Reverse Sobel sequences:
What is being cancelled here?

David Krassnig

Abstract In this paper, we show that an account centred around modal subordination and contrastive topic may account for most if not all of the known data on reverse Sobel sequence felicity. We show that contrastive stress in rSSs often targets the auxiliary verb and that, in doing so, we actually target the tense-aspect-mood information that is encoded by it. By treating tense-aspect-mood as a type of bound pro-form, adopting the pro-form semantics of Jacobson (2000; 2004), we show that, in doing so, we are actually trying to contrast the two conditionals' domains of quantification. As such, the contrastive topic is successful iff the two domains are disjoint, preventing a modally subordinate reading, allowing for the possibility of reverse Sobel sequence felicity.

1 Introduction

Sobel sequences (SS) and reverse SS (rSS) play a pivotal role in the debate on how the meaning of conditionals should be modelled. Attributed to Sobel (1970), SSs refer to conditional sequences that adhere to the pattern of 'If φ, χ; but if φ and ψ, not χ'. Their standard example is provided in (1).

(1)   If the USA threw its weapons into the sea tomorrow, there would be war; but if the USA and the other nuclear powers all threw their weapons into the sea tomorrow, there would be peace.

(D. K. Lewis 1973: 10)

For (1), φ refers to the US throwing its weapons into the sea, and ψ refers to all other nuclear powers throwing their weapons into the sea, thereby covertly adhering to the form of SSs despite of its seeming overt deviance.

The variably-strict approach to conditionals, as started off by Stalnaker (1968) and D. K. Lewis (1973), argues that the validity of such SSs rules out

the possibility of the conservative strict approach to conditionals, as it was originally put forth by C. I. Lewis (1912; 1914; 1918): He argued that 'If φ, χ' was true iff the respective material implicature holds true for all possible worlds, as defined in (2) using the modal logic semantics of Kripke (1963):

(2) $[\![\text{If } \varphi, \chi.]\!]^g = \square(\phi \to \chi)$

Using (2), we would predict SSs to be contradictory, as we make two opposing claims regarding χ for all $\varphi \wedge \psi$-worlds: The φ-conditional claims that all φ-world are χ-worlds (which incldudes all $\varphi \wedge \psi$-worlds). The subsequent $\varphi \wedge \psi$-conditional then claims that all $\varphi \wedge \psi$-worlds are, in fact, not χ-worlds.

Instead of quantifying over all possible worlds, D. K. Lewis (1973) argued that conditionals only quantify over a subset of worlds: Specifically, he argued that 'If φ, χ' is true iff the consequent χ is true in all antecedent worlds that are maximally close to the evaluation world. World closeness is defined via world similarity: The more deviances are introduced to some world w in comparison to some evaluation world w_0, the less similar and therefore less close w is considered to be to w_0. This way, a world similarity ordering is created where all worlds are ranked in accordance to their respective world similarity values in relation to the central evaluation world. This ordering is visualised in Figure 1.
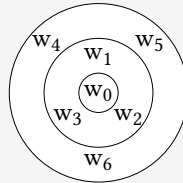

Figure 1 Similarity ordering with respect to some evaluation world w_0, where the worlds are ordered as follows: $w_0 < w_1, w_2, w_3 < w_4, w_5, w_6$.

This variably-strict definition is formalised in (3), where the accessibility function $f_\leqslant(\phi, w_0)$ returns the set of φ-worlds that are closest to w_0.

(3) $[\![\text{If } \varphi, \chi]\!]^g = [\lambda w_s.\forall v : v \in f_\leqslant([\lambda w'_s.\phi(w')], w)[\chi(v)]]$

Using (3), a SS would no longer result in contradictory claims: Assuming that φ and ψ each introduce a change to their respective worlds in comparison to w_0, the φ-conditional and the $\varphi \wedge \psi$-conditional quantify over two sets of

worlds that are unequal in world closeness and therefore disjoint to one another. This is visualised in Figure 2.
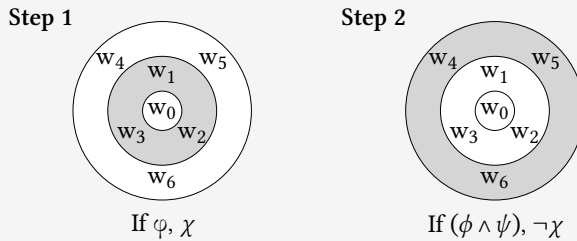

Step 1 — If φ, χ

Step 2 — If $(\phi \wedge \psi)$, $\neg\chi$

Figure 2 Domains of quantification according to a variably-strict semantics.

As the variably-strict semantics is insensitive to discourse order, the traditional variably-strict approach would predict that SSs should be fundamentally reversible. However, Heim (1994) noted that rSSs are actually infelicitous by default, as exemplified by (4).

(4)   If the USA and the other nuclear powers all threw their weapons into the sea tomorrow, there would be peace; #but if the USA threw its weapons into the sea tomorrow, there would be war.   (Heim 1994)

The infelicity of rSSs is so prevalent that it gave rise to the (semi-)dynamic strict approach to conditionals (von Fintel 2001; Gillies 2007) which was designed such that SSs are optionally felicitous and rSSs obligatorily infelicitous. However, the discovery of felicitous rSSs by Moss (2012), such as the one in (5), caused a return to the more permissive variably-strict approach.

(5)   *Holding up a dry match, with no water around.*
        If I had struck this match and it had been soaked, it would not have lit. But if I had struck this match, it would have lit.
                (adapted from Stalnaker (1968: 106) by K. Lewis (2018: 487))

To then account for the infelicity of the majority of rSSs, pragmatic components were added on top of the conditional semantics such that they selectively rule out some but not all rSSs. Moss (2012) proposed that said additional pragmatic mechanism corresponds to the principle of epistemic irresponsibility. Later, other possible mechanisms were proposed, such as: imprecision and precisification (Klecha 2015; Krassnig 2020), modal subor-

dination between conditionals (Klecha 2015; Krassnig 2020), the need for contrastive stress in the second antecedent (Klecha 2015; Krassnig 2020), a relevance-based dynamic world closeness ordering (K. Lewis 2018), and a specificity-constraint-based approach (Ippolito 2020).

In this paper, we formalise the contrast-based account briefly sketched out by Krassnig (2020), providing a unified explanation for the infelicity of rSSs via the interaction between contrastive stress, modal subordination, and the world closeness ordering—and how the latter is impacted by a number of factors. To this end, we detail the empirical factors that influence the felicity of rSS in Section 2, using this information to incrementally build up a formal account in the same section, starting in Section 2.1.2.

2 Creating a model for (reverse) Sobel sequences

The current main issue surrounding rSSs is which factors actually influence rSS (in)felicity. To this end, multiple factors have been identified: (i) contrastive stress in the antecedent of the φ-conditional is one of the main sources of rSS felicity (Klecha 2015; Krassnig 2020); (ii) contrastive stress is often placed on the auxiliary verb when no other suitably contrastable item is present (Krassnig 2020); (iii) causal links between φ and ψ typically reduce the acceptability of rSS (Klecha 2014; 2015); (iv) non-counterfactuality reduces the acceptability of rSS; and (v) rSS are generally felicitous whenever the possibility of ψ is sufficiently dismissible (Moss 2012)—either by context or by an interjection in between the rSS's conditionals. We provide empirical data for each data point in subsequent subsections.

The typical felicity distribution for (r)SS is summarised in Table 1. In this

Table 1 Felicity distribution for (r)SSs, broken down by causality, counterfactuality, and whether or not the possibility of ψ was dismissed. Contrastive stress is assumed on the auxiliary verb for all sequences.

	Acausal				Causal			
	Non-Counterfactual		Counterfactual		Non-Counterfactual		Counterfactual	
	Not Dismissed	Dismissed	Not Dismissed	Dismissed	Not Dismissed	Dismissed	Not Dismissed	Dismissed
SS	✓	N/A	✓	N/A	✓	N/A	✓	N/A
rSS	#	✓	✓	✓	#	✓	#	✓

section, we successively deal with each felicity factor on an empirical as well as on a model-theoretical level. To this end, we start off with contrastive stress in Section 2.1, using the insights gained here to construct the funda-

mentals of our rSS model, using acausal counterfactual rSS as a basis. We then show in Section 2.3 how a causal link between φ and ψ degrades the acceptability of rSS and how our model can naturally account for this effect. In Section 2.4, we then show how non-counterfactuality has essentially the same effect as causal links in the antecedent, and extend our account from Section 2.3 to account for these cases as well. Finally, in Section 2.5, we show how the (responsible) dismissal of ψ as an epistemic possibility virtually ensures rSS felicity regardless of causality or non-counterfactuality and show that this naturally follows from our account.

2.1 Contrastive stress in the antecedent

Klecha (2015: 134) has argued that rSSs may only be felicitous if their respective antecedents are contrastively stressed against one another. To exemplify this, he put forth and contrasted the two examples (6) and (7).

(6)   *On a construction site, a steel beam fell to a spot close to Daryl, who was not wearing a helmet and who is being addressed by Ida and Aaron.*
   a.   *Ida:* If you had been standing there and wearing a helmet, you wouldn't have been killed.
   b.   *Aaron:* #But if you had been standing there, you would have been killed.   (Klecha 2015: 133)

(7)   *Karlos is known for being fun at parties, but his house is small & smelly.*
   a.   *Ben:* If Karlos had hosted the party, it would not have been a good time.
   b.   *Martina:* But if Karlos had COME to the party, it would have been a good time.   (Klecha 2015: 134)

Klecha (2015) argued that (6) may be infelicitous because the antecedent of the φ-conditional is a syntactic subset of the preceding φ∧ψ-conditional: It therefore does not have an overtly different lexical item in its antecedent to contrastively stress. He argued that (7) is felicitous partly because *come* can be contrastively stressed against *hosted*.[1]

While we agree with Klecha (2015) that contrastive stress is generally a

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[1]It should be noted that (7) is a rSS in a manner similar to the nuclear powers example in (4); i.e., it covertly adheres to the rSS pattern. In this case, Klecha (2014: 151) argued that *to host a party* entails *to come to a party*. Therefore, the ψ-conditional is also a φ∧ψ-conditional.

felicity-enabling factor, there appears to be more to the story: Von Fintel (2001) has already pointed out examples where there is an overtly different lexical item in the second antecedent, but where contrastive stress does not yield a felicitous rSS, as shown in (8).

(8)   a.   If I ran really fast to the store, it might still be open.
        b.   #But if I WENT to the store, it would be closed by the time I got
               there.   (von Fintel 2001: 146)

Furthermore, Krassnig (2017: 328) pointed out that some rSSs such as (5) serve as a counterexample to the assumption of Klecha (2015) that contrastive stress requires an overtly different lexical item in the second antecedent. In fact, Krassnig (2020: 459ff) pointed out that the contrastive stress typically falls upon the auxiliary verb for all felicitous rSSs that do not carry an overtly different lexical item in the second antecedent—though the required force of the contrastive stress as well as an optional emphatic stress on *would*[2] appears to be subject to speaker variance. We show such a contrastively stressed rSS in (9), where we modified (5) to show which item is actually contrastively stressed.

(9)   *Holding up a dry match, with no water around.*
        If I had struck this match and it had been soaked, it would not have lit.

        a.   #But if I had struck this match, it would have lit.
        b.   But if I HAD struck this match, it would have lit.

Here, the majority (n=7) of native speakers we have consulted (n=12) considered (9a) to be infelicitous when pronounced entirely without any contrastive inflection whatsoever, but considered the conditional in (9b) to be felicitous (though with varying degrees of acceptability). However, a minority of the native speakers we consulted considered both variants to be similarly degraded (n=3). Opposite to this, another minority considered some rSSs to be felicitous even without (self-reported) contrastive stress (n=2). These rSSs, however, required other atypical properties such as interjections in between the rSS's conditionals, like the ones we show in Section 2.5.

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[2] As this appears to be an optional stress, we do not take this further into account in this paper. We leave that open to future research.

The general intuitive effect of contrastive stress in rSS appears to be as follows: By contrastively stressing an overtly different lexical item or the auxiliary verb in the second antecedent, we indicate that ψ no longer needs to be taken into account. In other words, we indicate that, given our world knowledge at this time, ψ should not follow from the assumption of φ and that ψ is not anticipated to occur independent of φ. Using (9b) as an example, the speaker uses contrastive stress to indicate that we can dismiss the possibility of the match being wet because we can currently observe the fact that the match being held up is, in fact, dry.[3]

But why would this need to be actively indicated? After all, the variably-strict approach itself is not affected by order and the disjoint nature of the worlds considered should be self-evident, as previously shown in Figure 2. We provide an explanation for this in Section 2.1.1, where we show why rSSs without contrastive stress are routinely infelicitous. This is followed by Section 2.1.2, where we explain why contrastive stress is typically required and how it helps us escape the infelicity-deriving mechanism shown in S 2.1.1. Finally, in S 2.1.3 we show why contrastive stress may be placed upon the auxiliary verb, what effect this has, and which factors determine its success in rendering the rSS felicitous.

2.1.1 Why are rSSs routinely infelicitous?

It is a well-known fact that *would* is sensitive to modal subordination, as demonstrated by (10), where the speaker's family's driving through Ontario is anchored to the preceding sentence's context of going to Albion.

(10)   My family used to go to Albion. We would drive through Ontario.
                                                              (Klecha 2011: 378)

This would naturally extend to conditionals that make use of *would* as well. However, not all conditionals make use of modal subordination. We show this in (11), where most people would not use modal subordination.

(11)   If John had killed his boss, he would've spent his summer in prison; but if John had won the lottery, he would've gone on a cruise around the world.

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[3]Here, we wish to note that this intuitive effect of the contrastive stress has been confirmed by a number of native speakers—with whom we share this intuition.

However, many conditionals are read with modal subordination such that the antecedental content of a preceding φ-conditional is covertly adjoined to a subsequent ψ-conditional. This way, the latter is interpreted as a $\varphi \wedge \psi$-conditional, as shown in (12a). Crucially, this is done even when modal subordination would actively render an otherwise felicitous sequence infelicitous, as shown in (12b).

(12)   *John is married to Mary. He is a good liar and a flirt. Mary always suspected him of cheating and once contemplated hiring a very competent private investigator but ultimately decided against it. However, John has never actually cheated on Mary, unbeknownst to her.*

a.   If John had cheated on Mary, she would've never found out about it; but if she had hired the private investigator, he would have brought her evidence of John's cheating.

b.   If John had cheated on Mary, she would've never found out about it; ??but if she had hired the private investigator, he would have told her that John didn't cheat on her.

We argue that this is the main source of rSS infelicity: rSSs are especially prone to being subjected to modal subordination and the φ-conditionals of rSSs thereby routinely become covert $\varphi \wedge \psi$-conditionals. This results in contradictory claims with regards to the status of χ in the closest $\varphi \wedge \psi$-worlds, leading to infelicity. It should be noted that this occurs even if the closest φ-worlds would have been a disjoint set of worlds from the closest $\varphi \wedge \psi$-worlds according to a variably-strict semantics (Klecha 2015: 134).

But why are rSSs especially prone to modal subordination? To motivate this, we need to determine when conditionals become modally subordinate and when they do not—and why rSSs always seem to satisfy the conditions required for modal subordination. Here, we would argue that conditionals are modally subordinated to a preceding conditional's antecedent whenever the two antecedents can be construed to be topically related: E.g., in (11), there is no clear reason why killing one's boss and winning the lottery would be part of a single discourse topic centred around the first conditional: killing ones boss and winning the lottery are seldom connected by our world knowledge and expectations.

In (12), however, this topical connection is far more easily established. The antecedents of conditionals typically establish the current aboutness topic of their sentence (Ebert & Ebert & Hinterwimmer 2014). We would argue that this established aboutness topic may survive the end of its associated sentence. The subsequent conditional antecedents are then analysed as sub-specifying the established aboutness topic whenever it is contextually sensible to do so. This causes the subsequent conditional to become modally subordinated in the process: E.g., "What if John killed his boss?" would be contextually unexpected to be sub-specified to "What if John killed his boss and won the lottery?", but it is less of a stretch to relate "What if John cheated?" to "What if John cheated and Mary hired a PI?". This is, of course, subject to a degree of subjective speaker variance.

For rSSs, we would argue that this connection is essentially guaranteed to be available—after all, for rSSs, the two antecedents are in a propositional subset relationship such that $\varphi \wedge \psi \subseteq \varphi$. As such, there should be no difficulties to consider the two antecedents topically related. This would cause the aboutness topic established by the preceding $\varphi \wedge \psi$-conditional (i.e., "What if $\varphi \wedge \psi$?") to extend to the subsequent φ-conditional, causing the latter to become modally subordinated to the former in its reading, thereby causing the conditionals to become contradictory by nature.

As such, rSSs would be predicted to be typically infelicitous. The only way for a rSS to be rendered felicitously is to escape modal subordination. The only ways to accomplish this would be: (i) If its two topics were not considered to be topically related in the first place, or (ii) if the topic of the $\varphi \wedge \psi$-conditional is somehow cancelled before the φ-conditional is evaluated. The former seems generally unlikely, but we do not wish to exclude the possibility that a more permissive minority of speakers might have gone this route. The latter, on the other hand, is where the observed contrastive stress comes into place.

2.1.2 Why is contrastive stress necessary?

One of the methods to indicate that two topics are clearly distinct and demarcated from one another is the use of a contrastive topic (cf. Krifka 2007; Lee 2017; Van Rooij & Schulz 2017; Yabushita 2017), which is standardly realised via a form of emphatic stress. Krifka (2007: 44ff), specifically, covers the use of contrastive topic for aboutness topics. An example of this is shown

in (13), where it should be noted that Krifka (2007) equates focus within topic to contrastive topic.

(13)   a.   What do your siblings do?
        b.   [My [SIster]$_{Focus}$]$_{Topic}$ [studies MEDicine]$_{Focus}$, and
              [my [BROther]$_{Focus}$]$_{Topic}$ is [working on a FREIGHT ship]$_{Focus}$.
                                              (adapted from Krifka 2007: 44)

Here, the contrastive stress—or, more specifically, the contrastive topic—indicates that we first talk about what my sister does and then talk about what my brother does and that the two topics are independent and delineated from one another (i.e., they are non-overlapping in their partition of logical space).

    We would argue that contrastive stress in the antecedent of rSSs serves exactly the same purpose and that clearly demarcating the two topics as independent from one another prevents the modal subordinate reading of the φ-conditional. In (7), repeated below, we attempt to contrast *hosted* and *come* against one another.

(7)   *Karlos is known for being fun at parties, but his house is small & smelly.*
        a.   *Ben:* If Karlos had hosted the party, it would not have been a
              good time.
        b.   *Martina:* But if Karlos had COME to the party, it would have
              been a good time.   (Klecha 2015: 134)

In order for this contrast to be successful, we need to establish *hosting the party* and *coming to the party* to be disparate topics. This may be accomplished by covertly strengthening *come* to *come-but-not-host*—a possibility proposed by Klecha (2015: 134). However, this would not yet explain why the example of von Fintel (2001) in (8), repeated below, remains infelicitous.

(8)   a.   If I ran really fast to the store, it might still be open.
        b.   #But if I WENT to the store, it would be closed by the time I got
              there.   (von Fintel 2001: 146)

One possibility could be that the speed component of meaning of *to go* is too weak or too undefined for it to properly contrast against *to run*,

failing to change the aboutness topic and thereby failing to avert modal subordination. However, pinning down the exact felicity conditions of rSSs with contrastively stressed overtly different lexical items is beyond the scope of this paper, and we make no definitive commitment to an analysis here. We merely provide a tentative explanation for as to why (7) is felicitous but (8) is not.

We would argue that contrastive topic on the auxiliary verb accomplishes the same thing: We demarcate the two possible topics to be distinct from one another and thereby prevent a modally subordinate reading. The difference would be that, in the case of auxiliary verbs, it is not intuitively obvious what exactly is being contrasted and thereby delineated.

In fact, we can see that contrastive topic on the auxiliary verb does cancel modal subordinate readings, as evidenced by (14). There the contrastive stress on the auxiliary verb reverses the felicity distribution previously shown in (12)—which would suggest a lack of modal subordination.

(14)   *John is married to Mary. He is a good liar and a flirt. Mary always suspected him of cheating and once contemplated hiring a very competent private investigator but ultimately decided against it. However, John has never actually cheated on Mary, unbeknownst to her.*
   a.   If John had cheated on Mary, she would've never found out about it; ??but if she HAD hired the private investigator, he would have brought her evidence of John's cheating.
   b.   If John had cheated on Mary, she would've never found out about it; but if she HAD hired the private investigator, he would have told her that John didn't cheat on her.

This would indicate that there is a shift in aboutness topic in between the two conditionals—the requirement for escaping modal subordination.

2.1.3 Why the auxiliary verb?

But how does the contrastive topic on the auxiliary verb accomplish this shift in aboutness topic? To answer this we must first determine which part of meaning of the auxiliary verb is actually contrasted. This part of meaning must differ between conditionals for it to be contrastively stressable. We argue that the contrasted part of meaning are actually the domains of

quantification of the two conditionals. But how do we get from the auxiliary verbs to the domains of quantification? Our answer is to treat auxiliary verbs in conditional antecedents as pro-forms that are bound by their conditional's domain of quantification via the Tense-aspect-mood (TAM) morphology that they encode. We explain and motivate this reasoning in this section.

Why do we believe that the auxiliary verb in the antecedent of conditionals should be treated as a pro-form? TAM morphology has been argued to be a type of bound pro-form (e.g. Partee 1973; Kratzer 1998). Crucially to us, the auxiliary verb in conditional antecedents—when present—carries the TAM morphology of its clause. As such, we would argue, the contrastive stress that is placed upon the auxiliary verb actually targets the TAM morphology it encodes (Goodhue 2018: 12, Footnote 3).

The next pertinent question is why the TAM morphology of the antecedents is contrastively stressed: In order for the two items to contrast against one another, they must possess some differing semantic values. To this end, we must consider what this bound pro-form—that is, the antecedent's TAM morphology—is actually bound to. Here, we argue that antecedental TAM morphology is bound to the world selection function of its conditional—or rather to the domain of quantification that this selection function produces. We argue this because antecedental TAM morphology has long since been considered linked to the world variable of its conditional and it is known to (partially) encode which properties this world variable must possess (see, amongst others, Palmer 1986; Iatridou 2000; Arregui 2009; Romero 2014; Schulz 2014): E.g., it encodes whether or not we are looking for counterfactual or non-counterfactual worlds. Thus, there is a direct connection between TAM morphology and the selection of worlds that are being quantified over by its conditional.

As such, by putting stress on the auxiliary verb, we actually attempt to contrastively stress the two domains of quantification for each conditional, as this is the only semantic value in which the two auxiliary verbs differ (or rather in which the TAM morphology between conditionals differs).

The hypothesis that we are attempting to stress the two differing domains of quantification is given further credibility by the following two facts from the pre-existing literature: First, the TAM morphology acts as a kind of pro-form (Partee 1973; Kratzer 1998). Second, it has been shown elsewhere that two bound pro-forms that are contrastively stressed against one another are

actually trying to contrast the domains that they are bound to. Specifically, this was shown to be the case for contrastively stressed bound pro-nouns (Sauerland 1998; 1999; Jacobson 2000; 2004).

As Sauerland (1998; 1999) and Jacobson (2000; 2004) have noted, when we contrastively stress two bound pronouns against one another, it appears that we are actually contrasting the two domains which bind them, mandating them to be disjoint to one another. This is typically demonstrated by the difference in felicity between (15) and (16).

(15)   Every boy$_i$ called his$_i$ father and every TEAcher$_j$ called HIS$_j$ father.
(Sauerland 1998: 204)

(16)   *I expected every student$_i$ to call his$_i$ father, but only every YOUNG student$_j$ called HIS$_j$ father.   (Sauerland 1998: 206)

In (15), the two contrasting domains are the domain of *boys* and the domain of *teachers*. These are typically considered disjoint to one another, which, as Sauerland (1998; 1999) and Jacobson (2000; 2004) propose, renders the contrast licit. In (16), on the other hand, the contrasting domains are the domain of *students* and the domain of *young students*. Since the latter necessarily is a subset of the former, the two domains are obviously not disjoint and the contrast is therefore illicit, rendering the entire expression infelicitous.

To formally account for this, we adopt a variant of Jacobson (2000; 2004): We treat bound pronouns as partial identity functions whose range is restricted to the domain that binds them, as defined in (17), where ID$_R$ is the partial identity function restricted in range to the binding domain R.

(17)   a. $[\![\text{his}_i]\!]^{g,c} = \text{ID}_R(g(i))$
        b. $[\![\text{his}_i]\!]^{f,g,c} = \{\text{ID}_{R'}(g(1)) \mid \text{ID}_{R'} \subseteq \text{ID}_{\langle e,e \rangle}\}$

This way, for the sequence (15), we may contrast the two semantically different items ID$_{\text{BOY}}$ and ID$_{\text{TEACHER}}$ by putting contrastive stress on the two respective pronouns. The two respective LFs for (15) are shown in (18) to better illustrate which part in meaning is contrastively stressed, indicating the actually contrasted part of meaning via the use of boldface.

(18) a. every boy $[\lambda x.\text{CALL}(x, \text{THE-FATHER-OF}(\text{ID}_{\textbf{BOYS}}(x)))]$
      b. every teacher $[\lambda x.\text{CALL}(x, \text{THE-FATHER-OF}(\text{ID}_{\textbf{TEACHERS}}(x)))]$

This contrast is, as previously mentioned, licit iff $\text{ID}_{\text{BOY}} \cap \text{ID}_{\text{TEACHER}} = \emptyset$.

For the analysis of contrastively stressed TAM morphology, we extend this account to other types of pro-forms: In our case, we extend it such that the TAM-morphology carried by the auxiliary verb inside of a conditional antecedent is equal to a partial pro-world identity function that is restricted in its range to the domain that binds them: the output of the world closeness function. As such, we would define the auxiliary verb (or, more specifically its TAM component) as shown in (19).[4]

(19) a. $[\![\text{AUX}_i]\!]^{g,c} = [\![\text{TAM}_i]\!]^{g,c} = \text{ID}_{\text{DOMAIN}}(g(i))$
      b. $[\![\text{AUX}_i]\!]^{f,g,c} = [\![\text{TAM}_i]\!]^{f,g,c} = \{\text{ID}_{\text{DOMAIN'}}(g(i)) \mid \text{ID}_{\text{DOMAIN'}} \subseteq \text{ID}_{\langle s,s \rangle}\}$

Here, as previously mentioned, the domain of the identity function would end up equal to the domain of its binder: the output of the world closeness function (i.e., the conditional's domain of quantification). The partial identity function of a φ-conditional's antecedent would therefore be equal to $\text{ID}_{\text{CLOSEST-}\varphi}(g(i))$, the partial identity function of a $\varphi \wedge \psi$-conditional's antecedent would be equal to $\text{ID}_{\text{CLOSEST-}\varphi \wedge \psi}(g(i))$, and so on.

As such, a rSS where the auxiliary verb is contrastively stressed could be rendered as contrasting the two boldfaced identity functions in (20).

(20) a. If $[\lambda w_s.\phi(\textbf{ID}_{\textbf{CLOSEST-}\varphi \wedge \psi}(w)) \wedge \psi(\textbf{ID}_{\textbf{CLOSEST-}\varphi \wedge \psi}(w))]$,
                                                              (then) would $\neg \chi$.
      b. If $[\lambda w_s.\phi(\textbf{ID}_{\textbf{CLOSEST-}\varphi}(w))]$, (then) would χ.

Whether the contrastive stress is licit would then, again, be determined by whether or not $\text{ID}_{\text{CLOSEST-}\varphi \wedge \psi} \cap \text{ID}_{\text{CLOSEST-}\varphi} = \emptyset$. If the two domains are disjoint,

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[4]Treating TAM-morphology as pro-worlds with restricted domains is uncontroversial. See, e.g., Schlenker (2005), who treated mood the same way, as defined in (ia), which is functionally equivalent to (ib).

(i) a. $[\![\text{INDICATIVE}_I]\!]^{g,c}$ is defined only if $g(i) \in \text{DOX}_{\text{SPEAKER}}$, where $\text{DOX}_{\text{SPEAKER}}$ is the speaker's doxastic set of possible worlds. If defined, $[\![\text{INDICATIVE}_I]\!]^{g,c} = g(i)$
     b. $[\![\text{INDICATIVE}_I]\!]^{g,c} = \text{ID}_{\text{DOX}_{\text{SPEAKER}}}(g(i))$

the contrastive stress would be licit. If not, it would be illicit.[5]

To grasp the importance of this criterion, we must remind ourselves that the contrastive stress on the auxiliary verb is actually an instance of contrastive topic. As such, the success of the contrastive topic is inherently bound to whether or not the two contrasting domains are disjoint. If they are, the contrastive topic establishes that the two conditionals' aboutness topics are clearly demarcated and independent from one another. For rSSs, this would entail that the modal subordinate reading is prevented, as modal subordination is caused via a shared aboutness topic, and that the φ-conditional is analysed purely with respect to the content of its antecedent.

If on the other hand, the contrast was illicit, the contrastive topic fails to establish a new aboutness topic for the rSS's φ-conditional. This would mean that the aboutness topic of 'What if $\varphi \wedge \psi$?' persists and that the φ-conditional is thereby covertly strengthened to be another $\varphi \wedge \psi$-conditional via modal subordination. This would render the entire expression infelicitous due to the contradictory nature of the conditionals' claims.

At this point it is also important to recall that we have argued that, without outside intervention, all rSS are virtually guaranteed to make use of modal subordination. That is because the underlying pattern of this construct makes it excessively easy to interpret the φ-conditional to be topically related to the preceding $\varphi \wedge \psi$-conditional, extending the latter's aboutness topic to cover the former conditional as well. As such, all rSS are infelicitous unless some indication is given that the φ-conditional's antecedent is not actually topically related to the preceding $\varphi \wedge \psi$-conditional's antecedent. With the implementation of contrastive topic on the auxiliary verb sketched out above, we now have such a way to indicate this to be the case. By contrastively stressing the auxiliary verb, we attempt to point out that the two topics are actually entirely distinct from one another by pointing out that there is no overlap in their domains of quantification.

With this we have the two criteria upon which rSS felicity rests. First, whether or not we have a clear indication that we want to analyse the two conditionals as topically unrelated. And second, if this was indicated via

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[5]Naturally, the check of whether or not the two domains in question are actually disjoint would be executed while the modal subordination is suspended for the sake of evaluation. Otherwise, the contrast could never succeed and the use of contrastive stress would be a pointless exercise.

contrastive stress on the auxiliary verb, whether or not their domains of quantification without modal subordination would be disjoint to one another. If either condition is not given, the rSS would be rendered infelicitous via modal subordination.

2.2 Acausal Counterfactual Conditionals

With this basic model and a standard variably-strict semantics in place, we would already be able to explain why acausal counterfactual rSSs, such as (9b), repeated below, are typically felicitous when contrastively stressed.

(9b)   *Holding up a dry match, with no water around.*
         If I had struck this match and it had been soaked, it would not have
         lit. But if I HAD struck this match, it would have lit.

It is the height of orthodoxy to claim that any cause-initial meaningful deviance of a counterfactual world w away from w_0 decreases the world similarity of w in relation to the evaluation world w_0. As world closeness is determined by world similarity, and φ and ψ each represent a causally independent deviance from w_0, it follows that the closest φ-worlds are closer to w_0 than the closest $\varphi \wedge \psi$-worlds are.

A variably-strict conditional semantics would then make a claim only with regard to the closest antecedent worlds—and we have already established that the closest φ-worlds and the closest $\varphi \wedge \psi$-worlds are unequal in world similarity and therefore unequal in world closeness. Since a variably-strict conditional semantics never quantifies over two different levels of world closeness at the same time, the two domains of quantification would therefore necessarily be disjoint. We visualise this in Figure 3.
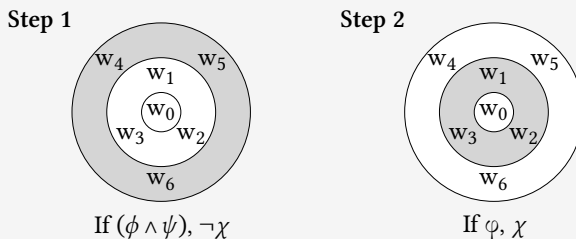

Step 1   Step 2

If $(\phi \wedge \psi), \neg\chi$ If φ, χ

Figure 3 Domains of quantification according to a variably-strict semantics for an acausal counterfactual rSS.

As such, so long as we can clearly identify that the two antecedental propositions φ and ψ are counterfactual and causally unrelated, we can ensure that $\text{ID}_{\text{CLOSEST-}\varphi\wedge\psi}\cap\text{ID}_{\text{CLOSEST-}\varphi}=\varnothing$ must necessarily be the case. This would render the contrastive topic licit, cancelling modal subordination, and thereby saving the rSS in question.

2.3 Causal Links in the Antecedent

With this, we may turn our attention to another felicity factor of rSS: causality. Klecha (2015) observed that causality negatively impacts the felicity of rSSs: If φ causally precedes ψ on some chain of events, then the corresponding rSS is infelicitous. Here, it should be noted that *causally precedes* does not equate a strict cause-and-effect relationship: It suffices if φ started a causal chain which created the necessary conditions for ψ to possibly happen. We can illustrate this by comparing (9b), repeated below as (21a), where the match being wet is causally independent of the speaker striking the match, against its minimal pair (21b).

(21)   *Holding up a dry match, with no water around.*
      a.   If I had struck this match and it had been soaked, it would not have lit. But if I HAD struck this match, it would have lit.
      b.   If I had struck this match and it had snapped, it would not have lit. #But if I HAD struck this match, it would have lit.

While striking the match is causally independent of it being wet, as the match can be wet regardless of whether or not anyone is going to strike it, snapping the match by accident must be causally preceded by striking the match for the former to even be logically possible.

In addition to this, Klecha (2015) noted that causal (r)SSs exhibit a number of traits not shared by their acausal counterparts.[6] Namely, causal SSs exhibit the possible trait of pedantry and the possibility for partial concessions between discourse participants. Here, Klecha (2015: 139) defined pedantry as an intuition of mild uncooperativity that may arise when another discourse

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[6]Note that Klecha (2015) considered causal and acausal (r)SSs to be independent semantic phenomena that coincidentally have the same surface structure. He referred to causal SSs as *Lewis sequences* and acausal SSs as *True SS* in Klecha (2015). We do not share this opinion, and therefore merely refer to them as causal and acausal SSs, which also increases terminological clarity.

participant raises the level of discourse precision unnecessarily high to invalidate the utterance of the original speaker—who used a contextually valid form of loose talk. An example of this is shown in (22), example due Klecha (2015: 138), where most would interpret Lelia's contribution to the discourse to be needlessly uncooperative.

(22)   *Katie and Lelia stand around a table made by humans.*
   a.   *Katie:* This table is flat.   LOOSE CLAIM
   b.   *Lelia:* Not really. Nothing made by humans is actually flat.
                                                                          REBUTTAL
   c.   *Katie:* Well, you're technically right, but you get my drift.
                                                                          CONCESSION

Klecha (2015: 139) showed with (23a) and (23b) that causal SSs may evoke the same feeling of pedantry if ψ is suitably unlikely or outlandish:[7]

(23)   a.   *Aaron:* Daryl, if you had been standing there, you would have been killed.
        b.   *Ida:* But if he had been standing there and he saw a the shadow of the falling beam and managed to jump out of the way in time, he would not have.
        c.   *Aaron:* Well, okay, technically that's true, but you get my drift.

Partial concessions, Klecha (2015) defines as signals that the speaker is assimilating to the opposing understanding of the context while not acknowledging any factual incorrectness to their original statement. Rather, the speaker maintains the underlying truth of the proposition they intended to assert. Partial concessions are a common trait for loose talk: In (22c), Katie maintains that the table is flat for all relevant intents and proposes, though she concedes that Lelia is technically correct. Similarly, in (23c),

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[7]Here, it should be noted that Aaron can make his conditional claim even when he has already internally considered Ida's claim and dismissed it as too unlikely to be taken seriously. As such, Aaron can be aware of the fact that his conditional is technically false when he utters it. While possible, it does not have to be the case that Aaron simply didn't consider the possibility pointed out by Ida. In this, too, (23a) behaves akin to (22a), as Katie can truly believe the table to be flat up until she is reminded of the fact that humans are unable of creating something perfectly flat.

Aaron maintains his original point that Daryl most likely would have died.

2.3.1 Retrodiction

How can we account for these observations using the model we have developed in Section 2.1? We would argue that all of Klecha's observations follow naturally if we adopt the view on world similarity of Bennett (2003) and Arregui (2009): They argue that only cause-initial deviances to the evaluation world w_0 decrease the similarity of any given world w.

In other worlds, if some deviance ψ follows a cause-initial deviance φ on some causal chain of events, then ψ does not further decrease the similarity of a φ-world in relation to w_0. In such a situation, the closest $\varphi\wedge\psi$-worlds and the closest $\varphi\wedge\neg\psi$-worlds would be equal in similarity to w_0.[8]

It is easy to see how this would interact with the requirements we place upon contrastive topic: If ψ does not further decrease the world closeness of any φ-worlds, then the closest $\varphi\wedge\psi$-worlds would necessarily be a subset of the closest φ-worlds. As such, causal rSSs would partially quantify over the same worlds, as visualised in Figure 4.
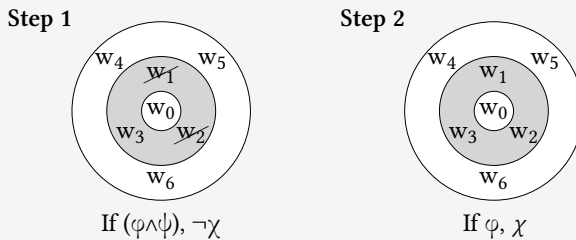

Step 1	Step 2
If $(\varphi\wedge\psi)$, $\neg\chi$	If φ, χ

Figure 4 Domains of quantification according to a variably-strict semantics for a causal rSS, where w_1, w_2, w_3 are φ-worlds and where w_3 is also a ψ-world.

Since φ causally preceding ψ on some chain of events would therefore entail $\text{ID}_{\text{CLOSEST-}\varphi\wedge\psi}\subseteq\text{ID}_{\text{CLOSEST-}\varphi}$, there is no way to satisfy the constraints placed upon contrastive topic: Since the two necessarily non-empty domains are in a subset relation to one another, they may never be disjoint. Therefore, contrastive topic could never succeed and modal subordination persists. In addition, even if modal subordination were to be otherwise cancelled, the two conditionals would still make contradictory claims and therefore still

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[8]Unfortunately, for reasons of space, we cannot provide a detailed account for how they independently motivate this assumption. We refer to their papers for details.

be infelicitous.

This also has a very important implication for regularly ordered SSs: Since the closest $\varphi\wedge\psi$-worlds are a subset of the closest φ-worlds, the $\varphi\wedge\psi$-conditional would at least partially contradict the claims made by the preceding φ-conditional. To circumvent this issue, we adopt the imprecision and precisification-based account proposed by Klecha (2015). He argued that causal SSs actually make use of a type of loose talk: The preceding φ-conditional is only considered true enough with respect to the initial degree of discourse precision. When we then evaluate the subsequent $\varphi\wedge\psi$-conditional, we raise the standard of precision via precisification and have to take the $\varphi\wedge\psi$-worlds into account as well. As such, the issue here is not rooted in contradiction but in the increase of evaluative precision.

The reverse, however, does not work: Discourse precision typically does not decrease without effort. In this way, the unidirectionality of the shift in precision in causal SSs is equal to the unidirectional precisification of other forms of loose talk (Lasersohn 1999; Lauer 2012), as exemplified by (24):

(24)   *The facts: Julian arrived at 2:59; Gallagher arrived at 2:58.*
        Julian arrived at 2:59 and #Gallagher arrived at three.

This would ensure that causal rSS remain infelicitous, as they are unable to take advantage of lower levels of precision.

As Klecha (2015) further notes, this would also account for why causal SSs may exhibit the traits of pedantry and partial concessions: If the level of precision must be raised to an unreasonably useless degree, such as in (22b) or (23b) in Section 2.3, the responsible discourse participant is evaluated to be needlessly uncooperative, leading to a sense of pedantry. For partial concession, such as in (22c) or (23b), the discourse participant who originally uttered the φ-conditional agrees that the other speaker's $\varphi\wedge\psi$-conditional is true, given an elevated level of precision, but maintains the general true-enough value of his original utterance given the previous and contextually sufficient level of imprecision. Acausal SSs, on the other hand, do not make use of precisification and imprecision (since they have disjoint domains) and therefore do not exhibit these traits.

2.4 Non-counterfactuality

Non-counterfactuality appears to have a very similar effect on rSSs as causal links in the antecedent do. Consider the felicitous counterfactual rSS in (9b) again, repeated below as (25).

(25)   *Holding up a dry match, with no water around.*
       If I had struck this match and it had been soaked, it would not have lit. But if I HAD struck this match, it would have lit.

If we convert (25) into a conditional concerning some possible future event, the rSS becomes infelicitous, as shown in (26). It also appears to make no difference in felicity whether or not we make use of indicative conditionals or future-less-vivid conditionals, as shown in (26a) and (26b), respectively.

(26)   *Holding up a dry match, with no water around.*
       a.   If I strike this match tomorrow and it is soaked, it will not light. #But if I DO strike this match tomorrow, it will light.
       b.   If I struck this match tomorrow and it was soaked, it wouldn't light. #But if I WERE to strike this match tomorrow, it would light.

Additionally, non-counterfactual SSs also exhibit the same pragmatic traits as causal SSs, as demonstrated by the acausal non-counterfactual SS in (27).

(27)   *John and Henry discuss whether their daughter Mary should go to a party. Mary hates Nicole and vice versa. John and Henry have no way of knowing whether Nicole will go to any specific party, but they do know that she rarely attends any—she only attended two in ten years.*
       a.   *John:* If Mary went to the party tomorrow, she'd have a good time.
       b.   *Henry:* But if Mary went to the party tomorrow and Nicole was there, too, she'd have a terrible time!
       c.   *John:* Well, okay, technically that's true. But you get my drift: She'd probably have a good time, so she should go.

Here, (27b) evokes a sense of pedantry in the same manner as (22b) and (23b): As Nicole is unlikely to attend any party—though not with absolute

certainty—most would evaluate Nicole's rebuttal as mildly uncooperative though technically true. Likewise, the non-counterfactual sequence in (27) allows for John to partially concede to Henry in (27c) while maintaining his original point from (27a), similarly to the partial concession shown in (23c).

Acausal counterfactual rSSs crucially do not share these two properties, as demonstrated by (28), which is a counterfactual variant of the acausal non-counterfactual SS in (27).

(28)   *John and Henry are in full possession of the facts: Now that the party is over and Mary did not go, it turns out that Nicole didn't go to the party either.*
   a.   *John:* If Mary had gone to the party, she would've had a good time.
   b.   *Henry:* But if Mary had gone to the party and Nicole had been there, too, she would've had a terrible time!
   c.   *John:* #Well, okay, technically that's true. But you get my drift: She probably would've had a good time, so she should've gone.

Here, Henry's interjection does not serve as a pedantic rebuttal to John's point: Rather, it seems that Henry is making a point that is somewhat unrelated to John's.[9] Similarly, John cannot make a partial concession that limits the truth value of his original assertion: Since Nicole wasn't there, Mary would've had a good time, rendering Henry's rebuttal irrelevant.

2.4.1 Retrodiction

As we have just shown, standard non-counterfactual rSSs are not only infelicitous, but non-counterfactual SS also exhibit the same possible sense of pedantry as causal SSs and causal rSSs also allow for partial concessions. As such, rather than make predictions from standard assumptions, our account would rather impose a restriction on non-counterfactual conditional semantics: In order to derive equal predictions for non-counterfactual (r)SSs and causal (r)SSs, non-counterfactual (r)SSs would have to quantify over a single degree of world closeness—as this is the driving factor behind the

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[9]At best, this can be interpreted as Henry justifying why he was originally against Mary going: because he was unsure whether or not Nicole would've been there, too. It does not contradict that Mary would've had a good time, however.

special properties exhibited by causal (r)SS, as shown in Section 2.3. This requirement is functionally equivalent to claiming that non-counterfactual conditionals actually make use of a kind of strict semantics: Rather than quantifying over different levels of world closeness, non-counterfactual would simply quantify over all non-counterfactual possible worlds.

This is not an altogether uncontroversial imposition: The debate of whether non-counterfactual conditionals should be analysed with a strict or with a variably-strict semantics is an ongoing issue: While some argue in favour of a variably-strict semantics across the board (e.g. Stalnaker 1975), others argue in favour of a strict conditional semantics for non-counter-factual conditionals even if they assume a variably-strict semantics for counterfactual ones (e.g. D. K. Lewis 1973). As this would exceed the bounds of this paper's topic, we do not further get involved in this particular debate and merely note that our account speaks in favour of (quasi-)strict accounts for non-counterfactual conditionals. For an interesting paper on this particular subject, see Willer (2017), who also discusses some issues that non-counterfactual SS cause for variably-strict accounts of conditionals.

Given this assumption, a non-counterfactual rSS would at least partially quantify over the same worlds, as visualised in Figure 5.
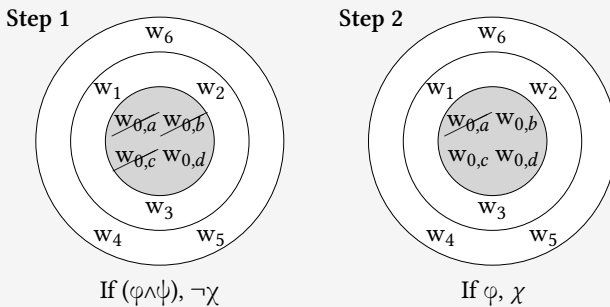

Step 1 — w_6, w_1, w_2, $w_{0,a}$ $w_{0,b}$ $w_{0,c}$ $w_{0,d}$, w_3, w_4, w_5. If $(\varphi \wedge \psi)$, $\neg \chi$

Step 2 — w_6, w_1, w_2, $w_{0,a}$ $w_{0,b}$ $w_{0,c}$ $w_{0,d}$, w_3, w_4, w_5. If φ, χ

Figure 5 Domains of quantification according to a variably-strict semantics for a causal rSS, where w_0 are non-counterfactual worlds, and where $w_{n>0}$ are counterfactual ones. $w_{0,b}, w_{0,c}, w_{0,d}$ are φ-worlds and $w_{0,d}$ is also a ψ-world.

This way, the analysis of non-counterfactual (r)SSs would be perfectly equal to the analysis of causal (r)SSs. Not only would ID$_{\text{CLOSEST-}\phi \wedge \psi}$ being a subset of ID$_{\text{CLOSEST-}\varphi}$ preclude the possibility of their domains being disjoint, thereby eliminating all hopes for a successful contrastive topic, but it would

also explain why non-counterfactual SSs also exhibit the traits of pedantry and allow for partial concessions: We would merely have to extend the account of Klecha (2015) to non-counterfactuals as well, using imprecision and precisification to explain why causal SS may be felicitous despite of overlapping quantificational domains. We refer back to Section 2.3 for our explanation of causal (r)SS for a more in-depth explanation of how the particulars would be derived in this case, as a reiteration of that particular analysis would be needlessly repetitive.

2.5 Responsible epistemic dismissal of possibility

Finally, we turn to the last felicity factor of rSS: the responsible epistemic dismissal of ψ as a possibility: When we actively dismiss the possibility of ψ, any contrastively stressed rSS may be rescued and achieve felicity: even causal or non-counterfactual rSSs. This dismissal of ψ may happen either overtly by dismissing the possibility of ψ in between rSS conditionals or covertly via an appropriate context.

To demonstrate how the overt dismissal of ψ as a possibility may rescue any rSS, we provide a causal non-counterfactual variant of (21b) in (29), showing that this overt dismissal is able to save even causal non-counterfactual rSSs.

(29)   If I struck this match and it snapped, it would not light. But, of course, since I am world champion at striking matches, there's little chance of THAT happening. So, if I WERE to strike this match, it would light.

Here, the majority of asked native speakers judged (21b) to be felicitous. Furthermore, as mentioned in Section 2.1, a minority is even able to drop the contrastive stress in such overt dismissal rSS without a loss in acceptability. However, this ability appears to be tendentially restricted to rSS that are constructed by multiple discourse participants, such as the one in (30).[10]

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[10]On a preliminary note, due to the hereto small number of native speakers available to us for this particular point, we would like to note that this ability to omit the contrastive stress might somewhat correlate to the ease with which ψ can be dismissed: e.g., some speakers were able to omit the stress in acausal counterfactual rSS such as (30) but not in similar causal or non-counterfactual rSS. Very few were able to do so for any rSS uttered by a single person.

(30)   a.   *John:* If I had struck this match and it was soaked, it would not
               have lit.
         b.   *Mary:* Come on! If you had struck this match, it would have lit.

Similarly, a strong enough context may allow for the dismissal of ψ as a
possibility without overt intervention. The prototypical example of this was
provided by Moss (2012: 577), shown below in (31).

(31)   *John and Mary are our mutual friends. John was going to ask Mary to*
         marry him, but chickened out. I know Mary much better than you do,
         and you ask me whether Mary might have said yes to John's proposal.
         I tell you that I swore to Mary that I would never tell anyone that
         information, which means that strictly speaking, I cannot answer your
         question. But I say that I will go so far as to tell you two facts:
         a.   If John had proposed to Mary and she had said yes, he would
                have been really happy.
         b.   But if John HAD proposed, he would have been really unhappy.
                (adapted from Moss 2012: 577)

Here, the possibility of ψ can be dismissed without an interjection because
the discourse context makes it clear that the speaker has superior knowl-
edge regarding the feasibility of ψ. This inference allows for the causal
counterfactual rSS to be rescued.

2.5.1 Retrodiction

Here, we would argue that our account requires no further additions or
assumptions to account for these cases. We would argue that the (overt or
covert) dismissal of ψ-worlds removes all ψ-worlds from the domain of any
subsequent quantification so long as this elimination of ψ-worlds does not
yield an empty domain of quantification. In the context of rSS, this would
mean that $\varphi\wedge\psi$-conditionals would still target the closest $\varphi\wedge\psi$-worlds—as
they would otherwise quantify over nothing—but that φ-conditionals can
exclude all ψ-worlds from their domain of quantification so long as φ does
not entail ψ (which would render such sequences (r)SS infelicitous for a
different reason anyhow).

    Their exclusion would then be a simple example of context/relevance-
based restriction of the domain of quantification, as it has previously and

extensively been argued for in the literature (see von Fintel 1994; Reimer 1998; Stanley & Gendler Szabó 2000: amongst many others).[11]

This would guarantee that contrastive topic always succeeds for rSS that involve the epistemically responsible dismissal of ψ as a possibility: Since $D_{\text{closest-}\phi\wedge\psi} \cap (D_{\text{closest-}\phi} \setminus D_{\psi}) = \varnothing$ is a set theoretical tautology, the disjointness of the domains in question is ensured under all reasonable circumstances, ensuring both that the modal subordination is cancelled and that no contradictory reading is otherwise derived via the standard variably-strict semantics.

We would also argue that our account may explain why some speakers are able to omit contrastive stress in cases such as (30), where the possibility of ψ is overtly dismissed in between conditionals. Here, we would say that our account only requires there to be some reasonably obvious indication that the conditionals of a rSS should be taken to be topically unrelated, as mentioned in Section 2.1. One of the main ways to do this is to make use of contrastive topic, as we have extensively covered up until this point. However, it is perfectly reasonable to assume that such dismissive interjections could suffice for some people to achieve the same end: By telling the other person to be more realistic in their assumptions, we indicate that we do not believe that ψ-worlds should be given any further consideration. As such, an aboutness topic that explicitly revolves around the possibility of ψ would have to be terminated for subsequent conditionals (so long as the interjection is not rejected by the other discourse participants). In fact, some very agreeable speakers might already take the covert dismissal of ψ to be enough to achieve this—though, as this is the least clear indicator of topical unrelatedness, this is also the least widespread speaker property.

3 Conclusion

With this, we have shown in Section 2 that our contrastive-topic-based account is able to account for all currently available empirical data regarding the felicity distribution of rSSs—and that it does so by adopting mostly

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[11]Another possible view to take is that the dismissal of ψ marks said proposition as requiring an additional deviance from the evaluation world, effectively suspending any direct causal relation between φ and ψ (if such a relation existed) and marking all ψ-worlds as counterfactual worlds (if they were not marked as such already) for the purpose of the current discourse.

uncontroversial and independently motivated tools from the literature: For counterfactuals, we predict that contrastive topic should always succeed so long as φ and ψ are causally independent from one another, as shown in Section 2.2. For causal rSSs, we predict that they are generally infelicitous, as contrastive topic cannot succeed without the possibility of ψ being dismissed, as shown in Section 2.3. Also shown in Section 2.3, we predict that a causal SS's φ-conditional is actually technically false, but considered true enough via the use of loose talk, because the closest $\varphi{\wedge}\psi$-worlds are just a subset of the closest φ-worlds, explaining why causal (r)SS exhibit some special pragmatic characteristics. For non-counterfactual (r)SSs, who behave perfectly alike to causal (r)SSs, our account would mandate that all non-counterfactual conditionals quantify over the same degree of world closeness, rendering their analysis equal in all aspects to the analysis of causal (r)SSs, as shown in Section 2.4. Finally, the dismissal of ψ as a possibility renders all rSSs felicitous, which our account may explain by assuming that this active dismissal excludes ψ from all domains of quantification that are thereby not rendered equal to the empty set. In doing this, the success conditions for contrastive topic amount to a set theoretical tautology, ensuring that such rSSs are always felicitous.

Our account is also able to account for the speaker variance we encountered in our preliminary native speaker consultations: Speakers simply vary with respect to what they deem sufficiently obvious indicators of topical unrelatedness. E.g., very strict discourse participants require an overt dismissal of ψ and the use of contrastive topic, most discourse participants seem content with the use of contrastive topic on the auxiliary verb, and some less strict discourse participants do not even require the use of contrastive topic if the possibility of ψ is sufficiently dismissed in other ways.

For future research, we would propose to further delve into what happens when we contrastively stress two overtly different lexical items in rSSs, and also that an experiment is conducted to test the veracity of our account.

References

Arregui, Ana. 2009. On similarity in counterfactuals. *Linguistics and Philosophy* 32(3). 245–278.

Bennett, Jonathan. 2003. *A philosophical guide to conditionals.* Oxford: Oxford University Press.

Ebert, Christian & Ebert, Cornelia & Hinterwimmer, Stefan. 2014. A unified analysis of conditionals as topics. *Linguistics and Philosophy* 37. 353–408.

Gillies, Anthony S. 2007. Counterfactual scorekeeping. *Linguistics and Philosophy* 30(3). 329–360.

Goodhue, Daniel. 2018. *On asking and answering biased polar questions.* McGill University Libraries dissertation.

Heim, Irene. 1994. *Unpublished MIT seminar on conditionals.*

Iatridou, Sabine. 2000. The grammatical ingredients of counterfactuality. *Linguistic Inquiry* 31(2). 231–270.

Ippolito, Michela. 2020. Varieties of Sobel sequences. *Linguistics and Philosophy* 43. 633–671.

Jacobson, Pauline. 2000. Paychecks, stress, and variable-free semantics. In Brendan, Jackson & Matthews, Tanya (eds.), *Proceedings of SALT X,* 65–82. Ithaca, New York: Cornell University.

Jacobson, Pauline. 2004. Kennedy's puzzle: What I'm named or who I am. In Young, Robert B. (ed.), *Proceedings of SALT XIV*, 145–162.

Klecha, Peter. 2011. Optional and obligatory modal subordination. In Reich, Ingo & Horch, Eva & Pauly, Dennis (eds.), *Proceedings of Sinn und Bedeutung 15*, 365–379. Saarbrücken: Saarland University Press.

Klecha, Peter. 2014. *Bridging the divide: Scalarity and modality.* University of Chicago dissertation.

Klecha, Peter. 2015. Two kinds of Sobel sequences: Precision in conditionals. In Steindl, Ulrike & Borer, Thomas & Fang, Huilin & Pardo, Alfredo García & Guekguezian, Peter & Hsu, Brian & O'Hara, Charlie & Ouyyang, Iris Chuoying (eds.), *Proceedings of the 32nd West Coast Conference on Formal Linguistics*, 131–140. Somerville, MA: Cascadilla Proceedings Project.

Krassnig, David. 2017. Sobel sequences: Relevancy or imprecision? In Cremers, Alexandre & Van Gessel, Thom & Roelofsen, Floris (eds.), *Proceedings of the 21st amsterdam colloquium*, 325–334.

Krassnig, David. 2020. Reverse Sobel sequences and the dissimilarity of antecedent worlds. In Franke, Michael & Kompa, Nikola & Liu, Mingya & Müller, Jutta L. & Schwab, Juliane (eds.), *Proceedings of Sinn und Bedeutung 24*, 447–463.

Kratzer, Angelika. 1998. More structural analogies between pronouns and tenses. In Strolovitch, Devon & Lawson, Aaron (eds.), *Proceedings of SALT VIII*, 92–110. Ithaca, NY: Cornell University.

Krifka, Manfred. 2007. Basic notions of information structure. In Féry, Caroline & Fanselow, Gisbert & Krifka, Manfred (eds.), *The notions of information structure*, vol. 6, 13–55. ISIS, Working Papers of the SFB 632.

Kripke, Saul Aaron. 1963. Semantical analysis of modal logic I: Normal modal propositional calculi. *Zeitschrift für mathematische Logik und Grundlagen der Mathematik* 9(5-6). 67–96.

Lasersohn, Peter. 1999. Pragmatic halos. *Language* 75. 522–551.

Lauer, Sven. 2012. On the pragmatics of pragmatic slack. In Guevara, A. A. & Chernilovskaya, A. & Nouwen, R. (eds.), *Proceedings of Sinn und Bedeutung 16*, vol. 2, 389–401.

Lee, Chungmin. 2017. Contrastive topic, contrastive focus, alternatives, and scalar implicatures. In Lee, Chungmin & Kiefer, Ferenc & Krifka, Manfred (eds.), *Contrastiveness in information structure, alternatives and scalar implicatures*, 3–21. Cham, Swizerland: Springer International Publishing AG.

Lewis, Clarence Irving. 1912. Implication and the algebra of logic. *Mind, New Series* 21(82). 522–531.

Lewis, Clarence Irving. 1914. The calculus of strict implication. *Mind, New Series* 23(90). 240–247.

Lewis, Clarence Irving. 1918. *A survey of symbolic logic*. University of California Press.

Lewis, David Kellog. 1973. *Counterfactuals*. Malden: Blackwell.

Lewis, Karen. 2018. Counterfactual discourse in context. *Noûs* 52(3). 481–507.

Moss, Sarah. 2012. On the pragmatics of counterfactuals. *Noûs* 46(3). 561–586.

Palmer, Frank Robert. 1986. *Mood and modality*. Cambridge, MA: Cambridge University Press.

Partee, Barbara. 1973. Some structural analogies between tenses and pronouns in English. *The Journal of Philosophy* 7. 601–609.

Reimer, Marga. 1998. Quantification and context. *Linguistics and Philosophy* 21. 96–115.

Romero, Maribel. 2014. 'Fake tense' in counterfactuals: A temporal remoteness approach. In Crnič, Luka & Sauerland, Uli (eds.), *The art and craft of semantics: a Festschrift for Irene Heim*, vol. 2, 47–63. MITWPL 71.

Sauerland, Uli. 1998. *The meaning of chains*. Cambridge, MA: Massachusetts Institute of Technology dissertation.

Sauerland, Uli. 1999. Why variables? In Tamanji, Pius & Hirotani, Masako & Hall, Nacy (eds.), *Proceedings of NELS 29*, 323–337. Amherst, Massachusetts: GLSA.

Schlenker, Philippe. 2005. The lazy Frenchman's approach to the subjunctive. In *Proceedings of Going Romance XVII*.

Schulz, Katrin. 2014. Fake tense in conditional sentences: A modal approach. *Natural Language Semantics* 22. 117–144.

Sobel, Jordan Howard. 1970. Utilitarianisms: Simple and general. *Inquiry* 13. 394–449.

Stalnaker, Robert Culp. 1968. A theory of conditionals. In Rescher, N. (ed.), *Studies in logical theory*, 98–112. Oxford: Basil Blackwell Publishers.

Stalnaker, Robert Culp. 1975. Indicative conditionals. *Philosophia* 5(3). 269–286.

Stanley, Jason & Gendler Szabó, Zoltán. 2000. On quantifier domain restriction. *Mind & Language* 15(2-3). 219–261.

Van Rooij, Robert & Schulz, Katrin. 2017. Topic, focus, and exhaustive interpretation. In Lee, Chungmin & Kiefer, Ferenc & Krifka, Manfred (eds.), *Contrastiveness in information structure, alternatives and scalar implicatures*, 63–82. Cham, Swizerland: Springer International Publishing AG.

Von Fintel, Kai. 1994. *Restrictions on quantifier domains*. Amherst, Massachusetts: University of Massachusetts dissertation.

Von Fintel, Kai. 2001. Counterfactuals in a dynamic context. In Kenstowicz, Michael (ed.), *Ken Hale: A life in language*, 123–152. Cambridge, MA: MIT Press.

Willer, Malte. 2017. Lessons from Sobel sequences. *Semantics & Pragmatics* 10(4). 1–57.

Yabushita, Katsuhiko. 2017. Partition semantics and pragmatics of contrastive topic. In Lee, Chungmin & Kiefer, Ferenc & Krifka, Manfred (eds.), *Contrastiveness in information structure, alternatives and scalar implicatures*, 23–45. Cham, Swizerland: Springer International Publishing AG.