the fact that you're going be killed doesn't mean that you know this. Indeed, regardless of whether you're going to be killed or not, you should take precautions.[24]

But, again, I'm feeling generous towards the Fatalist. Because both of his premises seem fine on a reflecting reading, I'm happy to assume that he has this reading in mind. Perhaps some philosophers will find reasons to deny that (1) and (2) can be construed reflectively, or to reject these premises even on a reflecting reading, as I have described it. However, I'm not going to try to argue that one or the other premise fails to hold on *every* reading because I think our efforts are better spent elsewhere.

3.3 Pressure on CA and CE

My second reason for granting the Fatalist his premises is that there are structurally parallel arguments to the new Idle Argument with less controversial premises—understood in the reflecting sense—but terrible conclusions. These arguments suggest that even if we accept (1) and (2), we can still block the Fatalist's deductive progress later on because—irrespective of whatever problems there might be with his premises—there is something wrong with the unconditional rules he employs.

In fact, once one starts looking for such arguments, they crop up all over the place. Here is one example based on Kolodny & MacFarlane's

theory has a difficult time making sense of deliberative modal claims in the face of uncertainty.

In unpublished work, von Fintel (2012) discusses a proposal for handling such cases within Kratzer's framework by building information dependence into the ordering source, but he doesn't take the further step of allowing *if*-clauses to modify the relevant information states that affect information-sensitive orderings. I'm more sympathetic to approaches like Kolodny & MacFarlane (2010), Cariani, Kaufmann & Kaufmann (2013), and Lassiter (2017) on which *if*-clauses can affect the comparison of available options. I develop a formal semantics along these lines in §6 on which (1) and (2) hold but (4) does not.

[24]Cariani et al. suggest that this non-reflecting reading might be derived using a Frank (1996)-style "double modal" analysis on which the antecedent of (1) restricts the quantificational domain of a covert epistemic necessity modal rather than the overt deliberative modal in its consequent.

(2010) much-discussed Miners Puzzle:[25]

Miners. Ten miners are trapped inside either shaft A or shaft B. You know the miners are in one of these shafts, but you do not know which. Floodwaters are approaching. Armed with some sandbags, you can block either shaft A or shaft B, but not both. If you block the shaft containing the miners, then all of them live. If you block the shaft without the miners and divert the water into the other shaft containing them, then all ten die. If you block neither shaft, then the water will flow into both shafts, killing only the single miner who is lowest down. Now suppose you reason as follows:

(14) If the miners are in shaft A, then I {ought to/should} block a shaft (namely, shaft A).

(15) If the miners are in shaft B, then I {ought to/should} block a shaft (namely, shaft B).

(16) So, whether the miners are in A or B, I {ought to/should} block a shaft.

(17) Therefore, I {ought to/should} block a shaft.

Read reflectively, the premises (14) and (15) are again difficult to deny. However, I agree with Kolodny & MacFarlane that given your ignorance about the miners' whereabouts, the outcome of your deliberation should be not (17) but rather that you ought to block neither shaft.

Lest you try to resolve the Miners Puzzle by rejecting a premise, here is another example with likelihood operators, whose innocuous premises involve neither future contingency nor practical agency:

Missing Cat. Grandma Rose has two orange tabbies and one gray shorthair. Grandma Pearl has two gray shorthairs and one orange tabby. Unfortunately, one of these cats has gone missing. Each of the cats is as likely to have gone missing as any of the others.

(18) If Grandma Rose lost one of her cats, then it is not equally likely that an orange or a gray cat went missing.

(19) Likewise, if Grandma Pearl lost one of her cats, then it is also not equally likely that an orange or a gray cat went missing.

(20) So, whether it was Grandma Rose that lost one of her cats or Grandma Pearl, it is not equally likely that an orange or a gray cat went missing.

[25] Kolodny & MacFarlane credit the Miners Puzzle to Derek Parfit who in turn credits Donald Regan. I'm grateful to an anonymous reviewer for this journal for suggesting the following variant.

(21) So (regardless), it is not equally likely that an orange or a gray cat went missing.

Everybody I asked accepts (18) and (19), presumably because they also accept the following conditionals (as expected if the epistemic modal "likely" is, like "better", sensitive to information states updatable by *if*-clauses; Kratzer 1991; Yalcin 2010, 2012):[26]

(22) If Grandma Rose lost one of her cats, then it is more likely than not that an orange cat went missing.

(23) If Grandma Pearl lost one of her cats, then it is more likely than not that a gray cat went missing.

Nobody I asked accepts the argument's conclusion (21), as expected given the setup where there are three orange cats and three gray cats in total. (I hope the reader shares these judgments.) There is a problem, then, with at least one of the inferences in this argument using either CA or CE for alternative unconditionals. Note that the reasoning in Miners and Missing Cat requires generalized versions of these rules applying to all alternative unconditionals, not just to those of the *or not* variety. But it isn't unreasonable to expect a problem with one of the general rules to crop up with the corresponding CA or CE rule for *or not* unconditionals as well. So, at this point, I think we do well to venture downstream from the premises of the Idle Argument and focus on its inferential steps.

4 (Un)conditional Additivity

A common reaction to Missing Cat is to pin the blame on the inference from (18) and (19) to (20) using CA. When evaluating the consequent "It is not equally likely..." of each premise, everyone seems to be considering a restricted space of possibilities wherein the missing cat is one of the three cats belonging to the grandmother mentioned in the *if*-antecedent. However, the CA-rejectors seem to be evaluating the likelihood claim embedded in the unconditional (20) against a wider domain where the missing cat might be any of the six cats. Because "It is not equally likely..." holds with respect to each of the restricted domains but not the wider domain, these respondents think that CA fails.

Going forward, I follow much of the literature on the semantics of questions in assuming that interrogatives can be assigned *alternative sets* (Hamblin 1958, 1973; Groenendijk & Stokhof 1984; Ciardelli et al. 2013,

[26]By *everybody I asked* I mean twenty undergraduate students at Johns Hopkins and the linguists and philosophers mentioned in the acknowledgements.

2018; I offer a formal implementation of this proposal in §6 but in the meantime I want to keep things at an informal level). I assume this holds for embedded and adjoined clauses with interrogative morphology as well—in particular, the interrogative subordinate clauses of alternative unconditionals contribute the same alternative sets as the corresponding root questions (Zaefferer 1991; Rawlins 2008a,b, 2013; Ciardelli 2016b; Kaufmann 2017). For example, the *whether*-adjunct of (20) introduces the two possible answers to the question it expresses: that Grandma Rose lost a cat, and that Grandma Pearl lost a cat.[27]

Moreover, I assume along with most, perhaps all, semantic accounts of unconditionals that these expressions are information-dependent in a manner similar to *if*-conditionals. The CA rejectors' nonacceptance of (20) then suggests the following interpretation strategy:

(24) **Flattened interpretation of alternative unconditionals**
An alternative unconditional *Whether* φ *or* ψ, χ is evaluated with respect to an information state by first adjusting this state to support the information that at least one of the alternatives contributed by *Whether* φ *or* ψ holds and then evaluating χ with respect to the updated state.[28]

In fact, alternative unconditionals are widely regarded to presuppose that one of the alternatives for their antecedent holds.[29] With felicitous uses, then, the initial update step in (24) is inert and we can evaluate *Whether* φ *or* ψ, χ simply by considering the consequent χ. The upshot

[27]While it might seem obvious that the antecedents of alternative unconditionals have interrogative structure—at least in English, where these antecedents require the complementizer "whether" and the intonational contour of alternative questions in general—this is less clear for constituent unconditionals, which resemble nominal correlative constructions with free relatives, such as the following example from Hindi:

(i) [jo laRkii khaRii hai]$_i$ vo$_i$ lambii hai (Dayal 1996)
which girl standing be-present she tall be-present
'Which girl is standing, that one is tall.'

See Rawlins (2008a,b, 2013) for arguments that unconditionals involve interrogative structure across the board.

[28]I call this a "flattened" interpretation because the multiple alternatives for *Whether* φ *or* ψ are effectively converted into a single unique alternative.

[29]See Rawlins (2008a,b, 2013); Ciardelli (2016b) and §6 below for some different ways to implement this *exhaustivity* presupposition. Rawlins argues that alternative unconditionals also have an *exclusivity* presupposition requiring that the alternatives for their antecedent don't overlap. Though this latter feature is more controversial—see Rubinstein & Doron 2014 for dissent—I assume both exhaustivity and exclusivity in this paper—as reflected in my Missing Cat example—though exclusivity plays a less important role.

so far: if unconditionals are interpreted along the lines of (24), then CA can fail but CE trivially holds.

One might now respond to the Fatalist as follows: "Look, I'm fine with your premises. If, like a good Ramseyan, I hypothetically add the information that I'm going to be killed to my stock of knowledge, then I agree that I'm better off staying where I am than heading to the bomb shelter. The same goes for the second premise. However, I don't accept that *whether or not* I'm going to be killed, I'm better off sticking around. This latter claim just amounts to saying that I'm better off staying put in light of my current information. And I'm certainly not." To soften the edge of your dissent, you can then point out that *if* you did accept the unconditional (3), you'd happily accept the conclusion (4). But since you don't accept the former in your current situation, neither do you accept the latter.

Now, if this reply were decisive, then we would be finished. However, the Fatalist needn't back down. At this point, he might argue that (24) isn't the right way to evaluate alternative unconditionals, or at least that (24) isn't the *only* way to evaluate them, and the "flattened" reading of (3) isn't what he had in mind regardless. Indeed, many semanticists working on unconditionals accept the following alternative treatment:

(25) **Pointwise interpretation of alternative unconditionals**
Whether φ *or* ψ, χ is evaluated with respect to an information state by updating this state with each of the alternatives for the antecedent in turn. If the consequent χ holds in each of the subordinate contexts induced by the different alternatives, then the unconditional holds. (Rawlins 2008a,b, 2013; and others)

So the idea is to evaluate the unconditional (3) not by 'updating' with the classical tautology that you will be killed or not, but rather by first updating with the information that you will be killed and asking whether it is better to take precautions under this supposition, and then updating with the information that you will not be killed and asking about the precautions. If the value of (3) turns on whether both of these pointwise applications of the Ramsey Test pass, then this unconditional *does* seem to follow from the premises (1) and (2). More generally, CA seems to fall directly out of the semantics of alternative unconditionals when these are interpreted along the lines of (25), as does the converse principle SDA. König (1986), Haspelmath & König (1998), Rubinstein & Doron (2014), AnderBois (2014), and Kaufmann (2017) simply regard it as a basic feature of alternative unconditionals that they are equivalent to the corresponding conjunction of conditionals (AnderBois calls this

"conditional paraphrasability").[30]

However, I do not mean to suggest that the Fatalist just argue from authority here. He can offer empirical considerations for thinking that alternative unconditionals are often (if not always) read pointwise.[31] One kind of consideration is that *Whether* φ *or* ψ, χ is commonly used to send a stronger message than plain χ in a way predicted by (25) but not by (24), at least not straightforwardly. Compare the following:

(26) Whether Alice or Rodrigo is making dinner, we might need to order takeout.

(27) We might need to order takeout.

Suppose the context is one in which it is taken for granted that Alice or Rodrigo is making dinner (so the exhaustivity presupposition of (26) is met). In uttering (26), a speaker is arguably conveying that her current state of knowledge (or some other salient body of information) leaves open both Alice-makes-dinner possibilities and Rodrigo-makes-dinner possibilities in which disaster strikes and we need to order takeout.[32] In contrast, one can utter (27) if Alice or Rodrigo is an excellent cook, so long as the other is capable of ruining groceries. Here is another example:

[30]While I focus only on unconditionals in this section, the flattened/pointwise distinction applies to *if*-conditionals with disjunctive antecedents as well. I ultimately propose that both alternative unconditionals and disjunctive *if*-conditionals can be read in either of these ways.

[31]Admittedly, the flattened and pointwise readings don't exhaust the space of theoretically possible options. As Lucas Champollion (p.c.) and an anonymous reviewer suggest, perhaps *Whether* φ *or* ψ, χ holds iff its consequent holds in each of the subordinate contexts induced by the alternatives for its antecedent *and* in the context induced by the flattening of these alternatives (in which case CA can fail). While the considerations that follow also favor this strong pointwise+flattened reading over the basic flattened reading in (24), note that the pointwise+flattened reading is quite cognitively demanding. Moreover, if unconditionals have only the strong pointwise+flattened reading, then it's not clear why many speakers accept the unconditionals in the Idle Argument, Miners, and Missing Cat. I think careful experimental work is needed to pin down the available interpretations of alternative unconditionals. In the meantime, I'll just generously assume on the Fatalist's behalf that if unconditionals have the kind of strong reading suggested by Champollion and the reviewer, then they also have the weaker pointwise reading in (25).

[32]There is considerable debate in the epistemic modals literature over which bodies of information are relevant to the evaluation of modal claims, whether modal assertors *report* features of their knowledge/belief states or simply *express* these features, and so forth. But we needn't get into this here. See Hacking (1967); Teller (1972); Kratzer (1981); DeRose (1991); Veltman (1996); Dowell (2011); von Fintel & Gillies (2011); MacFarlane (2011); Yalcin (2011); Dorr & Hawthorne (2013); Willer (2013); Moss (2015); Silk (2016); Lassiter (2017) for some of the many proposals.

(28) Whether David studies philosophy or chemistry, he will probably make important contributions to his field.

(29) David will probably make important contributions to his field.

Whereas (28) expresses that David is likely to succeed in philosophy should he go down this path *and* he is likely to succeed in chemistry should he go down that path, (29) can be uttered even if David is a terrible chemist so long as the speaker thinks that David is probably going to study philosophy and is an excellent philosopher.

A related observation is that not all alternative unconditionals with the same main clause are contextually equivalent (Rawlins 2013):

(30) Whether we go to Yosemite or Sequoia, the camping trip should be fun.

(31) Whether or not it rains, the camping trip should be fun.

(32) Whether we get attacked by a black bear or not, the camping trip should be fun.

The clear contrast here is unexpected if the alternatives are flattened inside the *whether*-adjuncts before updating.

Another related observation supporting the existence of pointwise readings is that unconditionals like the following sound terrible:[33]

(33) *Whether Akiko is in Japan or Malaysia, she might be in Tokyo.

We get a vivid intuition of falsity here, as we do in the limit cases of this pattern, like (34):

(34) *Whether Akiko is in Tokyo or Kyoto, she might be in Tokyo.

This sentence sounds not just false but absurd. However, this is again surprising if the alternatives for the antecedent are flattened, as then (34) is (arguably) a reasonable thing to say in a context where it is an open possibility that Akiko is in Tokyo.

For a fourth kind of argument, compare the following sentences that combine unconditional and *if*-conditional adjuncts:

(35) *Whether or not Alfonso comes to the party, if Alfonso comes to the party, you should come.

(36) Whether or not there is liquor at the party, if Alfonso comes to the party, you should come.

This difference in acceptability is also puzzling if the *whether*-clauses of these unconditionals are flattened out of existence. But the contrast

[33]Thanks to Ivano Ciardelli (p.c.) for suggesting this data.

is easily explained if the *if*-conditional embedded in each sentence is evaluated against each of the multiple assumptions contributed by the *whether*-clause and *if*-conditionals presuppose or implicate that their antecedents are possible (Stalnaker 1975).

In fact, one might now wonder whether alternative unconditionals have flattened readings at all. The infelicity of (33), (34), and (35) suggests not; if they had flattened readings, Gricean considerations of charitable interpretation would presumably recommend treating these unconditionals in line with (24) and they shouldn't sound quite as bad as they do. On the other hand, the fact that many people reject the unconditional (20) in Missing Cat suggests that unconditionals are at least sometimes read flatly. I think that the Fatalist's safe bet at this point is simply to insist that alternative unconditionals must have a pointwise interpretation—he might even insist that this is the *default* interpretation—but also allow that they can sometimes be flattened.[34] This is, after all, all he needs to progress further in his argument.

5 Consequent Entailment

I have suggested that the Fatalist can get all the way to (3) by appealing to available readings for *if*-conditionals and *wh*-conditionals. Can he cross the final gap and reach his conclusion (4) using CE? No. This is, I think, where we should make our stand.

If (3) were understood in a flattened way, then, as discussed, the CE rule would trivially apply and it's game over for making efforts and goal-directed activity. However, (3) cannot be a flattened unconditional if the Fatalist is to derive it safely from his premises using CA. To apply CA, (3) must be interpreted pointwise. But if (3) is understood in *this* way, then the application of CE to detach its consequent is fallacious.

To bring this out, first reconsider Missing Cat (which is a bit easier to think about). Everybody accepts the premises. Why? Because they are comparing the likelihood of different colored cats going missing over restricted state spaces containing either Rose-lost-a-cat possibilities or Pearl-lost-a-cat possibilities but not both. If the unconditional (20) is read pointwise, then it also holds because its evaluation procedure simply summarizes what went on when evaluating the two premises. However, nobody accepts the conclusion (21). Why? Because this time they consider the likelihood of a missing gray or orange cat over an inclusive

[34] A lingering question is why a flattened reading seems to be available for (20) in Missing Cat but not for unconditionals like (33) and (34). I leave the explanation for this difference as an open problem.

space containing all the Rose-lost-a-cat and Pearl-lost-a-cat possibilities, and it is equally likely with respect to *this* space that an orange or a gray cat went missing. In general, what fails to be equally likely with respect to each cell of a partition needn't fail to be equally likely relative to the entire set being partitioned. As such, CE isn't unrestrictedly valid.

Much the same goes for the Idle Argument. On what I have been calling the "reflecting" reading of premise (1), its value depends on what you're better off doing relative to a body of information according to which you will die (together with a set of preferences, a decision rule, or whatever other structure is needed). The value of (2) likewise depends on information updated to support that you will survive the raid. So, both of these premises presumably hold, as does the unconditional (3) when interpreted pointwise, which rises or falls together with the conjunction of the Ramsey tests. However, the conclusion (4) presumably turns on what you're better off doing in your original knowledge state, where you remain ignorant about whether you're going to be killed in the raid and uncertain about what you're going to do, so this non-conditional claim doesn't hold. More generally, *better* claims are, like *likely* claims, highly sensitive to the information states against which they are evaluated—in particular, their semantic values can flip when these information states are strengthened (these sentences aren't "persistent" in Veltman's 1996 terminology). So CE is unreliable in the modal domain.

My method of rebutting the Fatalist, then, is to grant his premises and allow him to infer the unconditional (3), but then to point out that when these expressions are interpreted as needed to proceed this far in the argument, the Fatalist cannot go on to conclude (4) using CE. I prefer to put the matter this way than to reject outright the Fatalist's premises or to attack his use of CA because, as I have discussed, I think the premises are difficult to deny on a reflecting reading and CA is impeccable so long as (3) isn't flattened.

To be clear, I am *not* calling for a blanket rejection of the CE rule for unconditionals on their pointwise reading. When Rawlins (2008a,b, 2013)—who offers one of the most thorough analyses of unconditionals in a compositional Hamblin semantics with pointwise functional application (drawing on Hamblin 1973; Kratzer & Shimoyama 2002; Alonso-Ovalle 2006)—writes that it is a "core observation" about unconditionals that they entail their consequents (echoing Zaefferer 1991; Haspelmath & König 1998), this isn't so off the mark. Many unconditionals *do* entail their consequents (even when unflattened):

(37) Whether it was Grandma Rose that lost one of her cats or Grandma Pearl, there is a fireman on the way.

(38) Whether Rodrigo or Rosie is making dinner, we're having pasta.

(39) Whether Akiko is in Tokyo or Kyoto, she's probably eating lots of good ramen.

These sentences respectively entail that there is a fireman coming, that we are having pasta for dinner, and that Akiko is probably eating lots of good ramen. Unlike the consequents that have created trouble for CE, those of (37)-(39) are informationally 'well-behaved' in the sense that if these consequents hold relative to each cell of a partitioned set of possibilities, then they hold relative to the full partitioned set as well (I sharpen this condition in the next section).

Before moving on, it's also worth mentioning that while I have framed my discussion around alternative unconditionals, similar conclusions can be drawn about *if*-conditionals with disjunctive antecedents. In the next section, I offer a formal semantics covering both kinds of conditional constructions on which they differ only in that alternative unconditionals impose exhaustivity and exclusivity presuppositions while corresponding *if*-conditionals do not. This semantics validates CA for both kinds of expressions. As for CE, it shouldn't come as much of a surprise that *if*-conditionals with disjunctive antecedents don't generally entail their consequents, as the alternatives introduced by their antecedents needn't exhaust the options. That said, conditionals of the form *If* φ *or not-*φ, ψ pattern like *or not* unconditionals in that CE still holds for them in a broad range of cases (despite the fact that these *if*-conditionals are pragmatically awkward; more on this below).

6 Formalizing the Analysis

Up to this point, I've tried to keep things informal. However, as a kind of proof of concept for my analysis of the Idle Argument, I now want to sketch a formal semantics for *iffy better off* sentences that captures its essential features. This is not a fully compositional account. For one thing, I don't derive the meaning of the comparative *better* from the scalar item *good*, as in Lassiter (2017), because doing so would take away from more pressing matters. Think of this as a coarse-grained attempt at making the main ideas of this paper formally precise.

Let us assume that the logical forms of (1)-(4) can be represented at a suitable level of abstraction using a formal language $\mathcal{L}$ generated from a stock of atomic sentences $At_{\mathcal{L}}$, negation '$\neg$', conjunction '$\wedge$', and disjunction '$\vee$' in the usual way. The language $\mathcal{L}$ also includes a binary *better* operator '$\bigstar$' whose arguments are restricted to basic non-modal

sentences built from the Boolean connectives, a question operator '$\mathcal{Q}$' whose single argument also takes only sentences in this basic fragment, and a conditional operator '$\rightarrow$' whose first argument (the antecedent) is restricted to basic sentences and basic sentences preceded by '$\mathcal{Q}$' but whose second argument (the consequent) is unrestricted. Let $S_{\mathcal{L}}$ be the set of all well-formed sentences of $\mathcal{L}$. Despite the restrictions, this language is sufficiently expressive for present purposes.[35]

Where 'killed', 'stay', and 'take' respectively abbreviate 'You are going to be killed', 'You stay where you are', and 'You take precautions', I assume that the Idle Argument in §1 can be represented as follows:

1	$\mathsf{killed} \rightarrow \bigstar(\mathsf{stay}, \mathsf{take})$	Premise
2	$\neg\mathsf{killed} \rightarrow \bigstar(\mathsf{stay}, \mathsf{take})$	Premise
3	$\mathcal{Q}(\mathsf{killed} \vee \neg\mathsf{killed}) \rightarrow \bigstar(\mathsf{stay}, \mathsf{take})$	CA
4	$\bigstar(\mathsf{stay}, \mathsf{take})$	CE

Formally speaking, the Fatalist employs the following rules:

$$(40)\quad \textbf{CA}\ \frac{\varphi_0 \rightarrow \psi \qquad \neg\varphi_0 \rightarrow \psi}{\mathcal{Q}(\varphi_0 \vee \neg\varphi_0) \rightarrow \psi} \qquad \textbf{CE}\ \frac{\mathcal{Q}(\varphi_0 \vee \neg\varphi_0) \rightarrow \psi}{\psi}$$

We have accumulated a number of desiderata for our semantics of $\mathcal{L}$: (i) it should validate CA when unconditionals are interpreted in pointwise fashion, (ii) it should allow for failures of CE, (iii) it should still validate CE for pointwise unconditionals in a broad range of cases, and (iv) it should validate CE when unconditionals are flattened.

It is common to interpret languages like $\mathcal{L}$ by recursively assigning truth conditions to all their sentences. Given a nonempty set of possible worlds $\mathcal{W}$, a valuation function $\mathcal{V}$ mapping any sentence letter $\alpha \in At_{\mathcal{L}}$ to the set of worlds (or proposition) $\mathcal{V}(\alpha) \subseteq \mathcal{W}$ in which it is true, and whatever other model-theoretic structure is needed, one lifts $\mathcal{V}$ to a full interpretation function $[\![\cdot]\!]$ mapping every sentence $\varphi \in S_{\mathcal{L}}$ to a proposition $[\![\varphi]\!] \subseteq \mathcal{W}$. However, this isn't how I do things in this paper. Instead of specifying truth conditions for the sentences in $S_{\mathcal{L}}$, I specify *support* and *reject* conditions for these sentences.

This approach is directly inspired by *inquisitive semantics* (Ciardelli, Groenendijk & Roelofsen 2013, 2018, building on Groenendijk & Stokhof 1984; Veltman 1985, 1996; Mascarenhas 2009; among others), though I diverge from standard inquisitive semantic systems in at least two key

[35]Notational conventions: φ_0, ψ_0, ... range over sentences in the basic fragment of $\mathcal{L}$, and φ, ψ, ... range over all sentences in $S_{\mathcal{L}}$.

respects. In these systems, declarative and interrogative sentences alike are assigned support conditions relative to states of information, where these states are modeled using sets of worlds. The semantic value $[\![\varphi]\!]$ of a sentence φ is not a proposition of type $\langle s,t\rangle$ but a set of propositions of type $\langle\langle s,t\rangle,t\rangle$ representing the bodies of information satisfying the conditions imposed by the sentence ("supporting" it). However, as just mentioned, I develop a bilateral system involving *both* support and reject conditions (in this respect my semantics resembles the data semantics in Veltman 1985; see also Fine 2017; Steinert-Threlkeld 2017; Willer forthcoming).[36] Because we are dealing with practical, action-guiding language, I also interpret sentences with respect to more complicated structures featuring both informational and evaluative dimensions.

I call these "decision states". In addition to representing an agent's current information using the set of worlds compatible with it, a decision state also encodes her information-dependent assessment of the options:

(41) **Decision states**
A *decision state* $\langle s,\leq\rangle$ consists of an information state $s\subseteq\mathcal{W}$ together with a *choice function* $\leq$ mapping any information state s' to a partial ordering $\leq_{s'}$ over the set of propositions $\mathcal{P}(\mathcal{W})$.

I assume that choice function values order the actions available to the decision-maker, which I take to be propositions (following Lewis 1981; Jeffrey 1983). If $a_1\leq_s a_2$ then performing a_2 is at least as good as performing a_1 in light of the decision-maker's information state s, her preferences over the obtainable outcomes, and her method of choosing between the available options. In an earlier version of this paper (Bledin 2017), I further unpacked this evaluation of the options by working with more finely-grained decision-theoretic structures (drawing on proposals by Carr 2012; Charlow 2016; Lassiter 2017). However, we don't really need the full resources of statistical decision theory to bring out the core features of my diagnosis of the Idle Argument. So I work with just the coarser decision states in (41) here.

Moving on, we can now simultaneously assign support ($\models$) and reject ($=\!\!|$) conditions to the sentences in $S_{\mathcal{L}}$, parametrized to decision states. The clauses for atomic sentences are in (42). An atom α is supported by any state whose informational parameter s includes only α-worlds, and rejected when s excludes α-worlds:

[36] I work with both support and reject conditions because it is difficult to give an adequate semantics for negated modal claims of the form "It is not better to..." using support conditions alone. I leave it as an open problem whether the main points of this paper can be recast in a purely support-conditional framework.

(42) **Interpretation of atomic formulae**

$$s, \leq \models \alpha \quad \text{iff} \quad s \subseteq \mathcal{V}(\alpha)$$
$$s, \leq \models\!\!\!| \; \alpha \quad \text{iff} \quad s \cap \mathcal{V}(\alpha) = \emptyset$$

The clauses for the standard sentential connectives are also relatively straightforward. Negation flips between support and rejection (Veltman 1985; Fine 2017; Steinert-Threlkeld 2017; Willer forthcoming):

(43) **Interpretation of negation**

$$s, \leq \models \neg\varphi \quad \text{iff} \quad s, \leq \models\!\!\!| \; \varphi$$
$$s, \leq \models\!\!\!| \; \neg\varphi \quad \text{iff} \quad s, \leq \models \varphi$$

Conjunction and disjunction are defined as in data semantics (Veltman 1985) and inquisitive semantics (Ciardelli et al. 2018):

(44) **Interpretation of conjunction and disjunction**

$$s, \leq \models \varphi \wedge \psi \quad \text{iff} \quad s, \leq \models \varphi \text{ and } s, \leq \models \psi$$
$$s, \leq \models\!\!\!| \; \varphi \wedge \psi \quad \text{iff} \quad s, \leq \models\!\!\!| \; \varphi \text{ or } s, \leq \models\!\!\!| \; \psi$$
$$s, \leq \models \varphi \vee \psi \quad \text{iff} \quad s, \leq \models \varphi \text{ or } s, \leq \models \psi$$
$$s, \leq \models\!\!\!| \; \varphi \vee \psi \quad \text{iff} \quad s, \leq \models\!\!\!| \; \varphi \text{ and } s, \leq \models\!\!\!| \; \psi$$

The most important of these entries for present purposes is the support clause for $\vee$, which says that a decision state supports a disjunction just in case it supports at least one of its disjuncts.[37] Putting this to work, we have for example

(45)
$$\begin{aligned} s, \leq \models \mathsf{killed} \vee \neg\mathsf{killed} \quad &\text{iff} \quad s, \leq \models \mathsf{killed} \text{ or } s, \leq \models \neg\mathsf{killed} \\ &\text{iff} \quad s, \leq \models \mathsf{killed} \text{ or } s, \leq \models\!\!\!| \; \mathsf{killed} \\ &\text{iff} \quad s \subseteq \mathcal{V}(\mathsf{killed}) \text{ or } s \cap \mathcal{V}(\mathsf{killed}) = \emptyset. \end{aligned}$$

So $\langle s, \leq \rangle$ supports $\mathsf{killed} \vee \neg\mathsf{killed}$ just in case s settles the question of whether you are going to be killed.

We've gotten by so far making reference to only the informational component of a decision state. The choice function $\leq$ comes into play for the semantics of *better*. To interpret '★', we first broadly follow the inquisitors in defining the *alternatives* for a sentence $\varphi \in S_{\mathcal{L}}$ relative to $\leq$ to be the maximal information states that together with $\leq$ support this sentence (cf. Ciardelli et al. 2018):

(46) $alt_{\leq}(\varphi) = \{s \subseteq \mathcal{W} : s, \leq \models \varphi \text{ and there is no } s' \supset s \text{ s.t. } s', \leq \models \varphi\}$

[37] As Veltman (1985) discusses, this formal notion of disjunction might seem at odds with natural language *or*. Can't a body of evidence support, say, that Rose or Pearl lost a cat simply by ruling out the possibility that neither grandmother lost a cat? Like Veltman, though, I don't think we need to introduce another disjunction to capture such unembedded declarative sentences—we can translate them as $!(\varphi \vee \psi)$ using the flattening operator ! defined later in this section. See Roelofsen & Farkas (2015) for a sophisticated approach along these lines.

For example, for any $\leq$ we have $alt_{\leq}(\mathsf{take} \vee \mathsf{stay}) = \{\mathcal{V}(\mathsf{take}), \mathcal{V}(\mathsf{stay})\}$.

The semantics for *better* is defined in terms of these alternative sets. A decision state $\langle s, \leq \rangle$ supports $\bigstar(\varphi_0, \psi_0)$ iff every $\leq$-alternative for the first argument φ_0 is better than every $\leq$-alternative for the second argument ψ_0 according to $\leq_s$, and $\langle s, \leq \rangle$ rejects this sentence iff some $\leq$-alternative for ψ_0 is at least as good as some $\leq$-alternative for φ_0:

(47) **Interpretation of *better***

$$\begin{array}{lll} s, \leq \models \bigstar(\varphi_0, \psi_0) & \text{iff} & a <_s a' \text{ for all } a' \in alt_{\leq}(\varphi_0) \\ & & \text{and } a \in alt_{\leq}(\psi_0)^{38} \\ s, \leq \dashv \bigstar(\varphi_0, \psi_0) & \text{iff} & a \not<_s a' \text{ for some } a' \in alt_{\leq}(\varphi_0) \\ & & \text{and } a \in alt_{\leq}(\psi_0) \end{array}$$

The new Idle Argument involves *better* claims whose "non-inquisitive" arguments each have only a single alternative.[39] But to get a better feel for (47)—and to demonstrate one of its virtues in the process—consider the following argument (based on Ross 1941; Lassiter 2017 calls the non-strict version of this inference pattern involving *as good as* the "Disjunctive Inference"):

(48) It is better to mail the letter than to burn it.

(49) It is better to mail the letter than to throw it in the trash.

(50) So, it is better to mail the letter than either to burn it or to throw it in the trash.

This practical reasoning is impeccable, and our treatment of disjunction and *better* nicely predicts this.[40] Translating (48)-(50) as $\bigstar(\mathsf{mail}, \mathsf{burn})$, $\bigstar(\mathsf{mail}, \mathsf{trash}) \therefore \bigstar(\mathsf{mail}, \mathsf{burn} \vee \mathsf{trash})$, the *better* entry implies that a decision state $\langle s, \leq \rangle$ supports (48) just in case mail-worlds are preferred to burn-worlds according to $\leq_s$. Similarly, $\langle s, \leq \rangle$ supports (49) iff $\leq_s$

[38] I assume that the alternatives for the arguments of a deliberative $\bigstar$-sentence are actions of the relevant decision-maker. One might enforce this as a presupposition, as in Bledin (2017).

[39] To formally analyze the Idle Argument, we need only the following simplification of (47) applying to $\bigstar$-sentences with atomic complements $\alpha, \beta \in At_{\mathcal{L}}$:

(i)
$$\begin{array}{lll} s, \leq \models \bigstar(\alpha, \beta) & \text{iff} & \mathcal{V}(\beta) <_s \mathcal{V}(\alpha) \\ s, \leq \dashv \bigstar(\alpha, \beta) & \text{iff} & \mathcal{V}(\beta) \not<_s \mathcal{V}(\alpha) \end{array}$$

I present the more general entry in the main text because the slight increase in complexity buys us a nice account of Ross (1941)-style arguments—as I go on to show—and (47) provides a good opportunity to introduce alternatives, which we also need for the semantics of $\rightarrow$.

[40] By contrast, versions of this argument pattern involving epistemic comparatives like *more probable* and *at least as likely* aren't unrestrictedly valid. See Yalcin (2010); Lassiter (2010, 2017); Holliday & Icard (2013) for discussion.

recommends mail-worlds over trash-worlds. But then $\langle s, \leq \rangle$ must also support the conclusion (50), as the lone alternative for mail is preferred to each of the alternatives for the "inquisitive" disjunction burn $\vee$ trash.[41]

To interpret the Fatalist's premises, we still need a semantics for the conditional operator '$\rightarrow$'. My proposal is that a decision state $\langle s, \leq \rangle$ supports a conditional of the form $\varphi_0 \rightarrow \psi$ or $\mathcal{Q}\varphi_0 \rightarrow \psi$ iff every way of minimally updating s to ensure that the antecedent φ_0 or $\mathcal{Q}\varphi_0$ holds delivers a state that supports the consequent ψ as well (this semantics is inspired by related proposals in Yalcin 2007; Kolodny & MacFarlane 2010; Ciardelli 2016b; and others). This set of updated states is defined as follows, where $\varphi_{\mathcal{Q}0}$ is a sentence of the form φ_0 or $\mathcal{Q}\varphi_0$:

(51) $\langle s, \leq \rangle \oplus \varphi_{\mathcal{Q}0} = \{\langle s \cap s', \leq \rangle : s' \in alt_{\leq}(\varphi_{\mathcal{Q}0})\}$[42]

With (51) in hand, we can now make good on the Ramsey Test in the following way:

(52) **Interpretation of conditional operator**
$s, \leq \models \varphi_{\mathcal{Q}0} \rightarrow \psi$ and $s, \leq \models\!\!\!| \; \varphi_{\mathcal{Q}0} \rightarrow \psi$ are defined only if $s, \leq \models \varphi_{\mathcal{Q}0}$ is defined and for all $d \in \langle s, \leq \rangle \oplus \varphi_{\mathcal{Q}0}$, $d \models \psi$ is defined.[43] If defined,

$$\begin{array}{lll} s, \leq \models \varphi_{\mathcal{Q}0} \rightarrow \psi & \text{iff} & \text{for all } d \in \langle s, \leq \rangle \oplus \varphi_{\mathcal{Q}0},\ d \models \psi \\ s, \leq \models\!\!\!| \; \varphi_{\mathcal{Q}0} \rightarrow \psi & \text{iff} & \text{for some } d \in \langle s, \leq \rangle \oplus \varphi_{\mathcal{Q}0},\ d \not\models \psi \end{array}$$

The definability conditions in (52) ensure that presuppositions project out of the antecedents of conditionals. This will be important later when proving various facts about the logic of unconditionals.

Rounding the semantics off with the entry for '$\mathcal{Q}$', I follow Rawlins (2008a,b, 2013) in assuming that when this question operator is used to form an alternative question it introduces exhaustivity and mutual exclusivity presuppositions to the effect that one and only one of the

[41] I assume here that valid (deductively good) inferences preserve support. More on this in a few paragraphs.

[42] It can be shown by a relatively straightforward induction on the complexity of basic sentences that support (reject) for these sentences is *persistent* in the sense that if $s, \leq \models \varphi_0$ and $s' \subseteq s$ then $s', \leq \models \varphi_0$ (and similarly for $\models\!\!\!|$). So each of the decision states in $\langle s, \leq \rangle \oplus \varphi_{\mathcal{Q}0}$ supports $\varphi_{\mathcal{Q}0}$.

[43] When I say that "$s, \leq \models \varphi$ is (un)defined" or "$s, \leq \models\!\!\!| \; \varphi$ is (un)defined", what I mean is that the characteristic function for $\models$ or $\models\!\!\!|$ is (un)defined on $\langle s, \leq, \varphi \rangle$. With presuppositions around, these characteristic functions are partial (note that our semantics also introduces partiality in the different sense that an information state might neither support nor reject a sentence). Because the projection properties of negation, conjunction, and disjunction aren't important here, I didn't introduce presuppositions earlier when interpreting these connectives. Readers should feel free to graft their preferred projection properties onto the earlier entries.

alternatives holds for the basic sentence on which it operates (see also Biezma & Rawlins 2012; Ciardelli 2016b for closely related proposals).[44] I impose these presuppositions on the informational parameter of the decision states against which alternative questions are evaluated:

(53) **Interpretation of question operator**
When $\mathcal{Q}$-sentences are not of the form $\mathcal{Q}(\varphi_0 \vee \psi_0)$, support and rejection are always defined; otherwise, $s, \leq \models \mathcal{Q}(\varphi_0 \vee \psi_0)$ and $s, \leq \dashv \mathcal{Q}(\varphi_0 \vee \psi_0)$ are defined only if

(i) $s \subseteq \bigcup alt_{\leq}(\varphi_0 \vee \psi_0)$ (exhaustivity)

(ii) for all $s', s'' \in alt_{\leq}(\varphi_0 \vee \psi_0)$ where $s' \neq s''$, there is no $w \in s \cap s' \cap s''$. (exclusivity)

That is, support and reject conditions for $\mathcal{Q}(\varphi_0 \vee \psi_0)$ are defined only if $alt_{\leq}(\varphi_0 \vee \psi_0)$ restricted to s partitions s. If defined,

$$s, \leq \models \mathcal{Q}(\chi_0) \quad \text{iff} \quad s, \leq \models \chi_0$$
$$s, \leq \dashv \mathcal{Q}(\chi_0) \quad \text{iff} \quad s, \leq \dashv \chi_0$$

See Biezma & Rawlins (2012) for a battery of arguments that alternative questions have exhaustivity and non-overlapping presuppositions both in root environments and when embedded under intensional attitude verbs like “wonder" and adjoined in unconditionals. Ciardelli (2016b) also

[44] Biezma & Rawlins (2012) propose that the source of exhaustivity/exclusivity is a Zimmermann (2000)-style closure operator in the logical forms of alternative questions contributed by their final falling tone. This distinctive intonational feature of alternative questions clearly plays an important role given that disjunctive polar questions with a final rise don't presuppose that their alternatives are exhaustive:

(i) Is it raining↑ or snowing↓?

(ii) Is it raining-or-snowing↑?

Although the alternative question (i) presupposes that it is either raining or snowing, the polar question (ii) does not. Because I want to avoid complicating my formal language $\mathcal{L}$ with tones and accents, I assume simply that sentences of the form $\mathcal{Q}(\varphi_0 \vee \psi_0)$ in $\mathcal{L}$ are always read with a final fall. This is a harmless assumption for present purposes because unconditionals cannot be formed with polar questions anyways:

(iii) *Whether it's raining, we should go play outside.

Regarding the nature of the presuppositions themselves, Biezma & Rawlins offer a more indirect account of exhaustivity/exclusivity than the one I give in this paper. On their proposal, alternative questions presuppose that their alternatives line up with the possible answers to the question under discussion (QUD; Ginzburg 1996; Roberts 1996, 2012), where this question partitions the contextual domain. I won't attempt to decide between this kind of account and the simpler direct account offered in the main text.

shows how the ability of the exhaustivity presupposition to project out of the *whether*-adjuncts of unconditionals can help explain our contrasting judgments in cases like the following:

(54) a. Whether the card is red or black, it might be a jack.
b. ??If the card is red or black, it might be a jack.

(55) a. If you take the plane to Baltimore, the trip will take only one hour; if you take Amtrak or drive, it will take three hours.
b. ??If you take the plane to Baltimore, the trip will take only one hour; whether you take Amtrak or drive, it will take three hours.

The basic idea is that (55-b) is infelicitous because cooperative speakers try to avoid uttering sentences—such as the unconditional following the semicolon—whose presuppositions aren't satisfied in their context of use. (54-b) sounds odd because it is contextually equivalent to (54-a), and given the choice between such equivalent sentences speakers should utter one of the candidates with the strongest presuppositions (Heim's 1991 "Maximize Presupposition").

Now, how does the Idle Argument play out in our system? Given certain natural assumptions about your decision state $\langle s, \leq \rangle$, both of the Fatalist's premises (1) and (2) are supported by it (I won't attempt to formalize the additional "non-reflecting" reading of these premises mentioned in §3). Consider first (1). This premise is supported by $\langle s, \leq \rangle$ so long as the choice function $\leq$ applied after updating s with the information that you will be killed recommends staying put over heading to the bomb shelter:[45]

(56) $s, \leq \models \mathsf{killed} \rightarrow \bigstar(\mathsf{stay}, \mathsf{take})$
iff for all $d \in \langle s, \leq \rangle \oplus \mathsf{killed}$, $d \models \bigstar(\mathsf{stay}, \mathsf{take})$
iff $s \cap \mathcal{V}(\mathsf{killed}), \leq \models \bigstar(\mathsf{stay}, \mathsf{take})$
iff $\mathcal{V}(\mathsf{take}) <_{s \cap \mathcal{V}(\mathsf{killed})} \mathcal{V}(\mathsf{stay})$

Likewise, $\langle s, \leq \rangle$ supports (2) iff $\leq$ issues the same recommendation after updating s with the information that you aren't going to be killed:

(57) $s, \leq \models \neg\mathsf{killed} \rightarrow \bigstar(\mathsf{stay}, \mathsf{take})$
iff for all $d \in \langle s, \leq \rangle \oplus \neg\mathsf{killed}$, $d \models \bigstar(\mathsf{stay}, \mathsf{take})$
iff $s \cap \mathcal{W} \setminus \mathcal{V}(\mathsf{killed}), \leq \models \bigstar(\mathsf{stay}, \mathsf{take})$
iff $\mathcal{V}(\mathsf{take}) <_{s \cap \mathcal{W} \setminus \mathcal{V}(\mathsf{killed})} \mathcal{V}(\mathsf{stay})$

The unconditional (3) is also supported on its pointwise interpretation. Because the alternatives introduced by an *or not* question are clearly

[45] In Bledin (2017), I show how this recommendation (and those below) can be derived from a ranking determined by maximizing expected utility.

exhaustive and mutually exclusive, the question operator can be ignored when evaluating *or not* unconditionals, and (3) ends up equivalent to the conjunction of the Fatalist's premises:

(58) $s, \leq \models \mathcal{Q}(\mathsf{killed} \vee \neg\mathsf{killed}) \rightarrow \bigstar(\mathsf{stay}, \mathsf{take})$
iff for all $d \in \langle s, \leq\rangle \oplus (\mathsf{killed} \vee \neg\mathsf{killed})$, $d \models \bigstar(\mathsf{stay}, \mathsf{take})$
iff $s \cap \mathcal{V}(\mathsf{killed}), \leq \models \bigstar(\mathsf{stay}, \mathsf{take})$ and
$s \cap (\mathcal{W} \setminus \mathcal{V}(\mathsf{killed})), \leq \models \bigstar(\mathsf{stay}, \mathsf{take})$
iff $s, \leq \models \mathsf{killed} \rightarrow \bigstar(\mathsf{stay}, \mathsf{take}) \wedge \neg\mathsf{killed} \rightarrow \bigstar(\mathsf{stay}, \mathsf{take})$

However, if $\leq$ recommends taking precautions relative to your original non-updated information state s, then the Fatalist's conclusion (4) is rejected by $\langle s, \leq\rangle$:

(59) $s, \leq \models\!\!\!| \bigstar(\mathsf{stay}, \mathsf{take})$ iff $\mathcal{V}(\mathsf{take}) \not\leq_s \mathcal{V}(\mathsf{stay})$

To assess the validity of the CA or CE inference rules themselves, we must still define a formal notion of consequence over $\mathcal{L}$. Because we are working with both support and reject conditions, there are a number of prima facie reasonable options. Leaving a more detailed exploration of these for the future, I work with a consequence relation requiring that whenever support conditions are defined for the premises and conclusion of an argument, this argument preserves support. This is basically what you get by crossing von Fintel's (1999; 2001) "Strawson-entailment" with an upgraded version of Yalcin's (2007) "informational consequence" for decision states (see also Veltman's 1996 '$\models_3$'):

(60) **Strawsonian support-preserving consequence**[46]
$\{\varphi_1, ..., \varphi_n\} \models \psi$ iff for any decision state $\langle s, \leq\rangle$ such that
$s, \leq \models \varphi_1, ..., s, \leq \models \varphi_n, s, \leq \models \psi$ are defined,
if $s, \leq \models \varphi_1, ..., s, \leq \models \varphi_n$, then $s, \leq \models \psi$.

It can be shown that the general CA rule for alternative unconditionals is validated by (60):[47]

(61) **CA is valid.** $\{\varphi_0 \rightarrow \chi, \psi_0 \rightarrow \chi\} \models \mathcal{Q}(\varphi_0 \vee \psi_0) \rightarrow \chi$.

Proof: If $s, \leq \models \varphi_0 \rightarrow \chi$ and $s, \leq \models \psi_0 \rightarrow \chi$, then $s \cap s', \leq \models \chi$ for any $s' \in alt_{\leq}(\varphi_0) \cup alt_{\leq}(\psi_0)$. Consider $s'' \in alt_{\leq}(\mathcal{Q}(\varphi_0 \vee \psi_0))$ and let $C =$

[46] This is named after Strawson (1952), who offers a related proposal for validating inferences involving quantified statements (as reported in von Fintel 1999, 2001).

[47] The condition that support for the conclusion be defined is crucial; if not, CA needn't preserve support. To see this, consider a state $\langle s, \leq\rangle$ such that $s = \{w_1, w_2, w_3\}$, where w_1 is the only A-world among these, w_2 the only B-world, w_3 the only C-world, and all three worlds are D-worlds. Although $s, \leq \models A \rightarrow D$ and $s, \leq \models B \rightarrow D$, $s, \leq \models \mathcal{Q}(A \vee B) \rightarrow D$ is undefined because the exhaustivity presupposition contributed by the $\mathcal{Q}$-adjunct isn't satisfied.

$\bigcup alt_{\leq}(\varphi_0 \vee \psi_0) \setminus \{w : w \in s' \cap s''$ for $s', s'' \in alt_{\leq}(\varphi_0 \vee \psi_0)$ where $s' \neq s''\}$. Without loss of generality, assume $s'', \leq \models \varphi_0$, so $s'' = s' \cap C$ for some $s' \in alt_{\leq}(\varphi_0)$. Because $s, \leq \models \mathcal{Q}(\varphi_0 \vee \psi_0) \rightarrow \chi$ is defined, $s \subseteq C$, so $s \cap s'' = s \cap s'$. Therefore, $s \cap s'', \leq \models \chi$, and so $s, \leq \models \mathcal{Q}(\varphi_0 \vee \psi_0) \rightarrow \chi$.[48]

However, CE isn't unrestrictedly valid, as exemplified above:

(62) **CE is invalid.** $\{\mathcal{Q}(\varphi_0 \vee \psi_0) \rightarrow \chi\} \not\models \chi$.[49]

Alternative unconditionals still entail their consequents in a broad range of cases. Let us call a sentence $\varphi \in S_{\mathcal{L}}$ "coarsely distributive" iff it has the following property:

(63) **Coarse distributivity**
The sentence $\varphi \in S_{\mathcal{L}}$ is *coarsely distributive* iff for any decision state $\langle s, \leq \rangle$ and partition $\{s_1, ..., s_n\}$ of s, if $s_1, \leq \models \varphi$,..., and $s_n, \leq \models \varphi$, then $s, \leq \models \varphi$.[50]

CE is valid so long as we restrict our attention to such sentences:

(64) **CE is valid for coarsely distributive consequents.**
For any coarsely distributive χ, $\{\mathcal{Q}(\varphi_0 \vee \psi_0) \rightarrow \chi\} \models \chi$.

Proof: If $s, \leq \models \mathcal{Q}(\varphi_0 \vee \psi_0) \rightarrow \chi$ is defined, then the exhaustivity and mutual exclusivity presuppositions from $\mathcal{Q}(\varphi_0 \vee \psi_0)$ ensure that the set $\{s \cap s' : s' \in alt_{\leq}(\mathcal{Q}(\varphi_0 \vee \psi_0))\} \setminus \emptyset$ partitions s. If $s, \leq \models \mathcal{Q}(\varphi_0 \vee \psi_0) \rightarrow \chi$, then $s \cap s', \leq \models \chi$ for each cell $s \cap s'$ in this partition. By the coarse distributivity of χ, $s, \leq \models \chi$.

As noted in §4, CE also holds for alternative unconditionals when these receive a flattened interpretation. We can recover this reading in our system by adding a 'flattening' operator '!' to $\mathcal{L}$ that can be inserted before basic sentences and basic sentences preceded by '$\mathcal{Q}$':[51]

(65) **Flattening operator**
$s, \leq \models !\varphi_{\mathcal{Q}0}$ and $s, \leq \eqdashv !\varphi_{\mathcal{Q}0}$ are defined only if $s, \leq \models \varphi_{\mathcal{Q}0}$ is defined. If defined,

$s, \leq \models !\varphi_{\mathcal{Q}0}$ iff $s \subseteq \bigcup alt_{\leq}(\varphi_{\mathcal{Q}0})$
$s, \leq \eqdashv !\varphi_{\mathcal{Q}0}$ iff $s \not\subseteq \bigcup alt_{\leq}(\varphi_{\mathcal{Q}0})$

[48] A similar proof establishes that CA holds for disjunctive *if*-conditionals.

[49] Because the semantics for *or not if*-conditionals and unconditionals is effectively the same, CE fails for disjunctive *if*-conditionals as well.

[50] Are all basic non-modal sentences coarsely distributive? No. Simple disjunctions like $A \vee B$ fail to distribute.

[51] A similar flattening operator appears in inquisitive semantics but is there defined in terms of double negation: $!\varphi_0 := \neg\neg\varphi_0$ (Ciardelli et al. 2013, 2018). This clearly won't work in our system because negations cancel each other out.

Assuming that the presuppositions of the flattened sentence $\varphi_{\mathcal{Q}0}$ are met, its flattening $!\varphi_{\mathcal{Q}0}$ is supported by $\langle s, \leq\rangle$ iff at least one $\leq$-alternative for $\varphi_{\mathcal{Q}0}$ obtains according to s, and $!\varphi_{\mathcal{Q}0}$ is rejected by $\langle s, \leq\rangle$ iff s allows that some $\leq$-alternative for $\varphi_{\mathcal{Q}0}$ fails to obtain.[52] If (52) is then extended to accommodate conditionals with $!\varphi_{\mathcal{Q}0}$-antecedents in the natural way, CE holds for the flattened case:

(66) **CE is valid for flattened unconditionals.**
$\{!\mathcal{Q}(\varphi_0 \vee \psi_0) \rightarrow \chi\} \models \chi$.

Proof: If $s, \leq \models !\mathcal{Q}(\varphi_0 \vee \psi_0) \rightarrow \chi$ is defined, then $s \subseteq \bigcup alt_{\leq}(\mathcal{Q}(\varphi_0 \vee \psi_0))$ given the exhaustivity presupposition contributed by $\mathcal{Q}(\varphi_0 \vee \psi_0)$. If $s, \leq \models !\mathcal{Q}(\varphi_0 \vee \psi_0) \rightarrow \chi$, then $s \cap s', \leq \models \chi$ for all $s' \in alt_{\leq}(!\mathcal{Q}(\varphi_0 \vee \psi_0))$. Given that $alt_{\leq}(!\mathcal{Q}(\varphi_0 \vee \psi_0)) = \{\bigcup alt_{\leq}(\mathcal{Q}(\varphi_0 \vee \psi_0))\}$, it follows that $s, \leq \models \chi$.

7 *Modus Ponens* for Unconditionals

At this point, I'm just about ready to conclude. But first, let me say a few words about how *not* to conclude. One might infer from my refutation of the Idle Argument that *modus ponens* is invalid for *or not* unconditionals.[53] After all, the disjunctive antecedent of (3) appears to be tautological, so the failure of CE looks an awful lot like a failure of MP with a suppressed tautological premise. The apparent invalidity of MP for unconditionals might not come as much of a shock given how much flak *modus ponens* for various kinds of *if*-conditionals has taken over the years from McGee (1985), Cantwell (2008), Willer (2010), Kolodny & MacFarlane (2010), Briggs (2012), and others.[54]

However, it would be a mistake to conclude that we have a failure of MP for unconditionals on our hands. Crucially, the antecedent of (3) is *not* the declarative tautology 'Either you are going to be killed or not' but rather the interrogative clause 'Whether or not you are going to be killed'. The relevant MP principle takes the following form:

[52] Interestingly, Lin (1996) argues that the *wulun* in the subordinate clause of Chinese *wulun*-conditionals has a similar kind of flattening function.

[53] Given the strong parallel between alternative unconditionals and disjunctive *if*-conditionals, one might also conclude, like Charlow (*ms.*), that *modus ponens* is invalid for indicative *if*-conditionals. Though I focus on unconditionals in this section, much of what I say carries over to disjunctive *if*-conditionals.

[54] Though see Bledin (2015) for a defense of MP for indicative conditionals against some of these attacks.

(67) **MP for *or not* unconditionals**

$$\frac{\textit{Whether or not } \varphi, \psi \qquad \textit{Whether or not } \varphi}{\psi}$$

Despite the failure of CE, (67) *is* validated by the support-preserving consequence relation defined in §6. In fact, it can be shown that the more general version of MP applying to all alternative unconditionals is unrestrictedly valid:

(68) **MP is valid.** $\{\mathcal{Q}(\varphi_0 \vee \psi_0) \to \chi, \mathcal{Q}(\varphi_0 \vee \psi_0)\} \models \chi$.

Proof: If $s, \leq \models \mathcal{Q}(\varphi_0 \vee \psi_0) \to \chi$ and $s, \leq \models \mathcal{Q}(\varphi_0 \vee \psi_0)$, then $s \cap s', \leq \models \chi$ for any $s' \in alt_{\leq}(\mathcal{Q}(\varphi_0 \vee \psi_0))$ and $s \subseteq s'$ for some $s' \in alt_{\leq}(\mathcal{Q}(\varphi_0 \vee \psi_0))$, so $s, \leq \models \chi$.

Note in particular that if we extend the Idle Argument by granting the Fatalist the extra premise $\mathcal{Q}(\mathsf{killed} \vee \neg\mathsf{killed})$, then his conclusion follows: $\{\mathcal{Q}(\mathsf{killed} \vee \neg\mathsf{killed}) \to \bigstar(\mathsf{stay}, \mathsf{take}), \mathcal{Q}(\mathsf{killed} \vee \neg\mathsf{killed})\} \models \bigstar(\mathsf{stay}, \mathsf{take})$. The Fatalist can apply CA followed by MP to infer that you are better off staying put than taking precautions.[55]

But should we be worried about this extended argument? At this point, I suspect that some readers will be scratching their heads and reasonably wondering how to even think about reasoning that initiates from interrogative premises. While we often employ MP for (indicative) *if*-conditionals in our everyday and scientific reasoning, the same cannot be said of MP for unconditionals. Indeed, one might wonder whether reasoning from interrogatives is even intelligible. In the introduction to Belnap & Steel (1976), for instance, we are warned that it is a "pointless task" to investigate an inferential scheme in which questions can serve as premises and conclusions.

However, I think that Belnap & Steel's pessimism is unwarranted and simply outdated in light of subsequent work on the logic of questions by Groenendijk & Stokhof (1984), Ciardelli (2016a, 2018), and many others. One way to get a better feel for such a logic is to consider arguments with questions embedded in knowledge-wh reports.[56] Though inferences with root interrogative premises are admittedly odd-sounding, their embedded analogs like (69) and (70) sound perfectly fine:

[55] By contrast, the classical tautology 'Either you are going to be killed or not' should be translated using the flattened formula $!(\mathsf{killed} \vee \neg\mathsf{killed})$ and adding *this* premise to the new Idle Argument doesn't allow the Fatalist to reach his conclusion: $\{\mathcal{Q}(\mathsf{killed} \vee \neg\mathsf{killed}) \to \bigstar(\mathsf{stay}, \mathsf{take}), !(\mathsf{killed} \vee \neg\mathsf{killed})\} \not\models \bigstar(\mathsf{stay}, \mathsf{take})$.

[56] I'm grateful to a reviewer for suggesting this angle. See Karttunen (1977); Groenendijk & Stokhof (1984); Heim (1994) for classic work on knowledge-wh.

(69) John knows which men walk in the garden. John knows who the men are. So, John knows which men do not walk in the garden. (Groenendijk & Stokhof 1984)

(70) The Delphi oracle knows whether you will be killed or not. She also knows that you're better off staying where you are than taking precautions whether or not you are going to be killed. So, the oracle knows that you're better off staying where you are.

It is widely thought that arguments like the extended Idle Argument and their analogs like (70) are intimately related in that the same core logic of questions undergirds their validity.

Ciardelli (2016a, 2018), who develops a combined logic and proof theory for both declarative and interrogative sentences in an inquisitive semantic setting, discusses how logical dependencies between questions also play important roles in natural sciences such as physics and biology and in database theory. I have found his work especially helpful in clarifying how exactly to think about questions in deductive reasoning. According to Ciardelli, a root interrogative appearing in a proof can be regarded as a placeholder for an arbitrary information state that supports/settles it—compare the flagging step in a Fitch-style general conditional proof, where a fresh constant is introduced to designate some arbitrary individual with a particular property (Barwise & Etchemendy 1999). For instance, "How much is one Bitcoin worth in US dollars?" stands in for one of the various ways in which the question expressed by this sentence can be resolved. When this constituent interrogative appears as a premise in an inference, we can come to learn things about *any* information state that settles it, in much the same way as a general conditional proof establishes further properties of every individual with the property referenced in the flagging step. For example, if we infer the polar interrogative "Is one Bitcoin worth more than a thousand dollars?", we thereby establish that the more specific type of information that settles how much one Bitcoin is worth in US dollars yields the less specific type of information that settles whether one Bitcoin is worth more than a thousand dollars.

Adapting this perspective to our present context where support and reject conditions are defined with respect to decision states encoding both informational and evaluative aspects of a decision-maker's mental state, we can think of interrogatives as placeholders for arbitrary decision states of a given type. In the augmented Idle Argument, the premise $\mathcal{Q}(\mathsf{killed} \vee \neg \mathsf{killed})$ stands in for an arbitrary decision state that settles the question of whether you are going to be killed. So what does this valid MP-argument show? Not much. It establishes only that any decision

state that supports the unconditional (3) *and settles whether you will be killed* is a decision state according to which you're better off staying where you are than taking precautions. In other words, the extended argument shows that you are better off staying put when you're informed about what will come to pass—not exactly the kind of result that should lead to idleness in your actual ignorant state.

8 Conclusion

In some of my earlier work (Bledin 2014, 2015), I argued that inferences involving epistemic modals and indicative conditionals like (71) and (72) motivate a move away from classical truth-conditional approaches to logic and deductive argumentation towards support-based alternatives:

(71) Either Colonel Mustard or Mrs. Peacock committed the murder. Mustard might not have done it. Therefore, Peacock might have done it.

(72) It's not raining outside. Therefore, it's not the case that it might be raining outside. (Yalcin 2007 calls the validity of this form of argument "Łukasiewicz's Principle", after Łukasiewicz 1930.)

These are intuitively good inferences, and one can provide a semantics for epistemic modal and conditional expressions on which they preserve support (Veltman 1996; Yalcin 2007). However, it is difficult to make sense of these arguments as truth-preserving. So if we want to maintain a tight connection between logical validity and the evaluative concept of a deductively good inference—reflected in our intuitive judgments about entailment—and we are willing to count epistemic modal operators and indicative conditionals among the logical vocabulary of our language, then arguments like (71) and (72) give us reason to understand validity in terms of the necessary preservation of support rather than truth.[57]

[57]While I earlier championed an "informational view" of logic, I've come to think that this view is too limited. Once we expand our sights to include argumentation with deliberative modals—as we have in this paper—we need to work with a notion of support relativized to structures with non-informational components. I now see my previous "informational view" as part of a broader "cognitive view" of logic. Crucially, this doesn't amount to a *psychologism* about logic, at least not in the sense of viewing logic as a branch of empirical psychology. Note that the cognitive representations appearing in support-oriented theories encode various rationality assumptions. For instance, modeling an information state using a nonempty set of worlds effectively presupposes that this information is consistent and closed under entailment. These rationality-embedding structures are required because our concept of a deductively good argument—reflected in basic intuitions about what follows from what—packs

One of my general take-home messages is that inferences involving both root and adjoined interrogatives provide us with further reason to shift from truth-centric to support-based theories. By working in a support-conditional framework we can define a consequence relation applicable to both declarative and interrogative sentences, such that questions can be brought within the scope of logic. Indeed, inferences with questions arguably offer a *stronger* reason to abandon orthodoxy given that questions aren't even truth-apt (unlike their answers, which can be true or false).[58]

To recap, I've argued for the following claims:

- CA is valid for alternative unconditionals when given pointwise interpretations.
- CE is unrestrictedly valid for flattened alternative unconditionals but valid for pointwise unconditionals only in certain cases.
- MP is unrestrictedly valid for pointwise alternative unconditionals.

However, this is only the tip of the iceberg when it comes to the logic of questions. As Ciardelli (2016a, 2018) has shown, there are many other interesting logical relationships.

Let me close with one more example. In Dummett (1964), the Idle Argument is presented as a constructive dilemma:

(73) Either you are going to be killed by a bomb or you are not going to be. If you are, then even if you take precautions you will be killed, so any precautions you take will be ineffective. If you are not going to be killed, then you won't be killed even if you neglect to take precautions, so any precautions you take will be unnecessary to avoid being killed. Therefore, any precautions you take will be either ineffective or unnecessary, and so pointless.

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in various rationality assumptions (see Charlow 2016 for helpful related discussion). There is a sense in which logic is already "normative" at this boiler-room level.

[58] Might we embrace a kind of *logical pluralism* in which truth-preserving and support-preserving entailment relations coexist peacefully side-by-side? I'm certainly open to this kind of pluralism, *provided* that both kinds of consequence relation have important theoretical roles to play. However, support preservation coincides with truth preservation over simple fragments of our language, and a support-based consequence relation delivers better results for modal and conditional inferences while also extending naturally to interrogative inferences, so I'm not exactly sure what the standard truth-preserving conception of validity has going for it besides its historical priority. I think the prospects for interesting forms of logical pluralism are actually better entirely within support-oriented frameworks. See for instance Veltman (1996), who defines three different consequence relations in terms of support. I hope to investigate such support-style logical pluralism in future work.

Now, I mostly agree with Stalnaker's (1975) refutation of this argument. According to Stalnaker, there is at least one reading of the indicative conditional according to which both subarguments in (73) are good. Given your state of indecision, the Fatalist does well to deduce that any precautions you take will be ineffective under the supposition that you will be killed. Likewise, the Fatalist competently deduces in the second hypothetical context that any precautions you take will be unnecessary. The problem is only in the final step where the Fatalist uses constructive dilemma to conclude that precautions will be ineffective or unnecessary in the main categorical context of the argument where he is no longer assuming anything about the future.[59]

That the application of constructive dilemma to the opening classical disjunction in (73) (translatable as $!(\mathsf{killed} \vee \neg\mathsf{killed})$) leads to trouble shouldn't come as much of a surprise after all the time spent in this paper considering how domain restrictions can fluctuate over the course of an argument (see also Willer 2012; Marra 2014; Bledin 2014, 2015, who argue that constructive dilemma/proof by cases leads to trouble in Kolodny & MacFarlane's 2010 original Miners Puzzle). There is, however, another layer to the story. While constructive dilemma can lead us astray when applied to flattened disjunctions, it can be shown that this rule *is* unrestrictedly valid when launched from an inquisitive disjunction that hasn't been flattened (Ciardelli 2018). So if we allow Dummett's Fatalist to begin reasoning from the interrogative premise $?(\mathsf{killed} \vee \neg\mathsf{killed})$ instead of $!(\mathsf{killed} \vee \neg\mathsf{killed})$, his conclusion follows. But, as before, all that the revised argument shows is how Churchill (the American novelist, not the British statesman) got things more-or-less right in the opening epigraph of this paper: you do well to adopt a fatalistic attitude and refrain from costly goal-directed behavior when you are already informed about the future, but otherwise you should take precautions and hope for the best.

[59] I say that I *mostly* agree with Stalnaker because he frames his diagnosis in terms of "reasonable inference", which he takes to be a pragmatic relation between speech acts defined in terms of appropriate assertion and supposition. While Stalnakerian "reasonable inference" is closely related to support-preserving consequence relations like the one defined in §6, these can extensionally come apart (Bledin 2014). More fundamentally, I regard support-preservation as a (predominantly) semantic relation that isn't essentially tied to the normativity of asserting and supposing. This seems important if support-preservation is to explain the goodness of inferences not just in public conversation but also in our private internal deliberations, where it isn't clear that norms for assertion and supposition even apply.

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