Conditional Collapse

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Indicative and subjunctive conditionals are in non-complimentary distribution: there are conversational contexts at which both are licensed (Stalnaker 1975; Karttunen and Peters 1979; von Fintel 1998). This means we can ask an important, but under-explored, question: in contexts which license both, what relations hold between the two? In this paper, I'll argue for an initially surprising conclusion: when attention is restricted to the relevant contexts, indicatives and subjunctives are co-entailing. §1 introduces the indicative/subjunctive distinction, along with a discussion of the relevant notion of entailment; §2 presents the main argument of the paper, and §3 considers some of the philosophical implications of the argument in §2. Finally, §4 argues that we can reconcile the equivalence of indicatives and subjunctives with apparently conflicting judgements.

1. Indicatives and Subjunctives

Consider the following pair of conditionals:

(1) If the butler was in the library, he saw the murder.

(2) If the butler had been in the library, he'd have seen the murder.

According to the articles of faith for conditionals, (1) and (2) differ in meaning.[1] Following orthodoxy, call conditionals which pattern with the former *indicative* and conditionals which pattern with the latter *subjunctive*. Throughout, we will use → for indicatives and > for subjunctives.[2]

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[1] See, for example, Adams (1965), Stalnaker (1975), Slote (1978), Davis (1979), Gibbard (1981) and von Fintel (1998), for classic work. For recent discussion, see Starr (2014b), Khoo (2015), Goldstein (2020), Williamson (2020) and Mandelkern (2021).

[2] This choice is not entirely innocent. The dominant view, at least in linguistics, is that '*if*'-clauses are restrictors on (overt or covert) modals (Kratzer 1979, 1981, 1986, 2012). Nevertheless, we might still hope to productively study their inferential properties by theorizing about the logic of a simple propositional language in which they are represented using a binary connective. For previous articulations of this idea, see Stalnaker (2014) and Rothschild (2021); for dissent, see Mandelkern (2021).

The suggestion is not that the English 'if' may turn out to be ambiguous between a subjunctive and indicative connective. The difference between sentences like (1) and (2) is presumably the product of a combination of differences in tense, mood and aspect. However, we can aim

One way the two forms of conditional differ has to do with the contexts at which they are licensed. Unlike subjunctives, indicatives are unacceptable in counterfactual environments—contexts in which their antecedent has been ruled out. Thus, while (3b) constitutes an acceptable bit of discourse, (3a) does not.

(3)   (a)   The butler wasn't in the library. ?? If he was, he saw the murder.

      (b)   The butler wasn't in the library. If he had been, he'd have seen the murder.

At this point, it will be helpful to introduce some terminology. We can talk about the presuppositions of various expressions using the notion of truth-in-a-context.[3] Where ϕ is true-in-c, we'll write $c \vDash \phi$. We'll say that ϕ is licensed at c if and only if all of its presuppositions are true there.

There is then a simple (and seemingly popular) story to be told about the behaviour in (3a) and (3b). Indicatives presuppose their antecedent to be epistemically possible in the context in which they are used.

Indicative Licensing $A \rightarrow B$ is licensed at c only if $c \vDash \Diamond A$.

Indicative Licensing has been defended by Stalnaker (1975), Karttunen and Peters (1979), von Fintel (1998), Gillies (2009, 2020) and Starr (2014c,a,b) amongst others. On the assumption that $\Diamond A$ is true-in-c only if A hasn't been ruled out at c, it explains the infelicity of (3a). In the context that results from accepting the first sentence, the butler having been in the library will be ruled out. But, at any such context, the presuppositions of the second sentence will be unsatisfied.

Subjunctives are standardly assumed to be licensed in both counterfactual and non-counterfactual environments.[4,5] We will follow this assumption, attributing trivial presuppositions to them, which are

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to say something about the overall effect of these differences, while abstracting away from how that effect is achieved. For instance, a (tentative) proposal of the following discussion is that the differences between (1) and (2) may be exhausted by the contribution their different morphological properties makes to their respective presuppositions. I am grateful to a referee at *Mind* for encouraging me to address this point.

    [3] The notion of truth-in-a-context is originally due to Kaplan (1989). I employ it here without any particular commitment to contexts being the kinds of things Kaplan says contexts are. In particular, if the truth-in-a-context of an expression containing one or more epistemic modals is sensitive to some body of information, then contexts will need to be the kind of thing which can determine one of those.

    [4] The *locus classicus* here, due to Anderson (1951), concerns the things doctors tend to say about potential arsenic poisoning victims. See §4.3 below for further discussion.

    [5] Note that, in the sense used here, for c to be a counterfactual context for A does not merely require that A is false in c; rather, it requires that $\Box \neg A$ is true in c.

everywhere satisfied. Accordingly, we will adhere to von Fintel (1998)'s observation that indicatives and subjunctives are in non-complementary distribution—that is, that there exist contexts at which both an indicative and its corresponding subjunctive are licensed.[6] These contexts will be those at which the conditionals' common antecedent is epistemically possible.

If indicatives and subjunctives are in non-complementary distribution, a number of interesting issues can be raised. In particular, we can non-trivially ask: what logical relations hold between the two types of conditional at those contexts which license both?

This paper takes up that question. I will argue that under reasonable assumptions about the logic of indicatives and subjunctives, they are equivalent in the appropriate sense. Where licensed, each entails the other. Defending this principle, which I will call Collapse, is the primary goal of this paper.

Collapse $A \rightarrow B$ ⊨⊨ $A > B$.

§2 introduces three inference patterns, each of which has substantial appeal. Taken together, however, they are shown to imply Collapse. Collapse has its disciples, such as Karttunen and Peters (1979) and von Fintel (1998).[7] It is however, at least prima facie, at odds with orthodoxy. §3 considers some consequences of the principle, focusing on the information-(in)sensitivity of subjunctives. While these consequences are surprising, the primary motivation for resisting Collapse comes from Adams pairs: pairs of corresponding indicatives and subjunctives, such as (4a) and (4b), which can elicit divergent judgements (see Zakkou (2019, 2021); Holguín (2020) for recent commentary).

(4)   (a)   If the vicar did it, he didn't leave any clues.

     (b)   If the vicar had done it, he wouldn't have left any clues.

§4 shows that our judgements about Adams pairs can be accommodated in a way compatible with Collapse by appealing to an independently

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[6] This is directly supported by examples like (†a–b):

(†)   (a)   Maybe the butler was in the library. If he was, he saw the murder.

     (b)   Maybe the butler was in the library. If he had been, he'd have seen the murder.

[7] Stalnaker (1975, 1984) is a more complicated case. Stalnaker (1975, p. 276) describes the subjunctive mood as a 'conventional device for indicating that presuppositions [that is, information in the common ground] are being suspended'. Whether this should be interpreted as a difference in licensing conditions between the indicative and subjunctive is unclear (see note 37 below for one implementation of the view on which it is).

plausible pragmatic rule along with a popular story about how contexts change in conversation.

Our focus throughout will be on a propositional language closed under the boolean constants ($\neg$, $\wedge$), conditional connectives ($\rightarrow$, $>$), and existential modal operator ($\diamondsuit$), interpreted as epistemic possibility. We'll define $\vee$, $\supset$ and $\square$ in the usual way. We'll take $A, B, C, ...$ to range over the fragment of the language free of $\diamondsuit$ and $\phi, \psi, \chi...$ to range over the full language.[8] For simplicity, we will largely restrict our attention to sentences free of iterated modals.[9]

1.1. Strawson entailment

Since we are dealing with expressions some of which have non-trivial presuppositions, we want a notion of entailment which takes this into account. In particular, we need to know how to treat contexts at which one (or more) of the premiss/conclusion is unlicensed when determining whether an inference pattern is valid.

We will follow the standard strategy and talk about inference patterns in terms of Strawson entailment (Strawson 1952; von Fintel 1998, 1999). Informally, the idea is that in evaluating a particular inference we should consider all and only those contexts at which both the premisses and the conclusion are licensed. It is valid if and only if, within this restricted domain, there is no context at which the premisses are true but the conclusion false.[10]

Strawson Entailment $\Gamma \vDash \phi$ if and only if in all contexts at which ϕ and the members of Γ are licensed, ϕ is true if $\bigwedge \Gamma$ is.

In reasoning about Strawson entailment, it will be useful to have a function, π, which maps an expression to the set of its presuppositions—the expressions which must be true-in-a-context for it to be licensed there (Beaver 2001; cf. Bochvar 1939 and Herzberger 1973)). Thus, for example, according to Indicative Licensing, $\diamondsuit A \in \pi(A \rightarrow B)$. Where Γ is

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[8] ϕ is free of $\diamondsuit$ if and only if ϕ belongs to the closure of the atomic sentences of the language under $\neg$, $\wedge$, $\rightarrow$ and $>$.

[9] Crucially, this allows us to bypass a schismatic debate over whether nested epistemic modals collapse to the innermost (Veltman 1996; Yalcin 2007), collapse to the outermost (Veltman (1985)) or neither (Moss 2015; Goldstein 2019a).

[10] Here, we adopt a static implementation of Strawson entailment (dynamic implementations are also available; see, in particular, (von Fintel (2001))). Later, we'll look at some ways that changes in context between evaluation of premisses and conclusion can affect our judgements about validity. It will be a matter of contention whether these changes get triggered semantically or pragmatically. In the interest of neutrality, it is simplest to stick with the static notion of entailment, while recognizing that dynamic effects may need to be accounted for down the line in order to explain our full range of judgements.

a set of sentences, we will adopt the notational convention that $\pi(\Gamma)$ = $\bigcup_{\phi \in \Gamma} \pi(\phi)$.[11] Strawson entailment can then be defined in terms of classical entailment and π: Γ Strawson entails ϕ if and only if $\Gamma \cup \pi(\Gamma \cup \{\phi\})$ classically entails ϕ.

Importantly, some inference rules which are valid for classical entailment fail for Strawson entailment. In particular, Strawson entailment does not vindicate Cut (Smiley 1967; see also Cariani and Goldstein 2018).

Cut If $\Gamma \vDash \phi$ and $\Delta, \phi \vDash \psi$, then $\Delta, \Gamma \vDash \psi$.

To see why, consider the case in which presuppositions of ϕ are not entailed by the presuppositions of $\Gamma \cup \Delta \cup \{\psi\}$. Then the contexts considered in evaluating whether Γ Strawson entails ϕ and in evaluating whether Δ and ϕ Strawson entail χ, will be a strict subset of those considered in evaluating whether Δ and Γ Strawson entail ψ. Accordingly, that the former two inferences are Strawson valid does not guarantee that there is no context at which the elements of Δ and Γ are licensed and true, yet ψ is licensed but false. The transitivity of entailment is a limiting instance of Cut, and fails for the same reasons.

However, Strawson entailment does preserve Cut (and hence the transitivity of entailment) in a restricted form. The rule is valid in the special case in which the presuppositions of Γ, Δ and ψ, along with Γ and Δ themselves, are at least as strong as the presuppositions of ϕ. Call this rule Strawson Cut.

Strawson Cut Suppose that $\delta(\Gamma \cup \Delta \cup \{\psi\}), \Gamma, \Delta \vDash \bigwedge \delta(\phi)$. Then, if $\Gamma \vDash \phi$ and $\Delta, \phi \vDash \psi$, then $\Delta, \Gamma \vDash \psi$.

Strawson Cut says that, if Γ and Δ, along with the presuppositions of $\Gamma \cup \Delta \cup \{\psi\}$, entail each of the presuppositions of ϕ, then the relevant instance of Cut will be Strawson validity-preserving. It is this restricted rule which we will rely on below.

In addition to invalidating some classical inference rules, Strawson entailment also validates some novel rules. Of particular note is the rule we will call Reduction.

Reduction If $\Gamma, \phi \vDash \psi$ and $\phi, \pi(\phi) \in \pi(\Gamma \cup \{\psi\})$, then $\Gamma \vDash \psi$.

Reduction says that if Γ and ϕ Strawson entail ψ, but ϕ and its presuppositions are presuppositions of ψ and Γ, then Γ Strawson entails ψ by

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[11] Note that on the assumption that an expression is licensed in c only if the presuppositions of its presuppositions are true-in-c, then $\psi \in \pi(\phi)$ implies $\pi(\psi) \subseteq \pi(\phi)$. That is, π is identical to its transitive closure.

itself. To see why, note that since ϕ and its presuppositions are among the presuppositions of ψ and Γ, in evaluating the latter entailment we will restrict our attention to only those contexts in which ϕ is true and licensed. But it is established that in all such contexts if the elements of Γ are true and licensed, then ψ is true if licensed.

The relationship that holds between the presuppositions of complex expressions and the presuppositions of their parts is subject to complex and unresolved questions (for discussion see, for example, Karttunen 1973, 1974; Heim 1983, 1990; Geurts 1999; Beaver 1992, 2001; Schlenker 2007, 2008, 2009; Rothschild 2008). However, for present purposes, difficult cases can be set aside. Instead, we can restrict our attention to matters on which there is a large degree of consensus. I follow Karttunen (1973, 1974) in adopting three assumptions. First, negation and modals are transparent to presuppositions; that is, $\pi(\diamond\phi) = \pi(\neg\phi) = \pi(\phi)$. Second, conjunctions inherit the presuppositions of their left-hand conjunct, along with the presuppositions of the right-hand conjunct conditional on the left;[12] that is, $\pi(\phi \wedge \psi) = \pi(\phi) \cup \{\phi \supset \chi \mid \chi \in \pi(\psi)\}$. Finally, the presuppositions of a conditional include at least the presuppositions of its antecedent along with the presuppositions of its consequent conditional on its antecedent; that is, $\pi(\phi) \cup \{\phi \supset \chi \mid \chi \in \pi(\psi)\} \subseteq \pi(\phi \rightarrow \psi)$ (and *mutatis mutandis* for subjunctives). Wherever these assumptions play a role in the argument below, the role they play will be noted.

2. Constructing collapse

2.1. And/If

First, consider the following pair of inference patterns:

| *And/If* | (i) | $\diamond(A \wedge B) \vDash A \rightarrow \diamond B$ | INDICATIVE |
| | (ii) | $\diamond(A \wedge B) \vDash A > \diamond B$ | SUBJUNCTIVE |

And/If says that a conditional with a $\diamond$-embedded consequent is entailed by the epistemic possibility of its antecedent and consequent conjoined. Both indicative and subjunctive variants of this principle look to be in good standing.

An individual who argues from (5) to either (6a) or (6b) reasons impeccably (indeed, to the point of sounding boring).

(5)   Maybe the butler was in the library and saw the murder.

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[12] For recent discussion, see Chemla and Schlenker (2012), Mandelkern et al. (2017).

(6) (a) So, if he was, maybe he saw the murder.

      (b) So, if he had been, maybe he'd have seen the murder.

It is hard to see how either inference could fail. Along with the argument from (5) to (6a) and (6b), both variants of And/If draw support from the oddity of accepting the possibility of a conjunction along with the negation of the relevant conditional. Since neither 'maybe' nor conditionals embed happily under sentential negation, we can see this most easily by considering examples involving (i) the modal auxilliary 'might', and (ii) downward monotonic environments that do embed conditionals (such as the scope of 'no one').

    An individual who accepts (7) along with either of (8a) and (8b) has reasoned suboptimally (indeed, to the point of sounding unintelligible).[13],[14]

(7) Anyone might buy a winning lottery ticket.

(8) (a) There is no one who might win the lottery, if they buy a ticket.

      (b) There is no one who might win the lottery, if they were to buy a ticket.

These observations are hardly heretical (even if they are not scripture). Gillies (2020) endorses the indicative variant of And/If explicitly (and Gillies (2007) the subjunctive, implicitly). Likewise, both will constitute a reasonable inference in the framework of Stalnaker (1975).

    Note that I will take it for granted that the examples above involve a consequent embedded modal (rather than syntactically less plausible wide-scoping). There is good reason to think that, in this position, 'might' admits both an epistemic and a circumstantial reading (for discussion, see Lewis 1973, 1979; Stalnaker 1981, 1984; DeRose 1994, 1999; Bennett 2003; Asher and McCready 2007). However, the

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[13] von Fintel and Iatridou (2003) propose the epistemic containment principle (ECP), which states that generalized quantifiers cannot take scope over epistemic modals. The principle does not, however, block the relevant readings of (7)–(8) (which all involve a narrow-scope modal). As von Fintel and Iatridou observe, FCIs such as 'anyone' are exempt from ECP (2003, p. 196). Similarly, placing the modal in a relative clause with a dummy pronoun in subject position (as in (8a–b)) forces a narrow-scope reading.

[14] Note that whereas antecedent of (6b) exhibits two layers of past tense and a stative verb, the antecedent embedded in (8b) exhibits a single layer of past tense and eventive verb. This produces in a future-less-vivid interpretation of the latter, on which the antecedent's reference time is later than the utterance time. In general, the observations in the present section appear robust across different sub-categories of subjunctives.

latter reading of (7)–(8) would appear to be highly unnatural, if it is available at all. Moreover, there is clearly no circumstantial reading of 'maybe' when it occurs in the same position (for example, in (5)–(6)). For this reason, I will focusprimarily on examples involving the latter expression, employing the modal auxiliary to express epistemic possibility only in environments in which 'maybe' does not happily embed.

2.2. If/And
Next, consider the following further pair of inference patterns:

| *If/And* | (i) | $\Diamond A, A \rightarrow \Diamond B \vDash \Diamond(A \wedge B)$ | Indicative |
| | (ii) | $\Diamond A, A > \Diamond B \vDash \Diamond(A \wedge B)$ | Subjunctive |

If/And says that, given the epistemic possibility of its antecedent, a conditional with a $\Diamond$-embedded consequent entails the epistemic possibility of its antecedent and consequent conjoined. The two variants are not quite the converses of their And/If counterparts, since they also include the epistemic possibility of the antecedent as a premiss. However, the difference is superficial. After all, in the former inferences, the possibility of the antecedent is entailed by the possibility of its conjunction with the consequent.

   If/And also looks to be in good standing, for both variants. Take the indicative case first. Running the same tests, an individual who argues from (9a) to (9c) reasons just as impeccably. Similarly an individual who accepts (10a–c) reasons just as sub-optimally.

(9) (a) Maybe the butler was in the library.
     (b) If he was, maybe he saw the murder.
     (c) So, maybe the butler was in the library and saw the murder.

(10) (a) Anyone might buy a lottery ticket.
     (b) Anyone might win the lottery, if they buy a ticket.
     (c) There is no one who might buy a winning lottery ticket.

Turning to the subjunctive case, analogous considerations appear to militate equally strongly in its favour. The reasoning in (11a–c) seems just as good as its indicative counterpart. And (12a–c) seem no less inconsistent.

(11) (a) Maybe the butler was in the library.
     (b) If he had been, maybe he'd have seen the murder.
     (c) So, maybe the butler was in the library and saw the murder.

(12)   (a)   Anyone might buy a lottery ticket.

      (b)   Anyone might win the lottery, if they were to buy a ticket.

      (c)   There is no one who might buy a winning lottery ticket.

Again, the observation that these inferences appear valid is not new. The validity of If/And has been previously advocated in Gillies (2010, 2020) (for indicatives) and Gillies (2007) and Goldstein (2020) (for subjunctives).

Of the two, subjunctive If/And appears the more contentious.[15] Suppose that it is unknown whether the vicar did it, although it is known that whoever did it acted alone. If we suppose, further, that the vicar and the maid are co-conspirators who frequently engage in misdeeds together, it appears easy to hear the following subjunctive as true:

(13)   If the vicar had done it, maybe the maid would've helped him.

Assuming that, at the context at which (13) is evaluated, it is epistemically possible that the vicar did it but not that he did it with help from the maid, this will amount to a counterexample to subjunctive If/And.

There is evidence that this assumption is not appropriate, however. When combined with an indicative which reports information supposedly settled in the context, the subjunctive degrades substantially.

(14)   (a)   ?? If the vicar did it, he acted alone. But if he'd done it, maybe the maid would've helped him.

      (b)   ?? If the vicar had done it, maybe the maid would've helped him. But if he did it, he acted alone.

This is surprising. The indicative follows directly from the claim that whoever did it acted alone. Accordingly, if (13) had a true reading in a context in which this information is epistemically necessary, (14a) and (14b) should too. This suggests that, for the subjunctive to receive a true reading, what is epistemically possible in the context must be permitted to shift.

This hypothesis gets additional support from a diagnostic test for context shiftiness. von Fintel and Gillies (2021), following Kroch (1974), observe that embedding material under 'although' prevents covert shifts in context.[16]

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[15] I am grateful to an anonymous referee for *MIND* for pressing me on this concern.

[16] For example, while (?a) is acceptable, (?b) is notably degraded:

(?)   (a)   John will be at the bar. But if he isn't at the bar, he'll be in his office.

      (b)   ?? Although John will be at the bar, if he isn't at the bar, he'll be in his office.

I am grateful to Matt Mandelkern for bringing examples like (?a) to my attention.

(15)   ?? Although the vicar might have done it and whoever did it acted alone, if the vicar had done it, the maid might have helped him.

It is much harder to obtain a true reading of (15) than of (13). This suggests that, when the latter is heard as true, the context undergoes a shift either to rule out that the vicar did it or to rule in that the culprit did not act alone. I will return to the phenomenon of context shiftiness and offer an explanation of how it can be triggered later on (in §4).

We have now seen two principles, each of which has significant plausibility and has been previously endorsed in both its indicative and subjunctive variants. What has gone unnoticed, however, is that, combined with one other popular principle about 'maybe's and 'if's, the pairs of And/If and If/And inferences come perilously close to triggering Collapse by themselves.

2.3. *Scopelessness and Quasi-Collapse*

Call the principle that $\diamond$ commutes with conditional antecedents Scopelessness:

Scopelessness	(i)	$A \rightarrow \diamond B \models\mid\models \diamond(A \rightarrow B)$	INDICATIVE
	(ii)	$A > \diamond B \models\mid\models \diamond(A > B)$	SUBJUNCTIVE

Scopelessness says that conditionals with $\diamond$-embedded consequents are equivalent to the corresponding bare conditionals embedded under $\diamond$. That is, a bare conditional is epistemically possible just in case its consequent is epistemically possible conditional on its antecedent. Scopelessness is explicitly defended by Gillies (2020) and Ciardelli (2021) (for indicatives) and by Stalnaker (1981), DeRose (1991, 1994, 1999) and Goldstein (2020) (for subjunctives). And for both, it is hard to hear any difference between the two scope resolutions:

(16)   (a)   If the butler was in the library, maybe he saw the murder.
       (b)   Maybe, if the butler was in the library, he saw the murder.

(17)   (a)   If the butler had been in the library, maybe he would've seen the murder.
       (b)   Maybe, if the butler had been in the library, he would've seen the murder.

(16a–b) and (17a–b) seem to be just different ways of saying the same thing. Someone who accepted one member of each pair but denied the other would sound incoherent. Moreover, Scopelessness accords with a broader observation about epistemic operators in conditionals. It is

widely recognized that other epistemic operators ('probably', 'presumably', 'certainly', etc.) appear scopeless with respect to conditionals. As with 'maybe', (18a) and (18b) seem like different ways of saying the same thing.

(18)   (a) If the butler [was/had been] in the library, he [probably/ presumably/certainly] [saw/would've seen] the murder.

   (b) [Probably/presumably/certainly], if the butler [was/had been] in the library, he [saw/would've seen] the murder.

Some might worry whether (16b) and (17b) in fact involve an epistemic possibility modal taking wide scope over a conditional. Perhaps instead the antecedent occurs in a parenthetical, without scoping under the modal. Fortunately, we do not need to adjudicate this issue. Considering response particle uses of 'maybe' gives us an alternative way of evaluating its behaviour when taking wide scope over a conditional (cf. Krifka 2013). In each of (19a) and (19b), it would be incoherent to for someone to agree with B's response while denying (16a)/(17a) (or *vice versa*).

(19)   (a) A: If the butler did it, he used the candlestick.
          B: Maybe.

   (b) A: If the butler had done it, he'd have used the candlestick.
          B: Maybe.

We have looked at three pairs of plausible seeming principles connecting 'if's and 'maybe's. Each of these principles seems good in both indicative and subjunctive forms. However, taken together, the three pairs of principles have a potentially surprising consequence. Let Quasi-Collapse be the principle that indicatives and subjunctives are equivalent when embedded under $\diamond$:

Quasi-Collapse $\diamond(A \to B) \dashv\vDash \diamond(A > B)$

Each direction of Quasi-Collapse can be derived from Scopelessness, the indicative or subjunctive variant of If/And and the corresponding subjunctive/indicative variant of And/If.

   Fact 1. *And/If*, *If/And* and *Scopelessness* imply *Quasi-Collapse*.

Take the left-to-right direction first. By indicative If/And, we know that $\diamond A, A \to \diamond B \vDash \diamond(A \wedge B)$. By subjunctive And/If, we also know that $\diamond(A \wedge B) \vDash A > \diamond B$. Yet $\diamond(A \wedge B)$ introduces no new presuppositions of its own.[17] Thus, by Strawson Cut, it follows that $\diamond A, A \to \diamond B \vDash A > \diamond B$.

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[17] Since, by assumption, $\pi(\diamond(A \wedge B)) = \pi(A) \cup \{A \supset \chi \mid \chi \in \pi(B)\}$ and $\pi(A \to \diamond B) \subseteq \pi(A) \cup \{A \supset \chi \mid \chi \in \pi(B)\}$)

But, by Indicative Licensing, $\Diamond A$ is a presupposition of $A \rightarrow \Diamond B$. So, by Reduction, it follows that $A \rightarrow \Diamond B \vDash A > \Diamond B$. Since $\Diamond$ is transparent to presupposition,[18] Scopelessness allows us to derive that $\Diamond(A \rightarrow B) \vDash \Diamond(A > B)$, via Strawson Cut.

Equivalent reasoning, *mutatis mutandis*, is sufficient to demonstrate that the right-to-left direction, $\Diamond(A > B) \vDash \Diamond(A \rightarrow B)$, follows from Scopelessness, subjunctive If/And and indicative And/If.[19] Thus anyone who accepts both variants of the three principles (as I've been suggesting they should) is committed to Quasi-Collapse. Quasi-Collapse is distinct from Collapse. However, the latter follows from the former given one further common assumption.

2.4. *Informationality and Collapse*

Informationality says that entailment relations between epistemic necessities are constrained by entailment relations between their prejacents. B being epistemically necessary follows from A being epistemically necessary only if B follows from A.

> *Informationality* $\Box A \vDash \Box B$ only if $A \vDash B$

Informationality is a key property of many so-called 'informational' approaches to arguments involving epistemic modals (Bledin 2014; Santorio forthcoming). It is accepted in domain semantics for informational entailment (Yalcin 2007) and in update semantics for both update-to-test and test-to-test entailment (Veltman 1996), as well as in acceptance semantics (Hawke and Steinert-Threlkeld 2018, 2020), path semantics (Santorio forthcoming; Goldstein and Santorio 2021) and attitude semantics (Ciardelli 2021). Similarly, it is also accepted in Incurvati and Schlöder (2017, 2019, 2021)'s multilateral epistemic logic.

However, acceptance of Informationality is not distinctive of informational approaches to entailment. It is also accepted in domain semantics for the non-informational, truth-preserving entailment relation (what Yalcin (2007) terms 'standard consequence'). And it is likewise accepted in relational frameworks, such as Mandelkern (2019)'s bounded semantics.[20]

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[18] Which guarantees that $\pi(\Diamond(A \rightarrow B)) = \pi(A \rightarrow \Diamond B)$ and, *mutatis mutandis*, similarly for $>$.

[19] Note that in the right-to-left direction of proof, Reduction will employ the fact that the conclusion has $\Diamond A$ as a presupposition, rather than the premiss.

[20] It is important here that Informationality is restricted to the fragment of the language free of $\Diamond$. While the more general variant of the principle which ranges over the full language will hold in informational approaches to entailment, it may fail in non-informational frameworks.

The widespread appeal of Informationality can be brought out by considering what it would take for it to fail. Failure of Informationality would need there to exist a pair of consistent (non-modal) claims where the necessity of one sufficed to make the other epistemically impossible. That is, it would require that, for some consistent A and B, $\Box A$ could nevertheless be inconsistent with $\Diamond B$.

Given Informationality, Quasi-Collapse leads directly to Collapse.

Fact 2. *Informationality* and *Quasi-Collapse* imply *Collapse*.

First, observe that contraposition is a safe rule for Strawson entailment. Accordingly, from Quasi-Collapse and the fact that $\Diamond$ and $\Box$ are duals, we can infer $\Box\neg(A > B) \dashv \vDash \Box\neg(A \to B)$. Applying Informationality allows us to conclude $\neg(A > B) \dashv \vDash \neg(A \to B)$. Finally, a further application of contraposition to each direction of the equivalence gives us Collapse (repeated below).

Collapse $A \to B \dashv \vDash A > B$.

This is a striking result. Collapse looks, at first glance, to be in tension with the articles of faith which state that indicatives and subjunctives differ in meaning. It also appears to be in tension with the observation that judgements about pairs of corresponding indicatives and subjunctives—like (4a) and (4b)—can diverge.

Faced with this tension, a tempting response is to deny Informationality. After all, unlike the other principles which lead to Collapse, Informationality is motivated primarily by theoretical considerations. And although popular, it is hardly doctrine.

However, while denying Informationality is a way of resisting Collapse, it is not a particularly promising way of resisting the troublesome consequences of Collapse. As we saw in the proof of Fact 2, Quasi-Collapse by itself implies that, where both are licensed, the negation of an indicative is epistemically necessary if and only if the negation of the corresponding subjunctive is epistemically necessary, too. That is, $\Box\neg(A \to B)$ and $\Box\neg(A > B)$ are Strawson co-entailing.

For this reason, things are more complicated for views which combine a non-informational consequence relation with a strict conditional account of the indicative. Some versions of these views generate counterexamples even to the restricted variant of the principle. For example, in domain semantics with standard consequence, $\Box(A \land \neg\Box(\top \supset \neg A)) \vDash \Box\bot$ and yet $A \land \neg\Box(\top \supset \neg A) \nvDash \bot$. And in relational semantics, $\Box(A \supset B) \vDash \Box\Box(A \supset B)$ is valid in S4, but $A \supset B \vDash \Box(A \supset B)$ is not.

A common picture has it that you are in a position to deny a claim if and only if its negation is epistemically necessary (Willer 2013; Incurvati and Schlöder 2017, 2021).[21] Given this assumption, Quasi-Collapse will imply that, where both are licensed, you are in a position to deny a subjunctive if and only if you are in a position to deny the corresponding indicative. Yet this is no less at odds with judgements about Adams pairs than Collapse itself. After all, someone may deny (4b) despite not being in a position to deny (4a).

Similarly, given Strictness (§3, below), Quasi-Collapse implies that someone who takes its antecedent to be epistemically possible is in a position to deny a subjunctive if and only if they are in a position to deny that the corresponding material conditional is epistemically necessary.

In §§3-4, I will argue that the tension between Collapse and orthodoxy is merely apparent. The two are compatible. Indeed, I will suggest, the principle fits naturally into an appealing picture of the semantic and pragmatic differences between indicatives and subjunctives. The primary goal of §4 is to provide an account of divergent judgments about indicatives and subjunctives which is consistent with Collapse. Before I take up that task, however, §3 examines the philosophical consequences of Collapse in greater detail.

3. Collapse considered

Collapse says that indicatives and subjunctives are Strawson-equivalent. To some, this might seem tantamount to denying a central article of conditional faith.

It might, but it shouldn't. Strawson equivalence requires that the truth-values of the two conditionals coincide at those contexts which license both. However, it allows for substantial differences in which contexts license each. As a result, it allows each conditional to be governed by a substantially different logic.

The conditional articles of faith state that indicatives and subjunctives differ in meaning. This is consistent with their Strawson equivalence.[22]

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[21] Assuming that (i) you are in a position to deny A if and only if you are in a position to assert $\neg A$ and (ii) what is epistemically necessary is what is known, proponents of a knowledge norm on assertion will also be committed to this principle (Unger 1975; Williamson 1996, 2000; DeRose 1996, 2002; Adler 2002).

[22] The more general point, that, for an appropriate entailment relation, equivalence between two sentences does not imply sameness of meaning is familiar in the logic of conditionals (see, in particular, Stalnaker (1975), von Fintel (2001), Gillies (2009), and Cariani and Goldstein (2018)).

Indeed, one might argue that showing the conditionals to differ in their presuppositions or their logic *amounts* to showing them to differ in meaning. We do not need to defend this stronger claim here, however. What is relevant is that the adherent of Collapse is not thereby committed to the identity of indicatives' and subjunctives' meanings.

It does not, however, follow that Collapse is neutral with respect to the traditional picture of indicatives and subjunctives. While it may be compatible with attributing different meanings to the two forms, Collapse casts doubt on one of the key ways in which those meanings are typically taken to differ.

Indicative conditionals are widely held to be information sensitive (see, for example, Gibbard 1981; Veltman 1985; Yalcin 2007, 2012; Kolodny and MacFarlane 2010). The truth-value of an indicative in context appears to depend, in part, on what information that context makes salient. To see this, consider a case with the following structure, which is a symmetric variant of Gibbard (1981, 231)'s original 'Sly Pete' example.[23]

An individual (the GameMaster) places a ball under one of three cups (Red, Blue, Yellow). Two contestants (A, B) must guess which cup the ball has been placed under. Before they do, however, the GameMaster will privately reveal one of the empty cups to each of them. Suppose that the GameMaster places the ball under the Red cup. She reveals to Contestant A that it is not under the Blue cup, and to Contestant B that it is not under the Yellow cup. Intuitively, A could truthfully assert (20) (but not (21)). In contrast, B could truthfully assert (21) (but not (20)):

(20)   If the ball is not under Red, then it is under Yellow.

(21)   If the ball is not under Red, then it is under Blue.

Yet the only apparent difference between A and B's contexts of utterance is the body of information they make salient. Presumably, A's information is salient in the former, whereas B's is salient in the latter.

Subjunctives are standardly taken to be information-insensitive. A common way to motivate this is to note that in normal contexts the truth of (22)–(23), unlike their indicative variants, appears to depend entirely on the dispositions of the GameMaster—it is not sensitive to what the contestants know.

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[23] For extended discussion of cases of with this structure (both symmetric and asymmetric), see in particular Stalnaker (1984), Lycan (2001), Bennett (2003), Rothschild (2015), Goldstein (2019b), and Dorr and Hawthorne (manuscript).

(22)   If the the ball hadn't been under Red, it would have been under Yellow.

(23)   If the the ball hadn't been under Red, it would have been under Blue.

Yet according to Collapse, the truth-values of corresponding indicatives and subjunctives coincide at contexts which licenses both. Accordingly, if indicatives are information-sensitive in such contexts, subjunctives must be too.

We can make the same point in a less neutral way. An apparent symptom of the information sensitivity of indicatives is the equivalence of (20) and (24) (and equally, (21) and (25)).

(24)   The ball must be under either Red or Yellow.

(25)   The ball must be under either Red or Blue.

Someone who denied (24) could not coherently accept (20). And equally, someone who accepted (24) could not coherently deny (20). This motivates Strictness (endorsed by, among others, Warmbrod 1983; Veltman 1985; Dekker 1993; von Fintel 1999; Gillies 2004, 2009; Yalcin 2007; Starr 2014b,c; Holguín Forthcoming):

Strictness $\square(\neg A \vee B) \dashv \vDash A \rightarrow B$

Strictness says that indicative conditionals are Strawson equivalent to the epistemic necessity of the corresponding material conditional. Yet together, Collapse and Strictness imply Epistemicity.[24]

Epistemicity $\diamondsuit A \wedge (A > B) \dashv \vDash \diamondsuit A \wedge \square(\neg A \vee B)$

Epistemicity says that in contexts in which its antecedent is epistemically possible, a subjunctive is equivalent to the epistemic necessity of the corresponding material conditional. Epistemic necessity claims are uncontroversially information-sensitive.[25] So, given Strictness, Collapse implies that, in non-counterfactual contexts, subjunctives are information-sensitive too.

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[24] Proof: By the right-to-left direction of Collapse, we know that $\diamondsuit A \wedge (A > B) \vDash A \rightarrow B$. By the right-to-left direction of Strictness, Indicative Licensing, and Reduction we also know that $A \rightarrow B \vDash \diamondsuit A \wedge \square(\neg A \vee B)$. Yet $\diamondsuit A \wedge (A > B) \vDash \bigwedge \pi(A \rightarrow B)$. So, by Strawson Cut, we can conclude that $\diamondsuit A \wedge (A > B) \vDash \diamondsuit A \wedge \square(\neg A \vee B)$. Equivalent reasoning, with the left-to-right directions of each principle establishes the right-to-left direction of Epistemicity.

[25] See Hacking (1967), DeRose (1991), Egan et al. (2005), and von Fintel and Gillies (2007, 2010) for classic discussion of precisely what information they are sensitive to.

While this conflicts with the traditional picture, it is not without precedent. Others have observed that subjunctives can sometimes permit information-sensitive readings which are equivalent to their indicative counterparts (see, in particular, Edgington (2007, 211)).

For example suppose Contestant A guesses that the ball is under Yellow and Contestant B that it is under Blue. After the ball is revealed to be under Red, each contestant could justify her guess along the lines of (26), *mutatis mutandis*. And, equally, a third party could rationalize their guesses along the lines of (27):

(26)   Ah well—I had a 50% chance of guessing correctly: if it hadn't been under Red, it would have been under Yellow/Blue.

(27)   Contestant A/B's guess wasn't so bad. After all, she knew that if it hadn't been under Red, it would have been under Yellow/Blue.

Here, both (26) and (27) ascribe past possession of the information that the contestant would have expressed with the corresponding indicative prior to learning the location of the ball. Similarly, Khoo (2015) has recently argued for the availability of an information-sensitive reading of subjunctives on the basis of assumptions about the contribution of indicative and subjunctive mood.

Nevertheless, the mere availability of an information-sensitive reading of subjunctives is insufficient to fully address the concerns raised by Collapse. We need to explain why, in contexts which license both, subjunctives frequently permit an information-insensitive reading that is not available for the indicative. And we also need to explain why, in the same contexts, the information-sensitive reading of the indicative is frequently unavailable for the subjunctive. I turn to this issue in the following (and final) section.

4. Collapse in context

4.1. *Adams pairs*

In many (non-counterfactual) contexts, judgements about corresponding indicatives and subjunctives diverge. Call instances of this phenomenon 'Adams pairs' (following Adams 1970, 1975).[26]

Here is one example. Sherlock is investigating the murder. No one can be ruled out, but some suspects are more naturally suited to the

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[26] The *locus classicus* here involves differences in the level of paranoia required for one to accept certain indicatives versus subjunctives about JFK's assassination.

crime than others. The vicar, in particular, is notoriously clumsy and inept. Suppose that an initial search of the murder scene has produced no evidence. In this context, (4a) appears true (as uttered by Sherlock, at least). Intuitively, it reports Sherlock's information that either the vicar is innocent or he covered his tracks well.

(4) (a) If the vicar did it, he didn't leave any clues.
     (b) If the vicar had done it, he wouldn't have left any clues.

In contrast, (4b) appears false (or at least uncertain). Intuitively, rather than reporting Sherlock's information, it makes a (dubious) claim about the vicar's disposition to commit murder competently. Both conditionals are licensed in the context at which they are evaluated. Hence it seems we have a counterexample to Collapse.

Our judgements about (4a) and (4b) are robust. But they are not quite conclusive. Collapse requires the status of indicatives and subjunctives to coincide at any context which licenses both. At contexts which do not license both, it imposes no constraints. If, prior to evaluating one member of the pair, hearers are required to modify the common ground of the context so that it no longer licenses the other, then despite appearances, our judgements will not correspond to a counter-instance to Collapse.

In fact, there is reason to think that this is precisely what occurs. As Shanon (1976) and von Fintel (2004) observe, the availability of 'Hold up/Hey, wait a minute!' responses provides a test for the accommodation of not-at-issue material.

In response to an utterance of (4b) in its specified context, a hearer could reasonably object 'Hey, wait a minute! We can't rule out that the vicar *did* do it yet!'[27] In contrast, no such response is available to its indicative variant. This suggests that (4b)—unlike (4a)—triggers a not-at-issue implication in context that the vicar must be innocent. If, prior to evaluating it, hearers accommodate this material, then the subjunctive will be assessed in a different context to the indicative. Accordingly, there will be no reason to expect that judgements about the two will coincide.

This explanation receives further support from the conditionals' behaviour in certain embedded environments.

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[27] Note that the availability of this response is fragile. In particular, it is blocked in cases where the subjunctive is employed as part of an argument, via *modus tollens*, for the negation of its antecedent. This conforms to a more general rule that 'Hold up/Hey, wait a minute!'-responses are illicit in cases in which the speaker is explicitly engaged in an argument in favour of the relevant not-at-issue material.

(28) (a) ?? Although the vicar would've left some clues if he'd done it, he didn't leave any if he did it.

(b) ?? Although the vicar didn't leave any clues if he did it, he would've left some if he'd done it.

As noted above, 'although' prevents intra-sentential shifts in context. While each conditional appears acceptable in isolation, the fact that they degrade in the embedded environment is evidence that the original judgements were dependent on a shift in context.

It is important to note that the data here are subtle. An agent who endorses an indicative can positively evaluate an utterance of the contrary subjunctive (even if they cannot assert it outright themselves).[28]

(29) A: If the vicar had done it, he would have left some clues.

B: That's probably true. Still, we can't rule out that he did it (and if he did, he didn't leave any).

If positive evaluation of A's utterance in (29) required accommodating the falsity of the antecedent, wouldn't we expect B's second utterance to be odd?

Not necessarily. Someone may temporarily accommodate a not-at-issue implication of an utterance, evaluate it positively in the accommodated context, and yet resist permanently adding the accommodated material to the common ground.

(30) A: Tom always orders soda at the bar, so he must have stopped drinking alcohol.

B: That's probably true. Still, we can't rule out that he never drank alcohol.

(31) A: Ada ticked +1, so she must be bringing her partner to the wedding.

B: That's probably true. Still, we can't rule out that she doesn't have a partner and is bringing a friend instead.

In each of (30) and (31), rather than rejecting A's utterance as infelicitous, B accommodates its not-at-issue content and, in the resulting context, evaluates the utterance positively. However, having done so, B goes on to resist incorporating the not-at-issue content into the common ground permanently.

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[28] I am grateful to a referee for *MIND* for raising this kind of example.

I want to suggest that the same phenomenon can explain what is happening in (29). B temporarily accommodates the not-at-issue implication that the vicar must be innocent. In the resulting context, B takes the subjunctive to be highly probable.[29] Nevertheless, since B does not wish to rule out that the vicar did it, they resist permanently adding either the subjunctive or its implication to the common ground.

If an assertion of the subjunctive member of an Adams pair carries a not-at-issue implication that its antecedent is ruled out in context, this implication cannot take the form of a presupposition (Iatridou 2000). First, such a presupposition would be incompatible with the observation that subjunctives permit non-counterfactual uses (see Anderson (1951), Stalnaker (1975) and von Fintel (1998), along with §4.3 below for discussion). Second, as we will shortly see, the implication appears defeasible— in appropriate discourse contexts, it is capable of being cancelled. Yet the presuppositions of (unembedded) sentences are standardly taken to be uncancellable (Karttunen 1971, 63; Gazdar 1979; Abbott 2006; Simons 2013; Abrusán 2016). Accordingly, it seems more plausible that it arises via some form of pragmatic mechanism.

4.2. *The fluidity of context*

Differences in the presuppositions of expressions can give rise to corresponding differences in their pragmatic behaviour. For instance, the determiners 'All' and 'both' are standardly taken to differ only at the level of their presuppositions. The latter, unlike the former, carries a presupposition that its NP complement has exactly two individuals in its extension.

(32)   (a)   All of the victim's children are suspects.

        (b)   Both of the victim's children are suspects.

This difference in presuppositions is accompanied by two differences at the level of pragmatics. First, use of the former is dispreferred in contexts in which the latter is licensed. That is, if it is common ground that the victim had exactly two children then, unlike (32b), an utterance of (32a) will be decidedly odd. Second, and relatedly, use of the former will typically implicate that the presuppositions of the latter are not satisfied. That is, an utterance of (32a) suggests that the victim has at least three children.

While implementations differ in detail, there is broad consensus on the explanation of these observations, originating with Heim

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[29] Indeed, B may agree that A's utterance, in its accommodated context, conveys facts about the vicar's dispositions which make it unlikely he was the murder.

(1991, p. 515) and Sauerland (2003, 2008).[30] All other things being equal, it is assumed that speakers are under pragmatic pressure to use sentences with stronger presuppositions. Or, stated a little more carefully:

Maximize Presupposition If (i) $\phi \dashv \vDash \psi$, (ii) $\pi(\phi) \subset \pi(\psi)$, and (iii) $c \vDash \bigwedge \pi(\psi)$, then there is a preference for asserting ψ over ϕ in c.

Maximize Presupposition says that if ϕ and ψ are Strawson-equivalent but the presuppositions of the latter outstrip the presuppositions of the former, then as long as both are licensed, ψ should be favoured over ϕ.[31]

Maximize Presupposition directly explains why the use of 'all' is marked in contexts in which it is common ground that the victim had exactly two children. However, it also explains why, where the common ground is neutral about the number of children the victim has, use of 'all' carries a not-at-issue implication that the victim had three or more children (sometimes described as an 'anti-presupposition'). Assume 'both' and 'all' both carry a presupposition of plurality. The presuppositions of (32b) are strictly stronger than the presuppositions of (32a) (in virtue of the additional presupposition of duality associated with 'both'). So, by Maximize Presupposition, if the speaker took the former to be licensed, she would have used it. Since she didn't, she must assume that the speaker has at least three children.[32] Accordingly, absent objection, this information will be accommodated, leading it to be incorporated into the common ground prior to evaluation of her utterance.

Crucially, the same reasoning generalizes directly to the case of conditionals. The presuppositions of subjunctives are a strict subset of the presuppositions of indicatives. Unlike the former, the latter presuppose that their antecedent is epistemically possible. Accordingly, that a speaker uses a subjunctive can be expected to implicate that she takes its antecedent to be epistemically impossible. Absent objections, this information will be accommodated, leading it

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[30] There is room for disagreement over the status of Maximize Presupposition as a pragmatic principle; see Schlenker (2012) and Lauer (2016) for discussion.

[31] Since they are orthogonal to the present discussion, I set aside issues involving local accommodation, though see Percus (2006) and Singh (2011) for discussion.

[32] As with normal scalar implicatures within a neo-Gricean framework, the derivation requires the idealization that the speaker is opinionated about the presuppositions of the alternatives to her utterance. Absent this assumption, we will instead derive the implicature that the speaker is not certain that the presupposition of (32b) is satisfied. See Sauerland (2008, §2.1) for discussion.

to be incorporated into the common ground prior to evaluating her utterance.[33],[34]

While this explains the not-at-issue implication of subjunctives which the 'Hold up/Hey, wait a minute'-test first indicated, it does not go all the way to reconciling our judgements about Adams pairs with Collapse. We have shown that the subjunctive member of a pair can be expected to trigger accommodation to a context whose common ground entails the negation of the presuppositions of the indicative. Since the two conditionals are evaluated at distinct contexts, judgements about them can diverge without threatening Collapse.

However, it is not sufficient merely to explain how the pair can elicit different responses. We must also explain why, in its accommodated context, the subjunctive can receive an information-insensitive reading (one which depends entirely on the vicar's dispositions). In line with the discussion in §3, to do this we need to show that the presuppositions of the indicative will be unsatisfied in the new context. Here, the connection between the behaviour of epistemic modals and what is common ground is crucial.

Let $CG(c)$ denote the common ground of c—that is, the set of claims which are mutually accepted by the participants in c (see Stalnaker and Thomason (1970); Stalnaker (1973, 1974) for classic discussion). First, note that where it is common ground that A is epistemically necessary, it can be expected to also be common ground that A. That is:

If $CG(c) \vDash \Box A$, then $CG(c) \vDash A$.

Note that this merely constrains membership of the common ground. Hence, it is neutral with respect to the principle that 'must' is weak— that is, that $\Box A \nvDash A$ (for discussion, see Karttunen (1972), Veltman

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[33] As a referee for *Mind* points out, this argument depends on the assumption (following Heim 1992) that presuppositions project in the same way in the antecedents of indicatives and subjunctives (cf. Mackay 2019). Ippolito (2003, 2006) observes that presuppositions of past-tensed subjunctives are evaluated relative to the reference time of the antecedent, rather than the utterance time. A similar point appears to hold for past-tensed indicatives. Accordingly, to ensure their projection behaviour is the same, it is crucial that tense is held fixed across corresponding indicatives/subjunctives.

[34] In appealing to Maximize Presupposition to explain the not-at-issue implication of subjunctives, my account follows that of Leahy (2011, 2015, 2018) in all important respects (see Ippolito (2003) and Schlenker (2005) for related previous work). Leahy presents his account within a neo-Gricean approach to Maximize Presupposition (Leahy (2016); cf. Schlenker (2012)). However, this commitment is inessential to the broad structure of the argument, and I remain neutral on how Maximize Presupposition is to be derived. I am grateful to a referee for Mind for drawing my attention to this literature.

(1985), Kratzer (1991), and Lassiter (2016); for rebuttal, see von Fintel and Gillies (2010, 2021)).

Second, *A* cannot be epistemically possible at a context if its prejacent is incompatible with the common ground. That is:

$c \vDash \Diamond A$ only if $\text{CG}(c) \nvDash \neg A$.

Yet together, these constraints imply that in the context resulting from accommodating the not-at-issue implication of the subjunctive, the corresponding indicative will no longer be licensed. Suppose that a speaker utters $A > B$ in c. Assuming that $\text{CG}(c)$ does not entail $\Diamond A$, cooperative hearers can be expected to accommodate the implication that the indicative is unlicensed. This will result in a new context, c', such that $\text{CG}(c) \cup \{\neg \Diamond A\} \subseteq \text{CG}(c')$. Yet if $\neg \Diamond A \in \text{CG}(c')$, then $\text{CG}(c') \vDash \Box \neg A$. So, from our first observation, it follows that $\text{CG}(c') \vDash \neg A$. Yet by our second observation, it follows that $c' \nvDash \Diamond A$. So $A \rightarrow B$ will not be licensed at c'.

Here is a summary of where we are: in contexts at which their antecedent is epistemically possible, subjunctives are equivalent to the corresponding indicatives. When evaluated in such a context, the former will receive an information-sensitive reading. Indeed, according to EPISTEMICITY, a subjunctive in a non-counterfactual context will simply express that it is epistemically impossible for its antecedent to be true but its consequent false.

However, subjunctives uttered in non-counterfactual contexts are not always evaluated at their context of utterance. Rather, due to pragmatic pressure generated by Maximize Presupposition, they often implicate that their antecedent is epistemically impossible. Accommodating this information returns a new context. Yet once this information is accommodated, Collapse no longer imposes a requirement that the subjunctive will receive an information-sensitive reading.

4.3. Coda

Not all uses of subjunctives trigger context shifts of the kind just discussed. Before I conclude, it is worth considering two notable categories of exception. Unlike uses of subjunctives forming Adams pairs, we should expect uses in these categories to be information sensitive, as a corollary of Collapse.

First, note that the conditionals in the subjunctive instances of If/And and And/If—that is, (11a–c) and (5a–b′))—do not implicate that their antecedent is not epistemically possible; in neither case is a

'Hold up/Hey, wait a minute!'-response available. Accordingly, there is no reason to posit covert context shift in the arguments.

(11) (a) Maybe the butler was in the library.
      (b) If he had been, maybe he'd have seen the murder.
      (c) So, maybe the butler was in the library and saw the murder.

(5)   (a) Maybe the butler was in the library and saw the murder.
      (b′) So, if he had been, maybe he'd have seen the murder.

This should be unsurprising. Not-at-issue implicatures generated by Maximize Presupposition, like other pragmatic implicatures, are widely recognized to be cancellable (see, in particular, Lauer (2016, §2.2)). In both (11a–c) and (5a–b′), the speaker explicitly asserts that she takes the antecedent of the subjunctive to be epistemically possible. Hence any implication that she takes the presuppositions of the corresponding indicatives to be false should be defeated.

However, explicit cancellation is not the only way in which the implicature can be cancelled. Consider the indicative and subjunctive variants of Anderson (1951)'s minimal pair:

(33) (a) If Jones has taken arsenic, he's showing the symptoms he's actually showing.
      (b) If Jones had taken arsenic, he'd be showing the symptoms he's actually showing.

(33a) and (33b) differ in their communicative effects. As Stalnaker (1975) and von Fintel (1998) observe, the latter can naturally figure in an argument that Jones's symptoms are typical of arsenic poisoning. In contrast, the former carries a strong sense of redundancy, and cannot be expected to figure in a successful argument for anything.

To explain this contrast, we need to compare how each conditional changes the information of an agent who comes to accept it. Note first that assuming Strictness, an agent who already takes it to be possible that Jones took arsenic will not need to change her information at all.[35] So consider instead an agent who antecedently rules this out (either through ignorance or by failing to consider it as a possible explanation).

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[35] If such an agent temporarily accommodates the not-at-issue implication that the antecedent is ruled out (as discussed in (§4.1)), (33b) can still convey non-trivial information about the connection between arsenic and Jones's symptoms. Thus, someone who acknowledges the possibility of arsenic poisoning may argue as in (¥):

   (¥) Maybe Jones took arsenic. If he had, he'd be showing the symptoms he's actually showing. So it is likely he did take it.

In coming to accept (33a), the agent must first accommodate its presupposition, by ruling in the possibility that Jones took arsenic. In doing so, she will hold fixed as much as possible, including Jones's symptoms. Having accommodated the presupposition, however, she does not need to make any further changes to her information. Since she accepts its consequent, she will already trivially accept the indicative. In particular, she need not form any beliefs about whether Jones' symptoms are typical of arsenic poisoning.

In coming to accept (33b), in contrast, the agent does not need to accommodate any presupposition. Instead, for an agent who takes its antecedent to be ruled out, coming to accept a subjunctive, $A > B$, typically involves coming to accept that B is causally dependent on A. Accordingly, to accept (33b), the agent simply needs to accept that arsenic poisoning would lead to symptoms like Jones's. This in turn may lead her to re-evaluate her original diagnosis, as an indirect consequence of the utterance (thought it need not).[36]

Accordingly, the contrast between (33a) and (33b) can be explained in terms of their differing effects on an audience's information. Whereas the latter can be used to communicate the information that arsenic poisoning leads to Jones's symptoms, the former cannot.

Given Indicative Licensing, that (33a) appears redundant is unsurprising. After all, it presupposes precisely what it is, intuitively, intended to establish. (33b) has no such presupposition and, hence, can be used in an argument that Jones might have taken arsenic. Crucially, (33b) also lacks the implicature that its antecedent is ruled out in context. Again, this is to be expected. The implicature of the subjunctive is generated by the need to explain why a speaker did not use the indicative. Yet in this case there is an independently available explanation: the indicative form presupposes what the speaker intends to establish.

The same behaviour is exhibited by other expressions which trigger accommodation. Suppose that it is unknown whether Ada has a partner, but it is known she came to the party alone. Then someone may argue as in (§):

(§) Maybe Ada doesn't have a partner. It would be surprising for her not to have brought her partner to the party. So it is likely she doesn't.

Here, the speaker relies on temporary accommodation of the not-at-issue content that Ada has a partner in evaluating the second utterance, before going on to reject this as unlikely in the last utterance.

[36] It seems right that accepting that Jones may have taken arsenic is not a direct consequence of accepting the subjunctive. After all, someone with independent evidence might agree with an utterance of (33.b), yet deny that Jones took arsenic (for instance, because they already have the toxicology report ruling it out).

Accordingly, her interlocutors cannot conclude from her use of the subjunctive that she took indicative to be unlicensed—indeed, for her to do so would be incompatible with the intuitive point of her utterance.

5. Conclusion

Collapse says that corresponding indicatives and subjunctives are Strawson equivalent; in contexts at which both are licensed, the one implies the other. Collapse may be surprising, but it is not heretical. Since the presuppositions of indicatives and subjunctives diverge, it is compatible with their exhibiting substantially different logical properties. As the prior section demonstrated, it is also compatible with differing judgements about the members of Adams pairs.

There is a broad theoretical picture which accords nicely with this account.[37] Conditionals (both indicative and subjunctive) involve the evaluation of their consequent at a body of information which entails their antecedent. Where their antecedent is compatible with the contextually salient information, the body of information at which the consequent is evaluated will be a subset of the information which is contextually salient. However, where it is incompatible, the contextually salient information places no constraints on the body of information at which the consequent is evaluated. Assume that epistemic modals and conditionals are evaluated with respect to the same contextually salient information. Then, given Indicative Licensing, indicatives will receive an information sensitive reading where licensed—their antecedents will always be evaluated at a subset of the contextually salient information. Subjunctives will receive an information sensitive reading in contexts which are non-counterfactual. However, when evaluated in counterfactual contexts (as, I have suggested, given their pragmatic behaviour, they standardly are) they will be insensitive to the contextually salient information.

This picture is an instance of the popular idea that the differences between indicatives and subjunctives are exhausted by differences in their

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[37] An alternative approach would be to try to accommodate the same data under a variably strict account of the indicative and subjunctive (Stalnaker 1968, 1975; Stalnaker and Thomason 1970; Lewis 1973). On this picture, each context c determines a common ground, $CG(c)$, and unique selection function, f_c. $A \rightarrow B$ presupposes that $CG(c) \cap \llbracket A \rrbracket \neq \varnothing$ and that for all $w \in CG(c) : f_c(w, \llbracket A \rrbracket) \in CG(c)$. $A > B$ is presupposition free.

This picture will be able to explain the felicity of 'Hey, wait-a-minute'-responses to (4b) as well as the infelicity of embeddings like (28a–b). It will also validate Collapse. However it will fail to validate one or both of subjunctive If/And and And/If, depending on what account of conditionals with ◇-embedded consequents is adopted.

presuppositions (proponents of the latter include Karttunen and Peters (1979), von Fintel (1999) and arguably, Stalnaker (1975, 1984)). Any other variation in their behaviour is attributable to this basic difference. If any form of this idea is correct, then where both are licensed, they will exhibit the same truth conditions. Nevertheless, as long as their presuppositions do not coincide fully, the two forms of conditional may have different pragmatic effects, even in those contexts which license each.[38]

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