

The weakness of *will*

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1 Introduction

English *will* exhibits some peculiar patterns. One is the so-called *scopelessness* with respect to negation (Cariani & Santorio, 2018). Roughly, the observation is that the negation of *will* $\neg\phi$ (i.e. $\neg will \neg\phi$) seems equivalent to *will* ϕ . Suppose I utter (1b) from within the US, what I convey can be equivalently captured by (1c).

- (1) a. $\phi = \text{Alice is abroad}$
- b. Alice will be abroad. *will* ϕ
- c. $\Leftrightarrow$ It's not the case that Alice will be in the US (=not abroad). $\neg will \neg\phi$

This presents a strong argument that *will* is not a regular quantificational modal:¹ if it were a quantifier, then assuming duality ($\Diamond\phi \Leftrightarrow \neg\Box\neg\phi$), (i) if it were a $\Box$, then $\neg will \neg\phi$ would be equivalent to $\Diamond\phi$, which is weaker than the observed *will* ϕ (under the $\Box$ -supposition); (ii) if it were a $\Diamond$, then $\neg will \neg\phi$ would be equivalent to $\Box\phi$, which is stronger than the observed *will* ϕ (under the $\Diamond$ -supposition).

The response to this can be divided into two main groups.² One group holds that *will* ϕ asserts that ϕ is true at a single world—call the proponents of these the single-worlders. Since ϕ is either true or false at the world where it gets evaluated, negation commutes w.r.t. *will*, hence *will* doesn't interact with negation scopally.

The other group holds that *will* ϕ conveys that ϕ is true at multiple-worlds, and that $\neg will \phi$ conveys that ϕ is false at multiple-worlds. The worlds in question exhibit homogeneity—that they (almost) all agree on the truth value of the prejacent—a phenomenon well known for plural definites. Scopelessness follows. Call this view the multi-world view. It is worth noting that one version of view takes *will* to semantically encode universal modal force, and another would hold that *will* has existential force; homogeneity would kick in as a strengthening mechanism in different circumstances on these accounts.

¹By “regular quantificational modals”, I mean quantificational modals that quantify over non-singleton domain.

²I will not discuss supervaluationism here, but with respect to their treatment of scopelessness w.r.t. negation, they should be grouped together with the single-world view.

This paper presents two arguments that there are at least two different (non-generic) readings of *will*—predictive *will* and dispositional *will*—the former entails the prejacent while the latter merely implies the truth of the prejacent;³ the single-world view and the universal multi-world view can only capture the former, while the existential multi-world view only gets the latter right. I propose a unification where the predicted truth condition for predictive *will* agrees with the single-world view and the predicted truth condition for dispositional *will* agrees with the existential multi-world view. In the first argument, I use *no longer/not...anymore* as a diagnostic to show that while promising single-world views predict correctly the incoherence of (2),

(2) #The coin will not land heads anymore (on the next toss).

they predict that sentences like (3a) are just as incoherent. However, (3a) has an intuitive dispositional reading, on which (3b) and (3c) are implied⁴

- (3) a. John won't come to [tomorrow's party]_i anymore.
- b. $\Rightarrow$ John won't come to the party_i.
- c. $\Rightarrow$ John was going to come.

Intuitively, the inferences convey a change in the status of the *will*-sentence over time. An existential multi-world view can capture this reading. But, it can't predict correctly the oddness of (2) like the single-world view does.

The second argument is based on the observation that *will* can sometimes, but not always, license *any* in its scope.

(4) Joe will vote for ANY candidate (in this election).

(5) *The die will land on ANY side (on this toss).

Given standard descriptive generalizations about the licensing conditions of *any*, the single-world view predicts that *any* is never licensed under *will*. This is not borne out in the case of (4), but derives the desired result for (5). And since possibility modals, but not necessity modals, license *any*, (4) further supports the thesis that *will* has a possibility force at some level in LF.

The two types of data are consistent with *will* always having existential force, although its domain is sometimes singleton and sometimes not. My proposal builds on that: there is a single entry for *will* whose assertion involves existential quantification over a realistic domain, and it also encodes a settledness presupposition. Predictive *will* involves a singleton, totally realistic domain, and dispositional *will* involves a non-singleton, realistic domain. The dispositional reading exhibits genuine homogeneity so that its possibility claim gets strengthened to a necessity claim.⁵ Indeed, this is in line with recent accounts of homogeneity for plural definites, and I will adopt an implicature view of homogeneity for implementation.

³My usage of “dispositional *will*” is different from that in Copley (2009), which discusses a different “dispositional *will*” with (only) generic readings. In some ways, what I call dispositional *will* is close to what Copley calls a bouletic reading of *will*.

⁴During the writing process of the paper, I discovered that Löbner (1989)'s ex. (93) is of the same form, although the focus there is not on *will*.

⁵Since the predictive reading involves a singleton domain, it trivially satisfies homogeneity.

In §2, I will introduce the two views about *will* in more detail. In §3, I introduce the data involving *no longer/not...anymore*. In §4, I introduce the data involving *any*. §5 introduces the implicature account of homogeneity, which I'll adopt for my account of *will*. §6 shows how to capture the two readings of *will* and derive the desired results for data introduced in §3. §7 shows that data involving *any* are also derived by the proposal.

2 The two views

In this section, I will give a brief, informal overview of the single-world and the multi-world view of *will* before I present my arguments against both.

Before that, let me quickly spell out a desideratum besides scopelessness: a matrix *will*-sentence should imply that its prejacent is true of the actual world. That is, *will* $\phi \rightsquigarrow \phi$ (' $\rightsquigarrow$ ' signals implication without committing to the nature of it). Here are some quick justifications for it. First, we can consider betting. If one bets on *It will rain on Tuesday* on a Monday, and it does rain the next day, then it seems that the person can rightfully claim that he won the bet. But that implies that *It will rain on Tuesday* implies that it rains in the actual world on that Tuesday; otherwise, the actual raining event wouldn't verify the claim and it'd be hard to judge if the bet is won.

Second, if one asserts on a Monday, *It will rain on Tuesday*, then if it turns out that it didn't rain at all on Tuesday, then the claim seems false (Comrie, 1989). Similarly, if I promise to a friend by uttering *I will pick you up* so that they can go get dinner together, but never showed up, then it seems that the promise is broken and the claim was false in retrospect. It would seem bizarre if I, in my defense, say *I said I would pick you up, but I never meant to imply that I'd actually pick you up* and insist that I didn't break a promise.

Given scopelessness (*will* $\phi \Leftrightarrow \neg \text{will } \neg \phi$), we have $\neg \text{will } \phi$ equivalent to *will* $\neg \phi$, which should then imply $\neg \phi$. These two inferences are spelled out in (7). To avoid confusion, except for the view that *will* is a tense or a quantifier over times, I will assume that *will*'s prejacent expresses a future-oriented *proposition* of type $\langle s, t \rangle$ and that *will* is not triggering temporal displacement (cf. Bochnak, 2019; Matthewson, 2012), as the paraphrases below indicate:

- (6) a. Alice will be abroad. $\rightsquigarrow$ *Alice is abroad in the actual future*
 $\text{will } \phi \rightsquigarrow \phi$
- b. It's not the case that Alice will be abroad. $\rightsquigarrow$ *Alice stays in the US in the actual future*
 $\neg \text{will } \phi \rightsquigarrow \neg \phi$
- (7) **Actuality:** By default: *will* $\phi \rightsquigarrow \phi$; $\neg \text{will } \phi \rightsquigarrow \neg \phi$.

On the view where *will* is a tense or a quantifier over times and triggers temporal displacement, the above representation is not quite accurate. For the prejacent ϕ would not be a proposition. But on that view, *will* ϕ 's being true does still imply that ϕ is true of the actual world, given some future time. Thus a close variant of **Actuality** would be accepted. To streamline the discussion, I will mostly set aside this complication and focus on views where *will*'s prejacent is a proposition, and assume **Actuality**.

I will make a particular assumption about the future orientation of *will* in the paper. The assumption is that the future orientation involves a free variable referring to a salient future time, in a fashion parallel to referential accounts of tense (Kratzer, 1998; Partee, 1973). This is to ensure scopelessness of *will* is derived as the equivalence between *will* ϕ and $\neg$ *will* $\neg\phi$. If the future orientation involved existential quantification over time, we don't get full-on equivalence between the two: while *will* doesn't interact with negation, the existential quantification over times would.⁶

Also, I will, for the most part, make the standard assumption that the modal base of *will* is historical: it contains those worlds (including the actual world) whose history up to the evaluation time match the actual history up to that point.

2.1 The single-world view

On one version of the single-world view, *will* is treated as a tense or a temporal quantifier (Von Stechow, 2003). Roughly,

- (8) *Temporal will*. $\llbracket \text{will } \phi \rrbracket^{w,t}$ is true iff for some t' future to t ($t' > t$): $\llbracket \phi \rrbracket^{w,t'} = 1$.

There is no modal displacement triggered by *will* but only temporal displacement shifting the evaluation time of the prejacent to a future time. A sentence *will* ϕ entails that ϕ is true at the evaluation world for some future time, conforming to **Actuality**. As noted above, existentially quantifying over future times wouldn't full-on validate scopelessness. But if one adopts a referential view of tense, we can interpret the truth condition as saying that *will* shifts the evaluation time to a particular future time. Scopelessness would then be validated.

More recently, Cariani (2021) and Cariani and Santorio (2018) propose a modal single-world view where *will* is a selection modal (cf. Willer, 2025). Their idea is that *will* is a peculiar modal that, by default, doesn't trigger modal displacement, but can do so in certain environments like conditionals. Specifically, this idea of default is formalized by appealing to a selection function, as developed by Stalnaker (1968).

- (9) *Selectional will*. $\llbracket \text{will}_{f,g} \phi \rrbracket^{w,t}$ is true iff for some particular $t' > t$:
 $\llbracket \phi \rrbracket^{sel(w, \max_g(f(t)(w))), t'} = 1$.

⁶Suppose *will* ϕ involves an existential quantifier over future times. Then, $\neg$ *will* ϕ would say that it's not the case that in the *will*-world(s) ϕ is true at some future time, while *will* $\neg\phi$ would say that at the *will*-world(s), at some future time $\neg\phi$ is true. These two are not equivalent on accounts that allow negation to commute w.r.t. the modal. Assuming that both imply the truth value of ϕ at the actual world w_0 , the first will imply that at no relevant future time ϕ is true at w_0 while the second will only imply that at some relevant future time ϕ is not true at w_0 . That said, see Cariani (2021) for a treatment (building on Condoravdi (2002)) where *will* ϕ conveys that ϕ is true of the entire non-past interval. For this view to work, Cariani adopts the non-standard assumption that statives merely needs to *overlap* with a reference time: *In 2000, Japan was the second largest economy in the world* merely requires the state of being the second largest economy to overlap with some point of 2000, in contrast to the standard assumption that the run-time of the state should surround the year of 2000.

The selection function *sel* takes as arguments an anchor world w and a modal domain $\max_g(f(t)(w))$, where the domain is the best worlds as ranked by $g(t)(w)$ out of $f(t)(w)$, the worlds matching the history of w up to t . By assuming **inclusion**, $\text{sel}(w, \max_g(f(t)(w)))$ will always be a member of $\max_g(f(t)(w))$. The modal domain will typically be realistic s.t. by default $w \in \max_g(f(t)(w))$ unless domain restriction takes place. And *sel* is assumed to have the formal property of **centering**: whenever the anchor w is in the domain and is available to be selected, it will be selected. Informally, *sel* selects the closest world from the anchor world w in the provided domain.

Domain restriction can make the domain unrealistic and the anchor world unavailable to be selected; in that case, some other world will be selected. In a conditional like (10), the antecedent *Bill takes the test* can restrict the modal base to only worlds where Bill takes the test. If the anchor world w is not in the restricted modal domain, it cannot be selected by *sel*. In that case, *sel* has to pick a non-actual world from the restricted domain. And *will* says that in this selected test-world, Bill passes.

(10) If Bill takes the test, he will pass.

In other words, when the anchor world w is not available to be selected, modal displacement take place. Without such domain restriction, *will* won't trigger modal displacement.

Since there is not a modal quantifier that interacts with negation on either views, negation commutes w.r.t. *will*. And if the future reference is assumed to be referential, scopelessness gets validated on both views.

The two views agree largely on the truth conditions. The advantage of the selectional view over the temporal view is that it gives a neat story of how *will* interacts with a conditional antecedent, that's compatible with the standard restrictor view of conditionals. The interaction is not so straightforward for the temporal view.

For ease of explication, I will use the selectional view as the representative of the single-world view. This is largely motivated by the complication about **Actuality** mentioned above: on the selectional view but not the temporal view, *will* can have a future-oriented proposition as prejacent. Nothing I say in the paper hinges on the choice.

2.2 The multi-world view

The multi-world view holds that *will* is a regular quantification modal, but with the worlds in its modal domain being homogeneous. That is, they either all verify or all falsify *will*'s prejacent. That leads to scopelessness.

Homogeneity as a phenomenon is well known in the case of plural definites. The key observation is that the plural definite *the students* doesn't seem to interact with negation in the same way as a quantified expression like *all students* in (11).

- (11) a. John met the students. $\approx$ John met all the students
b. John didn't meet the students. $\approx$ John met none of the students

If the plural definite behaved like a regular universally quantified expression, the negative sentence would mean instead *John didn't meet all the students* and

be true when John only met some students. In reality, the sentence is not true when John met some but not all students. Each student is somehow understood to be alike in terms of whether they stand in the meeting relation with John.

Plural definites' interaction with negation clearly resembles that of *will*. Therefore, the multi-world view holds that *will* has a homogeneous domain with respect to its prejacent, so that each world in it is alike in terms of whether they make the prejacent true or false. This can be formulated as follows:

(12) *Homogeneous will.*

$\llbracket \text{will } \phi \rrbracket^{w,t}$ is true if all accessible world w' from w at t is s.t. for some particular $t' > t$: $\llbracket \phi \rrbracket^{w,t'} = 1$.

$\llbracket \text{will } \phi \rrbracket^{w,t}$ is false if all accessible world w' from w at t is s.t. for some particular $t' > t$: $\llbracket \phi \rrbracket^{w,t'} = 0$.

A prominent example of this style of analysis is Copley (2009). Put informally, Copley holds that *will* ϕ presupposes that a salient director (the nature or an animate subject) has control over whether ϕ takes place, and asserts that in all the worlds that best conform to the director's commitments, ϕ is true.

As Copley notes, the director presupposition is effectively a homogeneity presupposition. For the intuition underlying it is that if the director is committed to ϕ , then they will bring about ϕ , but if they're not committed to ϕ , they will prevent ϕ from taking place. Specifically, on my understanding, Copley's presupposition implies that the director's abilities (at w) are s.t., for all historically accessible worlds w' from w at t , the director is committed to ϕ in w iff ϕ is true in w' (p.34). Thus, the historical worlds are either all ϕ -worlds or all $\neg\phi$ -worlds.

On this analysis, a matrix sentence *will* ϕ says that the director is capable of bringing about ϕ and is committed to doing so. Thus, ϕ would be true in all historically accessible worlds. And $\neg\text{will } \phi$ says that the director is not committed to bring about ϕ , and thus ϕ is false in all the historically accessible worlds.

Since ϕ is historically accessible from itself, *will* ϕ implies ϕ and $\neg\text{will } \phi$ implies $\neg\phi$. But, note that the presupposition involving ability is not plausible for agents. I am able to show up on time to a doctor's appointment, but that doesn't imply that if I'm committed, all the historically accessible worlds are worlds where I show up on time: some accident can hinder my ability in some historically accessible worlds. It seems that if we want to make reference to the director's ability, we might want to say that, in the agentive director's case, for every most normal or stereotypical historically accessible world w' from w , they're committed to ϕ at w iff w' verifies ϕ . But this means that we adopt a non-realistic version of the multi-world homogeneity-based view, where the evaluation world is not always among the universal quantification. And so the semantics goes against **Actuality**.

I believe that the complication involving ability is orthogonal to our discussion here. And for our purpose in this paper, it is easier to stick to a simple formulation of a homogeneity presumption where the worlds in *will*'s domain either all verify or all falsify its prejacent.

The nature of the presumption of homogeneity in the case of plural definites is debated (Bar-Lev, 2021; Križ, 2016; Križ & Spector, 2021). It's well received that encoding homogeneity as a presupposition would miss another

phenomenon called non-maximality: *John met the students* can be true when he only met nearly all the students.

Another choice point in implementing *Homogeneous will* comes down to the quantificational force of *will*. It might seem natural to assume that *will* is a universal quantifier, and when negated, the $\neg\Box$ claim amounts to $\Box\neg$ given the homogeneity presumption. I will call this the simple (universal) multi-world view. There is an alternative where *will* is an existential quantifier, but gets strengthened in the positive case to get necessity force due to homogeneity. This is parallel to the view advocated in Bar-Lev (2021) and Križ and Spector (2021) for plural definites where, underlyingly, there is existential quantification over parts of a plurality, and it gets strengthened to universal force through some additional mechanism.

2.3 Preview of the proposal

I will put forward an argument for a specification of *Homogeneous will* that unifies the single-world view and the multi-world view.

I present two sets of data arguing for two different non-generic readings of *will*: predictive *will* and dispositional *will*. The single-world view and the multi-world view cannot easily capture all the data.

The dispositional reading of *will* can be captured by a weak existential semantics of *will* with non-singleton domain. Coupled with the implicature view of homogeneity, the view also respects **Actuality**.

Moreover, we can let *will* have a singleton domain on the predictive reading. We thus account for both readings. A homogeneity-based view need not be a multi-world view. While homogeneity is substantive in the case of dispositional *will*, homogeneity would be trivially satisfied in the case of predictive *will*, which has singleton domains. We can thus achieve a unification between the single-world view and the multi-world view on a homogeneity-based view. For concreteness, this paper adopts the implicature view of homogeneity from Bar-Lev (2021).

3 Change-of-state and *will*

The first set of data use *no longer/not...anymore* as the main diagnostic. I first lay out some background about *no longer/not...anymore*, before presenting data about the interaction between *no longer/not...anymore* and *will*. In a nutshell, these expressions can scope over *will* and sometimes, but not always, convey a coherent change-of-state meaning over the *will*-state. It turns out to be difficult for the single- or the simple multi-world view to capture the whole picture.

3.1 Change-of-state

There are at least two core inferences associated with *no longer p* and *not p anymore* (Beck, 2020; Horn, 1970; Löbner, 1989; Phillips et al., 2023). One is that *p* is not true of the reference time (the negative inference), and the other is that *p* was true before that (the positive inference). Together, a change-of-state meaning is conveyed: *p* changed from true to false.

Consider (13a), which intuitively suggests both that John is not sick now and that he was sick before (at some salient past time). The presence of both inferences can be tested with ignorance continuations. If the negative inference that John isn't sick now is not licensed semantically, ignorance about if he's sick in (13d) would be coherent with (13a). Similarly, if the positive inference is not licensed, the ignorance suggested in (13e) would be coherent with (13a).

- (13) a. John is not sick anymore/John is no longer sick.
 b. $\Rightarrow$ John is not sick (now). (negative inference)
 c. $\Rightarrow$ John was sick before. (positive inference)
 d. ...#I don't know if he is sick now.
 e. ...#I don't know if he was sick before.

Since both continuations are infelicitous, we can see that both the negative and the positive inference are indeed present (semantically).

In fact, the positive inference behaves like a presupposition, while the negative inference is part of the assertive content. This can be seen if we embed the operators. In the conditional antecedent, the positive inference projects, while the negative inference doesn't.

- (14) a. If John is not sick anymore, he will go to New York.
 b. $\nRightarrow$ John is not sick. (no negative inference)
 c. $\Rightarrow$ John was sick before. (positive inference)

Similar pattern can be replicated for *no longer*. Therefore, we can conclude that in *no longer p* and *not p anymore*, that *p* is false at the evaluation time is asserted, and that *p* was true at some prior time is presupposed. And we can have the following entry, essentially adopted from Löbner (1989) and Beck (2020), to capture these inferences. Note that *anymore* is assumed to take two variables of time intervals, and the first one is presupposed to precede the second one, which is the evaluation time. The presupposition thus says that *p* is true in the evaluation world at the salient past time t^* . The assertion of *anymore* simply says that *p* is true in the evaluation world at the evaluation time t .

- (15) a. $\llbracket \text{ANYMORE} \rrbracket = \lambda t_i^*. \lambda p_{\langle i, st \rangle}. \lambda t_i. \lambda w_s : [t^* < t \wedge p(t^*)(w) = 1]. p(t)(w) = 1.$
 b. $\llbracket \text{PRES}_1 [\text{NEG} [\text{ANYMORE}_{t^*} \phi]] \rrbracket = \lambda w_s : t^* < t_1 \wedge \llbracket \phi \rrbracket (t^*)(w) = 1. \llbracket \phi \rrbracket (t_1)(w) = 0.$

Of course, these are not meant to capture every aspect about *no longer* and *not...anymore*.⁷ But to the extent that the two inferences are well grounded and would be part of the complete semantics for these phrases, we can use these inferences as diagnostics. This is what I do for the rest of the section.

⁷For instance, they both seem to select for progressives or stative events and are incompatible with telic predicates combined with perfective aspect. For instance, **John no longer drove to the game* with *drove to the game* read episodically about a specific game is ungrammatical. This is beyond the scope of our discussion here. For my purpose of capturing the interaction between them and *will*, just note that modals in general seem to be statives, instead of eventives (Ferreira, 2005). Therefore, it is expected that a *will*-sentence can be in the scope of *no longer* and *not...anymore*.

3.2 Won't anymore

From now on, let's focus on *not...anymore*. Consider the sentence in (16a). Its most prominent reading seems to convey that John won't come to the party_i (in the actual future), and that John was going to come. And (16a) can be true in a context where John had a plan to come, but got into a car accident and so can't make it.

- (16) a. John won't come to [tomorrow's party]_i anymore.⁸
 b. $\Rightarrow$ John won't come to the party_i. (negative inference)
 c. $\Rightarrow$ John was going to come. (positive inference)

The two inferences that get conveyed seem to correspond to the negative assertion and positive presupposition that we discussed earlier.

To give rise to these inferences, *not...anymore* has to scope above the *will*-sentence. First, intuitively, the two inferences together convey how the prospects of John's coming changes over time, i.e., it's the *will*-state that changed.

Second, *anymore* in general cannot have an eventive prejacent. For instance, on an episodic reading, (17a) is ungrammatical. Similarly, when a modal *can* with an eventive prejacent interacts with (*not*)...*anymore* as in (17b), intuitively we only get a reading where the modal state changes—John could come in the past but now he can't. The other configuration where *anymore* scopes between *can* and its prejacent should be as ungrammatical as (17a).

- (17) a. *John didn't come to yesterday's party anymore.
 b. John can't come to tomorrow's party anymore. ($*\neg > \Diamond > \text{ANYMORE}$)

Therefore, the possible configuration of (16a) where the presupposition trigger *anymore* is part of *will*'s prejacent should lead to ungrammaticality. We're left with the parse where *will* scopes below *anymore*.

Third, the observed inferences wouldn't be possible if *anymore* were to scope under *will*. Suppose *anymore* is under *will*, then the world(s) *will* is predicating over realizes the positive presupposition of *anymore*: it (or they) will be a world (or worlds) where at the relevant past time t^* (relative to the evaluation time in the future) John came to the party_i. And it is most natural that the presupposition projects through all the *will*-worlds (or, the *will*-world) and then negation. The sentence then presupposes that, in all those worlds (including the actual world), John came to the party_i at t^* . But this is not the most natural reading, if at all available. Intuitively, the sentence implies that John simply will not make it to the party.

So it's safe to assume that on (16a)'s most prominent reading, *anymore* has to scope above *will*.

While (16a) is coherent, it's also worth noting that (18) is infelicitous out of the blue.

- (18) #The coin will not land heads anymore (on the next toss).

A semantic account of *will* needs to account for both the felicity of (16a) and the infelicity of (18).

⁸Similarly, consider *John will no longer come to tomorrow's party*.

3.3 The single-world view

Here is the trouble for the single-worlders: it's hard to see how they predict a coherent meaning of (16a), although they seem to predict the infelicity of (18).

Let's demonstrate the point with the selectional view, for which I assume the LF in (19) where the scope relation is $\neg > \text{ANYMORE} > \text{will}$.

$$(19) \text{PRES}_1[\text{NEG}[\text{ANYMORE}_{t^*}[\text{will}_{f,g}[\text{FUT}_3[\text{tomorrow's party}^i \lambda_2[\text{John come to } t_2]]]]]]$$

As indicated earlier, I assume that *will*'s prejacent is a future-oriented proposition of type $\langle s, t \rangle$ and *will* doesn't trigger temporal displacement by itself, and the prejacent is future-oriented. For reasons explained in §2, I assume that there is a temporal pronoun FUT_n defined similarly to the present and past tense in Kratzer (1998). Specifically, FUT_n presupposes that the assignment function g assigns to n a time that's future to the context time $\text{TIME}(c)$.

$$(20) \llbracket \text{FUT}_n \rrbracket^{c,g} \text{ is defined iff } g(n) > \text{TIME}(c), = g(n) \text{ if defined.}$$

I further assume that the possessive *tomorrow's party* is a generalized quantifier, and more specifically an indefinite, over individuals. I assume that it can introduce a discourse referent indexed to i , although this assumption is merely introduced to allow me to informally refer back to the party witnessing the indefinite. For our purpose, it is enough to postulate that it is only felicitous for the indefinite to be used when $g(i)$ is a party happening the next day, in the spirit of Mandelkern (2022). So, the prejacent of *will* just says there's a particular future time $g(3)$ and some party temporally located within the next day of the date of the evaluation time (represented by *nextday*) such that John comes to the party _{i} at $g(3)$. The resulting presupposition of (19) says that at the selected world relative to w and a salient past time t^* , John comes to tomorrow's party _{i} at $g(3)$. The assertion says that it's not the case that at the selected world relative to w and the present time t_1 , John comes to the party in question at $g(3)$.

- $$(21) \begin{aligned} \text{a. } \llbracket \text{tomorrow's party} \rrbracket^w &= \lambda P. \exists x : \text{nextday}_w(x) = \text{party}_w(x) = P_w(x) = 1. \\ \text{b. } \llbracket \text{will}_{f,g} \rrbracket &= \lambda p_{\langle s, t \rangle}. \lambda t. \lambda w. p(\text{sel}(w, \max_g(f(t)(w)))) = 1.^9 \\ \text{c. } \text{Presupposition of (16a): } &\lambda w. t^* < t_1 \ \& \ g(3) > t_1 \ \& \ \text{John comes to tomorrow's party}_i \text{ in } \text{sel}(w, \max_g(f(t^*)(w))) \text{ at } g(3). \\ \text{d. } \text{Assertion of (16a): } &\lambda w. \text{John doesn't come to tomorrow's party}_i \text{ in } \text{sel}(w, \max_g(f(t_1)(w))) \text{ at } g(3). \end{aligned}$$

First of all, it's natural to assume that we're in a default setting with (16a) uttered out of the blue. In the default setting where no antecedent forces domain restriction, the modal domain $\max_g(f(t)(w))$ is always realistic regardless of time. And by **centering** *sel* will always pick the anchor world w from a realistic domain. This means the selected worlds in both the presupposition and the assertion will be the anchor world w in that case. For matrix cases, the selected world will simply be w_0 , the actual world, at both levels. For the assertion, this seems correct, as the sentence does imply that John won't come in the actual future, evidenced by the infelicitous ignorance continuation in (22b).

⁹As should be obvious, I assume a mixed system where the prejacent of *will* combines with *will* via IFA but *will* itself simply outputs $\langle i, st \rangle$. This is mostly used to save space.

- (22) a. John won't come to [tomorrow's party]ⁱ anymore.
 b. ...#But I don't know if he will actually come.

But we immediately run into a problem: the predicted presupposition is not attested. The presupposition says that the past time t^* is s.t. John come to tomorrow's party_i in w_0 at the salient future time $g(3)$, i.e., John comes to the party in w_0 at $g(3)$. This is not part of the attested meaning of the sentence.

Moreover, the predicted presupposition is inconsistent with the assertion. For the former says that John comes to the party at $g(3)$, but that's exactly what the assertion denies!

The problem in a nutshell is that the selection function is not flexible enough. An out-of-blue instance of (16a) will have the selection function at both levels select the anchor world, given **centering**. But then the positive and the negative meaning clash. As long as the two levels are about the same world and the same future time, the sentence will be predicted to be incoherent, contrary to fact.

While it doesn't predict the felicity of (16a), the selectional view's prediction that every sentence of the form $\neg > \text{ANYMORE} > \text{will}$ is incoherent does seem to get (18) (repeated as (23)) right.

- (23) #The coin will not land heads anymore (on the next toss).

This is at least consistent with the idea that (23) is about a single world at both the assertive and presuppositional level, although (16a) is not.

Anticipating my proposal later, can the selectional view suggest that (23) receives a predictive reading, but (16a) doesn't? In particular, can the selectional view maintain that on a non-predictive reading, **centering** doesn't hold for *sel*? That means, even when the evaluation world is in the input domain, it may not be selected. In that case, by the assertive content alone, *will* ϕ won't imply ϕ generally. But the assertion of (16a) does entail that John doesn't actually come to the party. The selectional view needs some additional mechanism to capture that, without (16a)'s backshifted presupposition due to *ANYMORE* implying that John actually comes. I don't see a clear way to do it.

Some stipulation about *anymore* might help predict the felicity of (16a). For instance, adding modal displacement to its presupposition might help. I will not attempt it here. For it seems like an *ad hoc* modification: no obvious modal displacement is felt in simple instances of *anymore* (e.g., *John is not sick anymore*). And this move might make the undesirable prediction that (23) comes out felicitous.

3.4 The multi-world view

Let me now note that the simple universal multi-world view also has problems deriving a coherent meaning for (16a). Later, I will develop a view where *will* is a possibility modal and quantifies over a non-singleton domain in (16a).

In the spirit of Copley, the simple view would hold that *will* ϕ conveys that every world in a realistic subset of the historically accessible worlds is a ϕ -world. Furthermore, the modal domain is presupposed to be homogeneous, so that each world agree with each other on the truth value of the prejacent. The predicted meaning is as follows (LF same as before).

- (24) a. John won't come to [tomorrow's party]ⁱ anymore.
 b. $\llbracket will_{f,g} \rrbracket = \lambda p_{\langle s,t \rangle} . \lambda t . \lambda w : (\forall w' \in \max_g(f(t)(w)) : p(w) = 1) \vee (\forall w' \in \max_g(f(t)(w)) : p(w) = 0) . \forall w' \in \max_g(f(t)(w)) : p(w) = 1$.
 c. Presupposition (besides homogeneity): $\lambda w . t^* < t_1 \ \& \ g(3) > t_1 \ \& \ \forall w' \in \max_g(f(t^*)(w)) : \text{John comes to the party}_i \text{ in } w' \text{ at } g(3)$.
 d. Assertion: $\lambda w . \neg \forall w' \in \max_g(f(t_1)(w)) : \text{John comes to the party}_i \text{ in } w' \text{ at } g(3)$.

First, because of homogeneity, the weak assertion $\neg \forall$ ends up getting strengthened to $\forall \neg$: if some world falsifies the prejacent then all does. Thus it's implied that every world in $\max_g(f(t_1)(w))$ is a not-come world.

Second, because the domains are realistic relative to both t^* and t_1 , the presupposition and the assertion are not consistent together. The former entails that the actual world is a come-world while the latter denies that.

Of course, if we allow *will* to have non-realistic domains, the problem of incoherence will be gone: the presupposition and the assertion can be about two non-overlapping sets of worlds. The problem with this modification is that, with unrealistic domain, the assertion wouldn't ensure that John doesn't come in the actual future. But we do take (24a) to imply that John won't actually come, as shown above.

As I will argue, the coherent reading of (24a) is a dispositional reading of *will*. And it is best captured by assuming that *will* is a possibility modal with a realistic domain. The existential entry will also allow us to capture the infelicity of (23), by assuming that *will* has a predictive reading that receives a singleton totally realistic domain (replicating the result of the single-world view).

4 Free choice *any*

In this section, I add more data supporting the hypothesis that *will* is a possibility modal.

The distribution of *any* is very limited. In general, it is only licensed in (Strawson) downward-entailing environments (e.g., under negation). It is generally observed that upward-entailing environments don't license *any*. As an example, in the upward-entailing environment in (25a), *any* is not licensed. In contrast, in the downward-entailing environment in (25b), *any* is licensed. To illustrate, we use $\llbracket a \text{ 1st-year student} \rrbracket \subseteq \llbracket a \text{ student} \rrbracket$ as an example where, abusing the notation a little bit, the set characterized by the former entails (is a subset of) the set characterized by the latter.

- (25) a. *Bill greeted anyone.
 b. Bill didn't greet anyone.
- (26) a. Upward-entailing: $\llbracket \text{Bill greeted a 1st-year student} \rrbracket \subseteq \llbracket \text{Bill greeted a student} \rrbracket$
 b. Downward-entailing: $\llbracket \text{Bill didn't greet a student} \rrbracket \supseteq \llbracket \text{Bill didn't greet a 1st-year student} \rrbracket$

However, it is observed that possibility modals, while upward-entailing w.r.t. *any*'s position by classical modal logic, do license *any*. (We will briefly go through a more precise formulation of *any* licensing from Crnič (2019b) in §7.)

- (27) a. Bill can give John anything.
b. Bill can give John any gift.

In contrast, while necessity modals like deontic *must* is also upward-entailing, they don't license *any*.

- (28) a. *Bill must give John anything.
b. *Bill must give John any gift.

Surprisingly, the behavior of *will* in terms of licensing *any* is (sometimes) close to a possibility modal. Sometimes, *will* can license *any* in its scope.

- (29) a. Paul will pay ANY price to go to the concert.
b. Joe will vote for ANY candidate (in this election).
c. Bill will greet ANY colleague.

However, *any* is not always licensed under *will*. And it is important for a full account of *will* to account for the variability too.

- (30) *The die will land on ANY side (on this toss).

Neither the single-world view nor the simple universal multi-world easily predict the full pattern. Let us first consider the prediction of the single-world view. For the single-world view, the only difference between *Bill greeted John* and *Bill will greet John* is temporal, and there's no modal difference. Therefore, the single-world predicts that the sentences in (29) are exactly parallel to the (a)-(c) sentences in (31), and thus *any* shouldn't be licensed.

- (31) a. *Paul paid ANY price to go to the concert.
b. *Joe voted for ANY candidate (in the past election).
c. *Bill greeted ANY colleague.
d. *The die landed on ANY side (on the last toss).

The parallel is clearly incorrect for the sentences in (29), although it does seem to be the right prediction for (30), where *any* is not licensed.

For a simple multi-world view where *will* is a necessity modal, that *will* can license *any* in (29) is also unexpected.

That *will* can license *any* just like *can* provides evidence that it is underlyingly a possibility modal. This is the view I will pursue. I will argue that *will* is a possibility modal that comes with a homogeneity presumption, and more specifically, a homogeneity implicature. The implicature view will be introduced in §5. The proposal will be given in §6 and applied to data with *won't...anymore*. And I demonstrate in §7 that this accounts for the *any*-licensing pattern.

5 Implicature-based homogeneity

In this section, I introduce the (scalar) implicature view of homogeneity in Bar-Lev (2021), which will be used for my account of *will*.

Two clarifications. First, Bar-Lev works with the grammatical approach to scalar implicatures, but my account of *will* is, of course, compatible with a pragmatic account of scalar implicatures, provided that they derive similar inferences.¹⁰ Second, while the homogeneity presupposition assumed by Copley won't work well with my semantics to derive desired inferences, we can in principle plug in other accounts of homogeneity like Križ (2016) and Križ and Spector (2021). The implicature view is adopted for easier explication.

The implicature view of homogeneity in Bar-Lev (2021) is built on the account of free choice (the inference from (32a) to (32b)) in Bar-Lev and Fox (2017),

- (32) a. Mary can have cake or ice cream. $\Diamond(C \vee I)$
 b. $\neg$ Mary can have cake; Mary can have ice cream $\Diamond C \wedge \Diamond I$

where free choice inference arises as a scalar implicature due to exhaustification.

The basic idea is that a grammatical exhaustivity operator exh applies to a sentence ϕ and a set of alternatives to ϕ , C , and adds additional contents to ϕ about some alternatives. In the first step of the procedure, we go through the alternative set C and find the maximal subset of C with only *innocently excludable* (IE) alternatives s.t. the conjunction of their negation (i) is consistent with ϕ , AND (ii) doesn't entail, together with ϕ , any other alternative.¹¹ For all the IE alternatives, given C , exh would conjoin the negation of them to the prejacent, as in (33).

- (33) $\llbracket \text{exh} \rrbracket^C(\phi) = \phi \wedge \forall \psi \in \text{IE}(\phi, C) : \neg \psi \wedge \dots$ (to be completed)

The output of the exclusion step doesn't generate a contradiction. For (32a), we assume the alternative set in (34b). Of course, the negation of ϕ cannot be consistent with itself. For the other two alternatives $\Diamond C, \Diamond I$, the negation of each is consistent with $\Diamond(C \vee I)$, but these negations aren't jointly consistent with $\Diamond(C \vee I)$. So they can't be both IE. But then condition (ii) kicks in, and prevents us from picking one to be IE while leaving the other out. For $\Diamond(C \vee I)$ and the negation of one entails the truth of the other. This is meant to rule out arbitrariness in which alternative to exclude. Given that they each fail (ii), neither $\Diamond C$ nor $\Diamond I$ is IE.

- (34) a. $\phi = \Diamond(C \vee I)$
 b. $C = \{\Diamond(C \vee I), \Diamond C, \Diamond I\}$

Then we get to the second step of the exhaustification: innocent inclusion. This step finds those alternatives whose conjunction (i) would be consistent with the

¹⁰For most of my data, only matrix exh is involved. But for certain views of *any*-licensing (Crnič, 2019a, 2019b), local scalar implicature is needed, which assumes the presence of exh (see appendix); but that is orthogonal to the question about *will*.

¹¹This is a reformulation of the formal definition of innocent exclusion from Fox (2007).

(1) $\text{IE}(\phi, C) = \bigcap \{C' \subseteq C : C' \text{ is a maximal subset of } C \text{ s.t. } \{\neg q : q \in C'\} \cup \{\phi\} \text{ is consistent}\}$

result of the exclusion step, and (ii) together with the result of the exclusion step would not entail the falsity of any (remaining) alternative.¹² Again, condition (ii) is meant to prevent us from picking one arbitrarily to include.

As can be easily verified, both $\Diamond C$ and $\Diamond I$ are innocently includable (II) alternatives. And the complete entry for EXH asserts that the prejacent ϕ is true, that all its IE alternatives are false, and all its II alternatives are true.

$$(35) \quad \llbracket \text{EXH} \rrbracket^C(\phi) = \phi \wedge \forall \psi \in IE(\phi, C) : \neg \psi \wedge \forall \gamma \in II(\phi, C) : \gamma \\ = \Diamond(C \vee I) \wedge \underline{\Diamond C \wedge \Diamond I}$$

This gives us the free choice inference (underlined), since the truth of both II alternatives $\Diamond C$ and $\Diamond I$ are in the assertive content.

Bar-Lev (2021) utilizes innocent inclusion in his account of homogeneity in plural definites. He assumes the LF structure in (36b) for (36a), with an obligatory existential quantifier. This quantifier, with a salient domain D , takes a predicate of individuals P , a plural x , and asserts that some individual in D who is an atomic part of x verifies P . (It's assumed that D contains all the atomic parts of x .)

- (36) a. The students passed.
b. $[\text{the students}][\exists - PL_D \text{ passed}]$
c. $\llbracket \exists - PL_D \rrbracket^w = \lambda P_{\langle e, t \rangle}. \lambda x_e. \exists y \in D \cap \text{ATOM}(x) : P_w(y) = 1.$
d. $\text{ATOM}(x) = \{y : y \sqsubseteq_{AT} x\}$ (the atomic parts of x)
e. $\llbracket [\text{the students}][\exists - PL_D \text{ pass}] \rrbracket^w = \exists y \in D \cap \text{ATOM}(\llbracket \text{the students} \rrbracket^w) : \text{pass}_w(y) = 1.$

The crucial assumption is about the alternative set of $\exists - PL_D$. It is assumed that it only has subdomain alternatives $\exists - PL_{D'}$, with the original domain D replaced by its subsets D' .¹³ For instance, a domain $\{\text{Alice}, \text{Bob}\}$ has two subdomain alternatives besides itself, $\{\text{Alice}\}$ and $\{\text{Bob}\}$. And the alternatives to the whole sentence containing $\exists - PL_D$ just have it replaced by its subdomain alternatives. The alternative set for (36b) is as in (37b). Assuming that $D = \{\text{Alice}, \text{Bob}\}$, where both are students, these alternatives can be written as (37c).

- (37) a. $\text{Alt}(\exists - PL_D) = \{\exists - PL_{D'} \mid D' \subseteq D\}$
b. $C = \{\llbracket [\text{the students}][\exists - PL_{D'} \text{ passed}] \rrbracket \mid D' \subseteq D\}$
c. $\{\exists y \in \{\text{Alice}, \text{Bob}\} : y \text{ passed}, \exists y \in \{\text{Alice}\} : y \text{ passed}, \exists y \in \{\text{Bob}\} : y \text{ passed}\}$

Note that a subdomain alternative is parallel to a disjunct alternative. *Some y passed* with a domain containing only Alice and Bob is just equivalent to *Alice or Bob passed*. And the subdomain alternatives in (37c) are each in turn equivalent to some alternative of the relevant disjunction (*Alice passed, Bob passed*).

¹²This is a reformulation of the formal definition of innocent inclusion from Bar-Lev and Fox (2017).

(1) $II(\phi, C) = \bigcap \{C'' \subseteq C : C'' \text{ is a maximal subset of } C \text{ s.t.} \\ \{r : r \in C''\} \cup \{\phi\} \cup \{\neg q : q \in IE(\phi, C)\} \text{ is consistent}\}$

¹³Subdomain alternatives are independently used in accounts of NPI licensing (Chierchia, 2006; Crnić, 2019b), as we'll see in §7.

The final step of this implicature account of homogeneity consists simply of applying EXH to the sentence containing a plural definite. Each sentence with a subdomain alternative is innocently includable and there is no IE alternative. The sentence gets strengthened to the claim that every subdomain alternative is true, which means that every individual in the domain D ($\{Alice, Bob\}$) passed.

- (38) a. $II(\llbracket[\text{the students}][\exists - PL_D \text{ passed}]\rrbracket, C) = C$ (C as in (37b))
 b. $\llbracket\text{EXH}[\llbracket[\text{the students}][\exists - PL_D \text{ passed}]\rrbracket]\rrbracket^C$
 $= \exists y \in \{Alice, Bob\}: y \text{ passed} \wedge \exists y \in \{Alice\}: y \text{ passed} \wedge \exists y \in \{Bob\}: y \text{ passed}$
 $= Alice \text{ passed} \wedge Bob \text{ passed}$

Of course, an account of homogeneity also needs to account for the universal reading of plural definites under negation. This is easy for Bar-Lev's account, because the existential quantifier is directly targeted by negation, giving a reading where no one passed.

- (39) a. $\text{NEG}[\text{the students}][\exists - PL_D \text{ passed}]$
 b. $\llbracket[\text{the students}][\exists - PL_D \text{ passed}]\rrbracket$
 $= \neg \exists y \in \{Alice, Bob\}: y \text{ passed}$

Note that in the negative case, no strengthening is possible and EXH need not apply.

In summary, a plural definite carries an existential quantifier that gets strengthened to universal force via implicature in positive environments; in negative environments, the existential force is shown. As a result, a plural definite appears to carry the presumption that everyone in the domain is alike in whether they verify the predicate.

6 Homogeneous *will* via implicature

We can adopt the implicature view of homogeneity to spell out *Homogeneous will*, where homogeneity is essentially the conspiracy of an existential quantifier with only subdomain alternatives, and exhaustification (for similar approaches to other modal expressions, see Bassi and Bar-Lev, 2018; Jeretic, 2022; Oikonomou, 2023; Staniszweski, 2021). This proposal naturally helps with two problems I pointed out for the single-world view and the simple multi-world view involving *won't...anymore* and the licensing of *any*.

In particular, I will give a single entry of *will* and explain the variability of *will*'s interaction with *not...anymore* and *any*, via the availability of the predictive *will* and the dispositional *will*.

6.1 A first pass

Here's a simplified version of the proposal. First, we analyze *will* as a possibility modal as in (40) with only subdomain alternatives.¹⁴ Exhaustification will

¹⁴I omit the procedure in Bar-Lev's account where we have a plural and make an existential claim over its atomic parts for *will*, and simply assume that we have the usual Kratzerian domain of individual worlds, and *will* existentially quantifies over it.

strengthen the existential claim to universal force in positive environments. Under negation, they are of existential force ($\neg\Diamond$) but the sentence ends up strong. This accounts for the scopelessness of *will* via homogeneity: both the positive and the negative *will* license the inference that every domain world is alike w.r.t. the prejacent.

(40) First pass:

$$\llbracket will_{f,g} \rrbracket = \lambda p_{\langle s,t \rangle}. \lambda t_i. \lambda w_s. \exists w' \in \max_g(f(t)(w)) : p(w') = 1. \quad (\Diamond)$$

(41) Mary will take semantics. ($\Box$)

(42) Mary won't take semantics. ($\neg\Diamond$)

Second, we will assume a realistic domain for *will* (i.e., the evaluation world is always in the domain). We may assume that the modal base f is historical or stronger, and g is either vacuous or encodes (possibly a subset of) the actual laws of nature at w . The desired inference from *will* ϕ to ϕ will come out as an implicature when the domain is not a singleton, and an entailment when it is a singleton.

Let me spell out the assumptions that capture the homogeneity of *will*. I assume that *will* only has subdomain alternatives, as stated in (43) (adapted from Staniszewski, 2021).

$$(43) O = Alt(will_{f,g}) = \{\lambda p. \lambda t. \lambda w. \exists w' \in D(t)(w) : p(w') = 1 \mid \forall t \forall w : D(t)(w) \subseteq \max_g(f(t)(w))\}$$

We get the alternative set C of a *will*-sentence, say, *Mary will take semantics* ($= \phi$) by substituting *will* by its subdomain alternatives in O . Suppose the original (realistic) domain contains only w_0 and w_1 , with w_0 being the actual world. We mark the domain with subscript. Then C is represented as (45), whose elements each make an existential claim over a subset of the original domain $\{w_0, w_1\}$. These alternatives are all innocently includeable and will all be added to the assertive content by EXH. The realistic possibility claim thus implicates a veridical necessity claim, which entails that w_0 is an S -world.

$$(44) \phi = \Diamond_{\{w_0, w_1\}} S \quad (S \text{ for } Mary \text{ takes semantics in the future})$$

$$(45) C = \{\Diamond_{\{w_0, w_1\}} S, \Diamond_{\{w_0\}} S, \Diamond_{\{w_1\}} S\} = II(\phi, C)$$

$$(46) EXH(\phi) = \bigwedge_{\varphi \in II(\phi, C)} \varphi \Leftrightarrow \Box_{\{w_0, w_1\}} S \Rightarrow \boxed{S}$$

When ϕ is negated, we simply have $\neg\Diamond_{\{w_0, w_1\}} S$ which is equivalent to the veridical claim $\Box_{\{w_0, w_1\}} \neg S$, and it entails $\neg S$ at w_0 (EXH, again, need not apply here).

Hence, by homogeneity, *will* behaves as if it were a universal modal in positive context; in negative contexts, its existential force is shown. The worlds in the domain hence appear to agree with each other w.r.t the prejacent's value. By having realistic domains, the proposal also captures **Actuality** as it licenses desired inferences about the actual future.

The toy semantics predicts that sentence (16a) (repeated as (47a)) has a coherent reading with non-singleton domain: it's presupposed that John's coming was possible, but is not possible now. But it doesn't derive the positive inference that John was going to come yet.

(47) a. John won't come to [tomorrow's party]ⁱ anymore.

- b. $\Rightarrow$ John won't come to the party_i. (negative inference)
 c. $\Rightarrow$ John was going to come. (positive inference)

To see why this is problematic, consider the following context, where (47a) is infelicitous. The toy semantics predicts that the sentence is true in this context, because here John's coming was previously possible, but is not currently possible.

- (48) **Strategy:** John had decided that whether he would come to tomorrow's party would depend on a coin flip: if the coin landed heads, he would come, but if it landed tails, he wouldn't. After the coin landed on tails, John decided that he would not come to the party.
 #John won't come to tomorrow's party anymore.

To solve this issue, I introduce a settledness presupposition to the entry. In the next subsection, I'll explain how to account the variability in the data we see, before turning back to sentences involving *won't...anymore*.

6.2 Proposal

The official proposal for the entry of *will* is as follows. The difference from the first pass is that *will* now is treated as encoding a settledness presupposition. It receives an additional argument, which is treated as a free variable of the same type as the modal base f ,¹⁵ and encodes a presupposition about *will*'s prejacent. Given input time t and world w , it outputs a salient proposition and it is presupposed that this proposition either entails the prejacent p , or the negation of the prejacent, $\neg p$: the truth value of p is settled w.r.t. it. The alternative set of $will_{q,f,g}$ will be exactly the same as in (43) except that *will* now takes q as an argument, which doesn't affect the assertive content.

- (49) $\llbracket will \rrbracket = \lambda q_{\langle i, \langle s, st \rangle \rangle} \lambda f_{\langle i, \langle s, st \rangle \rangle} \lambda g \cdot \lambda p_{st} \cdot$
 $\lambda t_i \cdot \lambda w : (q(t)(w) \subseteq p) \vee (q(t)(w) \subseteq \neg p). \exists w' \in max_g(f(t)(w)) : p(w') = 1.$
 defined only if $q(t)(w)$ entails either p or entails $\neg p$,
 if defined, $= 1$ iff some world in $max_g(f(t)(w))$ verifies p .

The main thesis of my proposal will be that *will* has at least two readings—a dispositional reading and a predictive reading—and these readings arise due to some particular combination of q , f and g . Moreover, I will assume that *will* always receives a realistic domain, and the modal domain is historical or stronger (e.g., totally realistic).

For these two readings, the choices of q would be different. Under the predictive reading, the salient proposition at a given w and t will simply be the singleton set $\{w\}$. That is, q will be a **totally realistic function** that, given t and w , outputs a singleton set $\{w\}$. Therefore, given this singleton set, the disjunctive presupposition gets reduced to an instance of the excluded middle inference, according to which it is logically valid that at least one of ϕ and $\neg\phi$ is true for any

¹⁵The alternative would be to simply let it be of $\langle i, st \rangle$ and to let it denote a fixed proposition given a time. However, this is not enough once we embed *will* under a modal or an attitude verb: we want the modal to bind a world argument of q as well. For instance, if we consider the dispositional *will* under *believe*, we want the presupposition to say that it's believed that the disposition state entails the prejacent or its negation.

ϕ . For the presupposition simply says that the proposition $\{w\}$ either entails p or it entails $\neg p$.

Excluded Middle: $\models \phi \vee \neg \phi$

So, the disjunctive presupposition can be trivially satisfied when *will* receives a predictive reading (for a fragment of language that sets aside presuppositions, at least).

Under the dispositional reading, q will be a salient **disposition function**: the proposition it outputs relative to w and t will be a salient dispositional state of an individual or an object at t in w . The presupposition will say that the worlds compatible with a salient set of dispositions anchored to t and w entail p or entail $\neg p$. That is, the dispositional state settles whether p will be realized throughout $q(t)(w)$. Note that dispositions are commonly understood as defeasible: a glass is fragile and is disposed to break but it's very possible that it never actually breaks (Lewis, 1997). Thus, the settledness presupposition doesn't imply much about whether p (or $\neg p$) will actually be realized at w .

I will group the so-called *volitional* or *bouletic* reading of *will* under dispositional *will* (Copley, 2009; Kaufmann, 2005): volitional *will* is anchored on an agent's intentions or plans, and it is plausible to hold that these are dispositional states in nature.

Note that the choice of q doesn't affect the modal domain or the assertion. But I suggest that the two readings of *will* have different choices of modal base and modal domain, although in both cases the modal domain is realistic. The predictive reading of *will*, I submit, has a totally realistic domain. At an evaluation world w , the domain is simply $\{w\}$ for any t , and existential quantification over it becomes rather trivial. This is close to the spirit of Cariani (2021) and Cariani and Santorio (2018) (cf. Willer, 2025), with a different path to the same truth condition. And this can be done by having a modal base that for each world w and any time only returns the singleton set containing that world itself ($\{w\}$), and a vacuous ordering source. Thus, on the predictive reading, *the coin will land on heads* just says that in the actual future of w the coin lands heads.

However, existential quantification is needed for dispositional *will*. I assume that, in that case, the modal base is historical, containing facts about the relevant dispositions. The ordering source can be vacuous, encode laws of nature that hold in the evaluation world, or it can encode normality in a way sensitive to what holds (/will hold) in the evaluation world (see Goodman & Salow, 2023, for this kind of account of normality in the analysis of knowledge); realistic domain is ensured by any of these options. The basic assertion of *Al will go to New York* on a dispositional reading is that Al could go to New York given the relevant settled facts, including his dispositions; the presupposition in a default context will be that he's either disposed to go to New York or to not go to New York (although the disposition state doesn't have to be the subject's).¹⁶

Can we find evidence supporting that dispositional *will* has the settledness presupposition about some salient disposition state? One diagnostic for presupposition comes from von Stechow (2004). It's observed that it's felicitous to object

¹⁶While this might seem similar to the planning component from Copley (2008) in spirit, Copley's conception of plan also requires that the plan is of a director who can necessitate the planned outcome, which is much stronger.

to presupposed content of one's interlocuter's utterance (and it's not felicitous to do so targeting asserted content). For instance, assertion below presupposes that there is a King of France, which can be felicitously questioned by B's response.

- (50) a. A: The King of France lives in Paris.
b. B: Hey, wait a minute. I had no idea that France has a King.

Similarly, suppose we are in a context where A and B both know that Al has been debating about whether to go to New York or LA. A's utterance naturally presuppose that Al has an intention about whether to go to New York, when *will* receives a dispositional reading. And it seems that B's response is felicitous—they can resist accommodating the settledness presupposition by using *Hey, wait a minute*, provided that they find it unlikely that Al's reached a decision.

- (51) a. A: Al will go to New York for the break.
b. B: Hey, wait a minute. I had no idea that Al made up his mind (about whether to go to New York).

This diagnostic seems to support the existence of the settledness presupposition I'm postulating here. In contrast, for a single-world view, the felicity of B's response is hard to explain. For A's utterance doesn't convey that Al made up his mind at all.

Summary (leaving open further readings):

	predictive reading	dispositional reading	...
q	totally realistic function	disposition function	...
domain	realistic&singleton	realistic&non-singleton	...

I will assume that *will*-sentences with inanimate subjects tend to receive a predictive reading.

Note that on the dispositional reading, it's presupposed that the salient disposition state at the evaluation world w settles the truth of *will*'s prejacent. Moreover, the worlds in the modal domain agree with the evaluation world about all settled facts. So, they also agree with w on which way the salient disposition state settles the prejacent.

It's worth noting that the dispositional reading of *will* is elusive in a certain sense. When the presupposition of it fails and no salient disposition state settles whether the prejacent is true, we always have, in principle, the option to read the sentence as predictive. But I do suspect that dispositional readings are preferred when agents are involved. Consider the following case

- (52) **Exam:** Al has been studying with Joe for the past 2 hours for an exam in a room. Joe comes out and says to Mary:
Al will ace the exam.

Suppose Mary wants to ask for the reason behind Joe's utterance. It seems natural for her to ask Joe for his evidence that Al is going to do well. And it would be odd if she were to ask what has made Al made up his mind to ace the exam. Presumably, Al cannot simply decide and thus be disposed to ace the exam (since it's not known how difficult the exam will be). A predictive reading is natural for **Exam**. This contrasts with the following case

(53) **Vacation:** Al has been discussing with Joe about where Al should go for vacation in a room. Joe comes out and says to Mary:

- a. Al will go to New York.
- b. Al hasn't decided. But he will go to New York.

Here, it seems very natural for Mary to ask what made Al want to go to New York, upon hearing (53a), instead of asking what evidence for Joe's thinking that way. This suggests (53a) naturally receives a dispositional reading. But, explicit denial of the settledness presupposition of the reading as in (53b) forces a predictive reading that invites the latter kind of questions.

A conceptual motivation for the existential dispositional *will* can also be given. If Al has decided to go to New York tomorrow, and is thus disposed to do so, it is still not guaranteed that he will execute that successfully. He could get sick, there could be delays, etc. Thus, it seems to make sense that the basic assertion of *Al will go to New York* is only that given the facts and the dispositions, he could go to New York. The inference that he will actually go to New York is also present, but only as an implicature produced by EXH (or a possibly pragmatic counterpart).

I will briefly note that the semantics sidesteps an objection from Cariani and Santorio (2018) against a simple universal multi-world view of *will*. The objection goes as follows. On the analysis, *will* is a necessity modal with a historical modal base and a homogeneity presupposition. And *The coin will land heads* is true at w iff in all the historical alternatives to w , the coin lands heads at a particular future time. And the sentence is undefined if there's any disagreement among the historical alternatives about the result of the flip.

If the coin is fair, the homogeneity presupposition of this sentence would be violated, as landing on either side is possible. And so the sentence has no truth value, and thus, naturally, we either can't assign a (subjective) probability to it, or can only assign an extreme probability.

Cariani and Santorio observe that this is incorrect: we can still assign non-extreme subjective probability to the sentence. For a fair coin, it seems that assigning .5 probability to *The coin will land heads* is rationally permissible. More generally, identifying the probability of *will* ϕ on a predictive reading with the probability of ϕ of *will* seems rational. Cariani and Santorio derive this by developing the selectional single-world view, where $\llbracket \text{will } \phi \rrbracket^{t,w} \Leftrightarrow \llbracket \phi \rrbracket^{t,w}$. But my view accommodates this desideratum equally well, because on my view, the truth condition of a matrix predictive *will* sentence is the same as that predicted by the selectional view and the equivalence also holds.

Since the view in Cariani (2021) and Cariani and Santorio (2018) essentially focuses exclusively on predictive *will*, the desideratum they lay out doesn't necessarily apply to dispositional *will*. But we can still want (many) dispositional *will*-sentences to have non-extreme probabilities. And this can be done. One way to do it is to assume that homogeneity implicature constrains the value of f, g so that homogeneity (typically) won't fail:¹⁷ every world in the domain

¹⁷See Heim (1982) (also Hackl (2019)) on definites where the presupposition of the definite does exactly this: it puts a constraint on the admissible resolution of the relevant variable and so a hearer that accommodates the presupposition can rely on this to disambiguate. Whether scalar implicature can do the same needs further research. Another way to avoid implicature failure is to prune out

agrees with the evaluation world w.r.t. the prejacent's truth. Then, the prejacent and the *will*-sentence become equivalent. If the prejacent receives a non-extreme probability, the dispositional *will*-sentence will receive the same probability.¹⁸

6.3 Solving the problem of *won't anymore*

Now we need to deal with *will* in the scope of *not...anymore*. Recall the sentence (16a) (repeated as (54a)) and its two main inferences.

- (54) a. John won't come to [tomorrow's party]ⁱ anymore.
 b. $\Rightarrow$ John won't come to the party_i. (negative inference)
 c. $\Rightarrow$ John was going to come. (positive inference)

The LF I assume is in (55) and it involves dispositional *will*. Notice a few things: (i) the assertion negates a realistic possibility claim and hence entails that John doesn't come in the actual world, (ii) the basic presupposition from *ANYMORE* will be a past-possibility claim, and (iii) since the assertion is the strongest among its alternatives at the matrix level, a matrix *EXH* can be omitted.

- (55) [PRES₁[NEG[ANYMORE_{t*}
 $[will_{q,f,g}[\phi FUT_3[tomorrow's\ party^i \lambda_2[John\ come\ to\ t_2]]]]]]]$

Given the semantics in (40), we derive the following meaning, with three notable presuppositions (besides a presupposition that *g*(3) is in the future). The first presupposition comes from *anymore* presupposing that its prejacent is true w.r.t. *t**, where the backshifted prejacent itself presupposes PR-2 below (ϕ abbreviates *will's* prejacent). The third presupposition comes from the assertion relative to the present *t*₁.

- (56) a. PR-1: $\lambda w. t^* < t_1 \ \& \ \exists w' \in max_g(f(t^*)(w)) : \text{John comes to tomorrow's party at } g(3) \text{ in } w'.$
At the relevant past time t^* , John's coming to the party at $g(3)$ was possible
 b. PR-2: $\lambda w. (q(t^*)(w) \subseteq \llbracket \phi \rrbracket) \vee (q(t^*)(w) \subseteq \llbracket \neg \phi \rrbracket).$
At the relevant past time t^* , it was settled w.r.t. $q(t^*)(w)$ whether John comes to the party at $g(3)$
 c. PR-3: $\lambda w. (q(t_1)(w) \subseteq \llbracket \phi \rrbracket) \vee (q(t_1)(w) \subseteq \llbracket \neg \phi \rrbracket).$
At present (t_1), it's settled w.r.t. $q(t_1)(w)$ whether John comes to the party at $g(3)$

certain would-be innocently includable alternatives, to weaken the overall implicature (Bar-Lev, 2021).

¹⁸Of course, one might think that we shouldn't be certain that homogeneity always holds. If we should be uncertain whether homogeneity holds, it seems natural to calculate the probability of *John will come to the party tonight* by the law of total probability. Let 'h' be the proposition that homogeneity holds. Consider the probability of the basic weak *will* claim ($\diamond j$).

$$P(\diamond j) = P(h)P(\diamond j \mid h) + P(\neg h)P(\diamond j \mid \neg h)$$

And the probability of the sentence after exhaustification would be

$$P(\Box j) = P(h)P(\Box j \mid h) + P(\neg h)P(\Box j \mid \neg h) = P(h)P(\Box j \mid h) = P(h)P(j \mid h)$$

Both probabilities will tend to be non-extreme, as desired.

- d. Assertion: $\lambda w. \neg \exists w' \in \max_g(f(t_1)(w)) : \text{John comes to tomorrow's party at } g(3) \text{ in } w'$.
At present, John's coming to the party at } g(3) \text{ is not possible}

The past possibility presupposition PR-1 by itself seems weaker than the felt inference, closer to *John was supposed to come* or *John was going to come*. I will argue below that this felt inference arises due to a natural pragmatic inference given the combination of PR-1 and the settledness presupposition, PR-2.

Before that, I want to say more about how PR-2 helps with accounting for instances of (54a) that are felt infelicitous. If my suggestion about predictive *will* that it involves a singleton modal domain is correct, then that can't be the reading *will* receives in (54a). For it would lead to an incoherent meaning. And in a default context, q will naturally be a disposition function that, given a t and a w , returns the set of worlds compatible with John's dispositions (or, intentions) in w at t . Therefore, PR-2 amounts to the following

- (57) PR-2 $\approx$ John was, at t^* , either disposed to come to the party later, or disposed not to come later

This will be crucial to deriving the inference *John was going to come*. But it also helps derive infelicity of (54a) in certain contexts.

The most prominent reading of (54a) in an out-of-blue context is compatible with the following “change of plan” context:

- (58) **Change:** John had planned to come to tomorrow's party. But he got injured from a car accident yesterday. So he can't make it now.
 John won't come to tomorrow's party anymore.

However, (54a) is infelicitous in the following context.

- (59) **Strategy:** John had decided that whether he would come to tomorrow's party would depend on a coin flip: if the coin landed heads, he would come, but if it landed tails, he wouldn't. After the coin landed on tails, John decided that he would not come to the party.
 #John won't come to tomorrow's party anymore.

Here's a way to tell the two contexts apart. In **Change**, John made two unconditional plans: at first, he made a decision to come, and later had to intend not to come. But this is different from **Strategy**. There, John only had conditional plans initially (or, a strategy), and it's only after the coin flip did he reach an unconditional plan about whether to come.

On the dispositional reading, the contrast is straightforwardly explained. The settledness presupposition, understood as about John's dispositions, is that John had (at t^*) a disposition about whether to come to the party. And t^* is also presupposed (by PR-1) to be a point where coming was possible. These can't be both satisfied in the context of **Strategy**. In that context, a plan (hence disposition) about whether to come was only formed after the coin flip, at which point John's coming was not possible because the coin landed on tails.¹⁹ So, by PR-1, we'd infer t^* can only be before the coin flip, but there was no definite disposition

¹⁹That is, we assume that the context eliminates abnormal worlds where John wouldn't follow his strategy or he would be brought to the party by force etc..

about whether to come before the flip. Thus, (54a) suffers from presupposition failure in **Strategy**.

In contrast, the predicted presuppositions are satisfied for **Change**. There, John had previously formed the intention to come to the party, which suffices for a relevant past disposition to come; and, at that time, coming was indeed a possibility. Moreover, at the present, since John got injured and cannot make it to the party, we can easily accommodate the presupposition by accepting that John's current dispositions entail that he won't come. And, at the assertion level, (16a) says that John's coming is not presently possible, which is true.

Therefore, we correctly predict that (54a) is true in **Change** but cannot have its presupposition satisfied in **Strategy**.

The presuppositions of (54a) introduced above can also help us, in an out of the blue context, get to the inference from *John won't come to the party anymore* to *John was going to come to the party*. From the presupposition that John's coming was possible at t^* (PR-1), and that at t^* John had a disposition about whether he would come (PR-2), we can naturally infer that at t^* he was disposed to come. And this inference could make true the progressive paraphrase of the felt inference.

Specifically, we can reason as follows. John had a disposition about whether to come, and his current plan has to be not to come because the assertion says coming is not possible. If he previously had a disposition to come, coming would then certainly be possible at the time. If he had a disposition not to come initially, then in a default context, he can avoid coming and thus coming being a live possibility at the time would be very unlikely, if not impossible. Therefore, if John's past disposition was to come, coming was definitely a possibility, but if his plan was not to come, then (most likely) coming wasn't a possibility. Now, since (54a) presupposes that at the past time t^* John's coming was possible, then, given that, it should be highly likely that his past disposition at t^* was to come (assuming that we don't independently take his having a plan to come to be very unlikely). Therefore, we can infer that his disposition at t^* was to come. This explains the paraphrase we gave, that he was going to come.

We also need to account for the infelicity of (60) uttered out of blue about a fair coin.

(60) #The coin will not land heads anymore (on the next toss).

This can be due to a range of factors. First, on a dispositional reading, (60) would presuppose that the coin at the relevant past time was either disposed to land heads or disposed to land tails. But this is intuitively false for a fair coin. Second, on a predictive reading, part of the presupposition of (60) would actually entail that the coin lands heads on the next toss, while the assertion would deny precisely that. Thus, on a predictive reading, (60) simply cannot be true.

The above remarks also apply to (61). The only good reading of (61) that does involve a change of state about a particular rain is *epistemic*: it implies a change in prediction. On this reading, it's implied that an old prediction suggests that the rain would start at 5 but the current prediction denies that.

(61) The rain won't start at 5 anymore.

While I cannot get into the details here, there is some careful discussion about epistemic *will* (see in particular Winans, 2016). But it seems clear that the inferences hinted at above can be accommodated in the semantics given here: we can simply let q be a salient function that takes a time and a world and outputs worlds compatible with the salient predictions there.

Finally, there is an additional piece of data that raises interesting questions. Consider the following context, where we care about whether the coin landing heads is possible. Given the context, we may naturally read (62) not as implying that the coin was going to land heads before we cheated. Instead, we read (62) as presupposing that the coin’s landing heads was possible.

- (62) **Bet:** We accepted a bet where if a fair coin that was going to be flipped later today landed heads, we would pay \$3,000; if it landed tails, we would gain \$3,000. To prevent losing, we altered the coin so that it’ll almost certainly land tails.

The coin will not land heads anymore (on the next toss).

How do we account for this? One possibility might be that *will* is read as dispositional, but “being disposed” is understood as weak as “could”, as more closely related to abilities or potentials (perhaps because of the salient QUD here).²⁰ A second possibility is that the *will* involved in (62) receives a circumstantial reading, in the sense that the sentence conveys that given the physical features of the coin landing heads was possible but not presently possible. It is possible that this circumstantial reading receives a totally realistic q and a non-singleton realistic domain. Either way, the reading of (62) seems to clearly depend on the particular QUD of **Bet**, which concerns if we have eliminated the possibility of the coin landing heads. This feature is not shared by most examples we’ve seen so far. I will leave the correct interpretation of (62) to future research.

7 Licensing *any*

In this section, I illustrate how we can account for the observation that *will* sometimes licenses *any* with our possibility semantics, but not always do. The examples are repeated below:

- (63) a. Paul will pay **ANY** price to go to the concert.
b. Joe will vote for **ANY** candidate (in this election).
c. Bill will greet **ANY** colleague.
- (64) a. *The rain will start at **ANY** time.
b. *The coin will land on **ANY** side.

A natural hypothesis is that dispositional *will* with a non-singleton domain can license *any*, while predictive *will* with a singleton domain can’t.

I will first illustrate the *any*-licensing condition stated in Crnič (2019a), and explain how possibility modals can license *any* according to Crnič. Then I will

²⁰See Vetter (2014) for discussion of analyzing dispositions as possibilities.

suggest that the account supports the hypothesis above, providing further support to the existence of the two readings. Detailed derivations are stated in the appendix.

Crnič (2019a) assumes that *any* is an existential quantifier that triggers subdomain alternatives (Chierchia, 2006). *Any*'s domain is supplied by a domain variable D , which we assume to contain at least some individuals that verify the restrictor P (at the evaluation world).²¹

Crnič (2019a) states a precise descriptive licensing condition of *any*, building on von Stechow (1999).²² A sentence ϕ with presupposition p , written as ϕ_p , Strawson entails another sentence ψ_q iff whenever ϕ_p and q are both true, ψ is also true.

(65) **The *any* condition:**

A DP headed by *any* is acceptable only if it is dominated by a constituent that is Strawson Downward Entailing with respect to its domain.

And thus the condition says that *any* is acceptable only if there is a constituent such that for any D and any $D' \subseteq D$: [...*any* D ...] Strawson entails [...*any* D' ...].

Crucially, Crnič observes that a possibility claim containing *any* satisfies its licensing condition. While the sentence *Bill can give John any ice cream* is not downward entailing w.r.t. the position of the entire *any*-DP, it is downward entailing w.r.t. the NP in the DP, as illustrated in (66b).

- (66) a. $\llbracket \text{Bill can give John an ice cream} \rrbracket \not\subseteq \llbracket \text{Bill can give John a chocolate ice cream} \rrbracket$
b. $\llbracket \text{Bill can give John any ice cream} \rrbracket \subseteq \llbracket \text{Bill can give John any chocolate ice cream} \rrbracket$

Why is there such a contrast? There is a particularly simple answer, on the assumption that *any* is an existential quantifier: $\diamond > \text{any}$ gives rise to free choice just like $\diamond > \vee$.

- (67) a. John can work with Alice or Bob.
b. $\neg \text{John can work with Alice; John can work with Bob}$
- (68) a. John can work with anyone_D. $D = \{\text{Alice, Bob}\}$
b. $\neg \text{John can work with Alice; John can work with Bob}$

If free choice inferences are semantic in nature, via, e.g., being scalar implicatures generated by a grammatical exH operator (an account we went through in §5), that *any* is licensed would naturally fall out. For it would follow that free choice inferences are (Strawson) downward entailing w.r.t. the domain of *any*. Concretely, following Crnič (2022), assume that $[\text{any } D]$'s alternative set include a universal alternative, existential subdomain alternatives, and the universal alternatives for each subdomain alternative:

- (69) $\text{Alt}(\text{any } D) = \{Q D' \mid D' \subseteq D, Q \in \{\text{any, every}\}\}$

²¹Crnič (2019a) modeled it as a presupposition of *any* constraining the value of D , excluding vacuity. The difference between these approaches should not concern us here.

²²This sets aside the more complicated cases where *any* is licensed in non-monotonic constituents (Crnič, 2019b).

Consider *Bill can give John any_D gift*, with the domain $\{b, p\}$ containing two potential gifts (a basketball and a phone). The exhaustified meaning that gives rise to free choice is as in (70b)

- (70) a. $\text{EXH}(\text{Bill can give John } [\text{any } D]_F \text{ gift})$ $D = \{b, p\}$
 b. $\approx \text{Bill can give John the basketball} \wedge \text{Bill can give John the phone} \wedge \text{Bill can't give John both}$

And one subdomain alternative with domain $D' = \{b\}$

- (71) a. $\text{EXH}(\text{Bill can give John } [\text{any } D']_F \text{ gift})$ $D' = \{b\}$
 b. $\approx \text{Bill can give John the basketball}$

And it's obvious that (70a) entails (71a), and similarly the other subdomain alternative with domain $\{p\}$. So, the sentence is DE w.r.t. *any*'s domain.

- (72) $\text{Bill can give John the basketball} \wedge \text{Bill can give John the phone} \wedge \text{Bill can't give John both} \Rightarrow \text{Bill can give John the basketball}$

Indeed, the DE-ness holds for any domain D with any cardinality. Specifically, the exhaustified meaning of *Bill can give John any_D gift* amounts to the claim that everything in D can be a gift given to John by Bill, but Bill can only give John **at most one** gift. This is DE w.r.t. D , hence *any* is licensed.

As can be easily verified, while exhaustifying a sentence with a necessity modal scoping above *any* would lead to free choice (each element in the domain possibly verifies the predicate), the resulting meaning is not DE w.r.t. *any*'s domain. The contrast between necessity and possibility modal in terms of *any*-licensing we saw in §4 is thus explained.

When it comes to *will* licensing *any*, the semantics proposed in §6 gives an easy explanation: *will* is underlyingly a possibility modal, and when a free choice inference is generated by exhaustification, there is some constituent that's (Strawson) DE that licenses *any*.

The hypothesis that dispositional *will* with non-singleton domain can license *any*, but predictive *will* with singleton domain can't falls out. Note that because we assume that each of $[\text{any } D]$'s subdomain alternative has a universal alternative with the same domain, free choice inference cannot be generated for predictive *will*; a non-monotonic meaning is generated for (64b), repeated as (73).

- (73) The coin will land on ANY side $\approx$ The coin lands on exactly one side in the actual future

Thus predictive *will* cannot license *any*. It helps to work through a concrete example to see how dispositional *will* can. Consider (74a) (repeated from (63b)). I assume the LF in (74b), where EXH_1 associates with $[\text{any } D]$, and EXH_2 associates with $\text{will}_{q,f,g}$, which only has subdomain alternatives.

- (74) a. Joe will vote for ANY candidate (in this election).
 b. $\text{EXH}_2[\phi \text{EXH}_1[\text{PRES}_1[\text{will}_{q,f,g} \text{FUT}_3[[\text{any } D]_F \text{ candidate} \lambda_2[\text{Joe vote for } t_2]]]]]]]$

For concreteness, suppose $D = \{\text{Newsom}, \text{Buttigieg}\}$. Let n stand for *Joe votes for ANY_{Newsom} candidate*, i.e., the subdomain alternative about Newsom of *will*'s prejacent. Let b stand for *Joe votes for ANY_{Buttigieg} candidate*. Then, given (74b), we derive the following assertion for ϕ for a modal domain with at least 2 worlds, before *will* gets exhaustified:

$$(75) \quad \Diamond n \wedge \Diamond b \wedge \neg \Diamond(n \wedge b)$$

Joe might vote for Newsom and he might vote for Buttigieg. He won't vote for both.

This amounts to the claim that Joe's voting for each candidate is possible, and he will at most vote for one candidate. This meaning is Strawson DE if we take into account the settledness presuppositions (see appendix for some complication). Thus, the entire sentence containing ϕ satisfies the licensing condition of *any*.

The global meaning after exhaustifying *will* is as follows. It adds to the "at most one"-meaning from above the claim that Joe will (necessarily) vote for some candidate in the domain. This leads to the meaning that each candidate is a possible choice for Joe, and he will vote for exactly one.

$$(76) \quad \Diamond n \wedge \Diamond b \wedge \neg \Diamond(n \wedge b) \wedge \Box(n \vee b)$$

Joe might vote for Newsom and he might vote for Buttigieg. He will vote for exactly one of them

Detailed derivations are given in the appendix. There, I also point out that the "exactly one" overall meaning can seem too strong for some sentences with similar structure, and sketch a way out.

To summarize this section, we saw that *will*'s capable of licensing *any* sometimes, but not always. This supports the existential semantics given in §6, and the thesis advanced there where there's a dispositional reading of *will* with non-singleton domain, and a predictive reading of *will* with singleton domain; only the former can license *any*.

8 Conclusion

I have, using the variability of data involving *won't...anymore* (or *no longer will*), and *any* scoping under *will*, argued that *will* has a prominent dispositional reading, besides a predictive reading. I have argued that an existential semantics of *will* with realistic domain captures the data well, compared to existing accounts. This can be viewed as a unification of the existing single-world views about *will* and multi-world views.

Careful readers might have noticed that I have not mentioned how *will* works in a conditional. For predictive *will* in a consequent, if we accepted a restrictor theory of conditionals, then whenever the antecedent is false, *will* would have an empty domain. To this, my response is that we can appeal to alternative theories of conditionals. One obvious choice is the selectional theory of Stalnaker (1968) where the conditional shifts the evaluation world of the consequent to the closest antecedent world; from there, predictive *will* will have a singleton modal domain containing its evaluation world. Another way to achieve a similar effect is to hold that the evaluation world (and time) of the consequent is

anaphoric to antecedents introduced in the antecedent. See Mendes (2024) for a careful discussion of modal and temporal donkey anaphora.

References

- Alonso-Ovalle, L., & Hirsch, A. (2022). Keep only strong. *Semantics and Pragmatics*, 15, 6–1.
- Bar-Lev, M. E. (2021). An implicature account of homogeneity and non-maximality. *Linguistics and Philosophy*, 44, 1045–1097.
- Bar-Lev, M. E., & Fox, D. (2017). Universal free choice and innocent inclusion. *Semantics and Linguistic Theory*, 95–115.
- Bassi, I., & Bar-Lev, M. E. (2018). A unified existential semantics for bare conditionals. *Proceedings of sinn und bedeutung*, 21(1), 125–142.
- Beck, S. (2020). Readings of scalar particles: Noch/still. *Linguistics and Philosophy*, 43(1), 1–67.
- Bochnak, M. R. (2019). Future reference with and without future marking. *Language and Linguistics Compass*, 13(1), e12307.
- Cariani, F. (2021). *The modal future: A theory of future-directed thought and talk*. Cambridge University Press.
- Cariani, F., & Santorio, P. (2018). Will done better: Selection semantics, future credence, and indeterminacy. *Mind*, 127(505), 129–165.
- Chierchia, G. (2006). Broaden your views: Implicatures of domain widening and the “logicality” of language. *Linguistic inquiry*, 37(4), 535–590.
- Comrie, B. (1989). On identifying future tenses. In *Tempus-aspekt-modus: Die lexikalischen und grammatischen formen in den germanischen sprachen* (pp. 51–63).
- Condoravdi, C. (2002). Temporal interpretation of modals: Modals for the present and for the past. In *The construction of meaning* (pp. 59–88, Vol. 59).
- Copley, B. (2008). The plan’s the thing: Deconstructing futurate meanings. *Linguistic inquiry*, 39(2), 261–274.
- Copley, B. (2009). *The semantics of the future*. Routledge.
- Crnič, L. (2019a). Any: Logic, likelihood, and context (pt. 1). *Language and Linguistics Compass*, 13(11), e12354.
- Crnič, L. (2019b). Any: Logic, likelihood, and context (pt. 2). *Language and Linguistics Compass*, 13(11), e12353.
- Crnič, L. (2022). Number in npI licensing. *Natural Language Semantics*, 30(1), 1–46.
- Ferreira, M. (2005). *Event quantification and plurality* [Doctoral dissertation, Massachusetts Institute of Technology].
- Fox, D. (2007). Free choice and the theory of scalar implicatures. In *Presupposition and implicature in compositional semantics* (pp. 71–120). Springer.
- Goodman, J., & Salow, B. (2023). Epistemology normalized. *Philosophical Review*, 132(1), 89–145.
- Hackl, M. (2019). On haddock’s puzzle and the role of presupposition in reference resolution. *snippets*, 37, 37–9.
- Heim, I. (1982). *The semantics of definite and indefinite noun phrases*. University of Massachusetts Amherst.

- Heim, I. (2008, November). *Bound pronouns and morphology* [Handout from a talk given at the University of British Columbia (UBC)].
- Homer, V. (2021). Domains of polarity items. *Journal of Semantics*, 38(1), 1–48.
- Horn, L. R. (1970). Ain't it hard (anymore). *Proceedings of the 6th Regional Meeting of the Chicago Linguistic Society*.
- Jeretic, P. (2022). Neg-raising with belief predicates as a scaleless implicature. *Semantics and Linguistic Theory*, 891–914.
- Kaufmann, S. (2005). Conditional truth and future reference. *Journal of semantics*, 22(3), 231–280.
- Kratzer, A. (1998). More structural analogies between pronouns and tenses. *Semantics and linguistic theory*, 92–110.
- Križ, M. (2016). Homogeneity, non-maximality, and all. *Journal of semantics*, 33(3), 493–539.
- Križ, M., & Spector, B. (2021). Interpreting plural predication: Homogeneity and non-maximality. *Linguistics and Philosophy*, 44(5), 1131–1178.
- Lewis, D. (1997). Finkish dispositions. *The Philosophical Quarterly*, 47(187), 143–158.
- Löbner, S. (1989). Germanschon-erst-noch: An integrated analysis. *Linguistics and Philosophy*, 12, 167–212.
- Mandelkern, M. (2022). Witnesses. *Linguistics and Philosophy*, 45, 1091–1117.
- Matthewson, L. (2012). On the (non-) future orientation of modals. *Proceedings of sinn und bedeutung*, 16(2), 431–446.
- McKillen, A. (2016). *On the interpretation of reflexive pronouns*. McGill University.
- Mendes, J. V. (2024). *Future reference'without'future morphology* [Doctoral dissertation, University of Maryland, College Park].
- Oikonomou, D. (2023). Detecting variable force in imperatives: A modalized minimal approach. *Natural Language & Linguistic Theory*, 41(3), 1201–1256.
- Partee, B. H. (1973). Some structural analogies between tenses and pronouns in english. *The Journal of Philosophy*, 70(18), 601–609.
- Phillips, J., Wegner, W., & Bower, C. (2023). On the emergence of an aspectual npi: Comparative polysemy and the case of diyari marla. *Semantics and Linguistic Theory*, 644–665.
- Sauerland, U. (2013). Presuppositions and the alternative tier. *Semantics and linguistic theory*, 156–173.
- Stalnaker, R. C. (1968). A theory of conditionals. In N. Rescher (Ed.), *Studies in logical theory* (pp. 98–112, Vol. 2). Blackwell.
- Staniszewski, F. (2021). A variable force analysis of positive polarity neg-raising modals. *Proceedings of sinn und bedeutung*, 25, 805–822.
- Sudo, Y. (2012). *On the semantics of phi features on pronouns* [Doctoral dissertation, Massachusetts Institute of Technology].
- Vetter, B. (2014). Dispositions without conditionals. *Mind*, 123(489), 129–156.
- Von Stechow, A. (2003). Feature deletion under semantic binding: Tense, person, and mood under verbal quantifiers. *NELS* 33, 379–404.
- von Fintel, K. (1999). Npi licensing, strawson entailment, and context dependency. *Journal of semantics*, 16(2), 97–148.

- von Fintel, K. (2004). Would you believe it? the king of france is back! (presuppositions and truth-value intuitions). In M. Reimer, A. Bezuidenhout, M. Reimer, & A. Bezuidenhout (Eds.), *Descriptions and beyond*. Oxford University Press. <https://doi.org/10.1093/oso/9780199270514.003.009>
- von Heusinger, K. (2007). Alternative semantics for definite NPs. In K. Schwabe & S. Winkler (Eds.), *On information structure, meaning and form—generalizations across languages* (pp. 485–508). John Benjamins Publishing Company.
- Willer, M. (2025). Quantifiers for a modal future. *Philosophical Perspectives*.
- Winans, L. D. (2016). *Inferences of will* [Doctoral dissertation, UNIVERSITY OF CALIFORNIA Los Angeles].

Appendix

We first demonstrate how (deontic) possibility modals license *any* (assuming that the modal domain is not singleton). We make the following assumptions, following Crnić (2022). First, $[\text{any } D]$ associates with EXH , which then generates free choice implicature. That makes the sentence downward-entailing w.r.t. the position of *any*.

Second, *any* and D are both under focus, so that *any* triggers a universal alternative (*every*), and the domain variable D triggers subdomain alternatives (subsets of D), and there can also be alternatives that are universal subdomain alternatives (*every* D'), as stated in (69). For simplicity, I assume that *can* takes a preajacent of type $\langle i, st \rangle$ and outputs the same type.

- (1) a. Bill can give John any gift.
- b. $\llbracket \text{any } D \rrbracket^{w,t} = \lambda P. \lambda Q. \exists x \in D : P_{w,t}(x) = Q_{w,t}(x) = 1.$
- c. $[\text{EXH}[\phi_{\text{PRES}_1}[\text{can}[\llbracket \text{any } D \rrbracket_F \text{ gift } \lambda_2[\text{Bill give } t_2]]]]]$
- d. $\llbracket \phi \rrbracket^w = \diamond \exists x \in D : \text{gift}_{w,t_1}(x) = \text{give}_{w,t_1}(x)(\text{Bill}) = 1.$
- e. $C = \{\lambda w. \llbracket \text{PRES}_1[\text{can}[Q D' \text{ gift } \lambda_2[\text{Bill give } t_2]]] \rrbracket^w \mid D' \subseteq D, Q \in \{\text{any}, \text{every}\}\}$

The derived meaning, after exhaustification, is spelled out in (2a). The first conjunct is the free choice inference: that everything in D is s.t. it's a gift that Bill can give to John. The second conjunct says that the for every subdomain D' that contains 2 or more gifts, it's not possible that all the gifts in D are given to John. Consider a domain containing 2 potential gifts: a particular basketball and a particular phone.

- (2) a. $\llbracket \text{EXH} \rrbracket^C(\llbracket \phi \rrbracket) = \lambda w. \forall x \in D : \diamond(\text{gift}_{w,t_1}(x) \wedge \text{give}_{w,t_1}(x)(\text{Bill}))$
 $\wedge \forall D' \subseteq D : (|D' \cap \llbracket \text{gift} \rrbracket| \geq 2) \rightarrow \neg \diamond \forall x \in D' (\text{gift}_{w,t_1}(x) \rightarrow \text{give}_{w,t_1}(x)(\text{Bill}))$
- b. $D = \{b, p\}$ $b \approx \text{the basketball}, p \approx \text{the phone}$
- c. Inclusion:
 $\diamond(\exists x \in \{b\} : \text{gift}_{w,t_1}(x) \wedge \text{give}_{w,t_1}(x)(\text{Bill})) \wedge \diamond(\exists x \in \{p\} : \text{gift}_{w,t_1}(x) \wedge \text{give}_{w,t_1}(x)(\text{Bill}))$
 $\Leftrightarrow \diamond(\text{gift}_{w,t_1}(b) \wedge \text{give}_{w,t_1}(b)(\text{Bill})) \wedge \diamond(\text{gift}_{w,t_1}(p) \wedge \text{give}_{w,t_1}(p)(\text{Bill}))$
 Bill can give John the basketball $\wedge$ Bill can give John the phone

- d. Exclusion: $\neg \Diamond \forall x \in D(\text{gift}_{w,t_1}(x) \rightarrow \text{give}_{w,t_1}(x)(\text{Bill}))$
 Bill can't give John **both** the basketball and the phone

The meaning as stated in (2a) is DE w.r.t. *any*'s domain D .

For the sentence (3a) with dispositional *will*, assume that EXH_1 associates with $[\text{any } D]$ and EXH_2 associates with $\text{will}_{q,f,g}$. For concreteness, assume that the domain only contains two people, and both are candidates, as in (3d) and the modal domain has at least worlds.

- (3) a. Joe will vote for **ANY** candidate (in this election).
 b. $\text{EXH}_2[\phi \text{EXH}_1[\text{PRES}_1[\text{will}_{q,f,g} \text{FUT}_3[[\text{any } D]_F \text{ candidate } \lambda_2[\text{Joe vote for } t_2]]]]]$
 c. $C_1 = \{[[[\text{PRES}_1[\text{will}_{q,f,g} \text{FUT}_3[Q \text{ } D' \text{ candidate } \lambda_2[\text{Joe vote for } t_2]]]]] \mid D' \subseteq D, Q \in \{\text{any, every}\}]\}$
 d. $D = \{\text{Newsom, Buttigieg}\}$

We adopt the following abbreviations, where “ n ” and “ b ” stand for sentences in propositional logic whose values are propositions expressed by *John vote for Newsom at g(3)* and *John vote for Buttigieg at g(3)* respectively.

- (4) $n : \exists x \in \{\text{Newsom}\} : \text{Dem}_{g(3)}(x) = \text{vote}_{g(3)}(x)(\text{Joe}) = 1$
 $\Leftrightarrow \text{Dem}_{g(3)}(\text{Newsom}) = \text{vote}_{g(3)}(\text{Newsom})(\text{Joe}) = 1$
 $b : \exists x \in \{\text{Buttigieg}\} : \text{Dem}_{g(3)}(x) = \text{vote}_{g(3)}(x)(\text{Joe}) = 1$
 $\Leftrightarrow \text{Dem}_{g(3)}(\text{Buttigieg}) = \text{vote}_{g(3)}(\text{Buttigieg})(\text{Joe}) = 1$

C_1 , i.e., the alternative set for EXH_1 , can be listed as follows (omitting the settledness presuppositions):

- $\Diamond(n \vee b)$
- $\Diamond n^{23}$ (II)
- $\Diamond b$ (II)
- $\Diamond(n \wedge b)$ (IE)

Among them, only the $\Diamond \forall$ alternative is innocently excludable. The rest are innocently includable.

Therefore, EXH_1 will produce the following assertive meaning for ϕ . It says that Joe might vote for Newsom, and he also might vote for Buttigieg, but he won't vote for both.

- (5) $\llbracket \phi \rrbracket$ (when defined) $\Leftrightarrow \Diamond n \wedge \Diamond b \wedge \neg \Diamond(n \wedge b)$

Now notice that the way we generated implicature above would ensure a free choice inference conjoined with an *at most one*-meaning due to EXH_1 negating all the *every*-alternative, which are all innocently excludable. If we take into account the settledness presupposition of *will*, the structure would still be Strawson DE. Thus, *any* is licensed here.

²³This would be the interpretation of two formal alternatives, namely, the *any*-alternative with a singleton domain $\{\text{Newsom}\}$ and the *every*-alternative with the same domain; assuming Newsom is a candidate, they come out equivalent.

Before moving on to the entire sentence, some comments about the presupposition of ϕ . If in the inclusion step, we let ϕ inherit the settledness presupposition of each *II* alternative, the conjoined settledness presupposition says that Joe has a determinate voting disposition for each candidate. This may seem a bit strong if Joe is genuinely indecisive.

First, it seems possible to maintain that, if ϕ does inherit the settledness presuppositions from the *II* alternatives, q outputs the set of worlds compatible with Joe's actual desires at t , given t and w . That set could be $\emptyset$ when Joe is indecisive, i.e., when he has inconsistent desires (for instance, voting for everyone and voting for exactly one person). This set models indecisiveness in the sense that, knowing the value of the set, we would have no clue as to what Joe would do: his desires won't guide his actions as a whole because they conflict with each other. If this is the case, all the settledness presuppositions ϕ inherits are trivially satisfied. But a worry with this response is that it might overgenerate trivial settledness presuppositions.

But, it is natural to suspect that in this case ϕ doesn't inherit all the presuppositions of the *II* alternatives. That is, EXH_1 is not a presupposition hole for the alternatives it includes. Indeed, similar cases have been observed independently about *only*, where the focus alternatives that *only* negates don't have their presuppositions satisfied, but the exhaustified meaning produced by *only* still seems true. For instance, in the following example due to von Stechow (2007), even though the focus alternatives *Sam talked to the American professor* and *Sam talked to the British professor* have false uniqueness presuppositions, the sentence (6) still seems true, suggesting that it doesn't presuppose that there is a unique American professor or that there is a unique British professor.

- (6) [Context: Only one German professor attended the party, while three American professors and two British professors did.]
Sam only talked to the GERMAN professor.

Here's another example in the literature about phi-features, noted in Heim (2008) and Sauerland (2013) (cf. Kratzer, 1998)

- (7) Only I_F did my homework.

On a bound reading, the sentence conveys that I did my homework, and nobody else did their homework. But this is a problem if *my* bears an index and presupposes that its referent is the speaker. If that is so, if *John* is an alternative to *I*, the alternative *John did my homework* would suffer from presupposition failure and (7) wouldn't have the intuitive coherent bound reading.

In a similar case, Alonso-Ovalle and Hirsch (2022) assume that *only*'s pre-jacent carries a scalar presupposition (due to a covert operator) that it is ranked the lowest on a given scale.

- (8) To get good cheese, you only have to go to THE NORTH END.

Naturally, the alternatives to *only*'s pre-jacent would also presuppose that they themselves are the lowest ranked. To get a coherent reading of (8), Alonso-Ovalle and Hirsch (2022) assume that when negating these alternatives, *only* doesn't inherit their scalar presuppositions.

Some suggest explaining the above via projection properties of *only* (Sudo, 2012) and others blame syntactic or semantics properties of the alternatives (Heim, 2008; Kratzer, 1998; McKillen, 2016; Sauerland, 2013).

Whichever account correctly explains the cases with *only* should also explain our cases involving EXH. Indeed, it is easy to replicate the above cases with covert EXH. So, the projection of settledness presupposition seems to be part of a more general problem. What's our takeaway here? On the one hand, this may add a data point to the general problem. On the other hand, and more locally, we see reasons to expect ϕ in (3b) to not inherit all the settledness presuppositions of the *II* alternatives in from C_1 that EXH₁ includes.

Let's now consider the meaning of the entire sentence. The prejacent of EXH₂ is ϕ , whose assertion is as given in (5).

$$(9) C_2 = \{ \llbracket \llbracket \text{EXH}_1 [\text{PRES}_1 [\text{will}_{g,f',g'} \text{FUT}_3 [\llbracket \text{any } D \rrbracket_F \text{ candidate } \lambda_2 [\text{Joe vote for } t_2]]]] \rrbracket \mid \forall t \forall w : \max_{g'}(f'(t)(w)) \subseteq \max_g(f(t)(w)) \rrbracket \}$$

For concreteness, let's work with a modal domain of three worlds $\{w_0, w_1, w_2\}$. First, we have alternatives whose modal domain is singleton, and free choice inference will not be generated by the lower EXH there. For the $\Diamond \forall$ alternative will be excluded, which will prevent further inclusion, since the modal domain is singleton. Thus the singleton alternatives have the following meanings, where each says at that world Joe will vote for exactly one person in D (this also holds for D where $|D| > 2$).

- $\Diamond_{\{w_0\}}(n \vee b) \wedge \neg \Diamond_{\{w_0\}}(n \wedge b)$
- $\Diamond_{\{w_1\}}(n \vee b) \wedge \neg \Diamond_{\{w_1\}}(n \wedge b)$
- $\Diamond_{\{w_2\}}(n \vee b) \wedge \neg \Diamond_{\{w_2\}}(n \wedge b)$

We also have the following alternatives where the modal domain contains two worlds, and so free choice inference will be generated by the lower EXH. For each modal domain, Joe votes for Newsom in one world and for Buttigieg in the other, and it's not possible that he votes for both.

- $\Diamond_{\{w_0, w_1\}} n \wedge \Diamond_{\{w_0, w_1\}} b \wedge \neg \Diamond_{\{w_0, w_1\}}(n \wedge b)$
- $\Diamond_{\{w_1, w_2\}} n \wedge \Diamond_{\{w_1, w_2\}} b \wedge \neg \Diamond_{\{w_1, w_2\}}(n \wedge b)$
- $\Diamond_{\{w_0, w_2\}} n \wedge \Diamond_{\{w_0, w_2\}} b \wedge \neg \Diamond_{\{w_0, w_2\}}(n \wedge b)$

The only alternative remaining of course is the prejacent itself, which has the meaning in (5). Given these, only the singleton alternatives are innocently includable. Therefore, we end up with the meaning below for (3a):

$$(10) \Diamond_{\{w_0, w_1, w_2\}} n \wedge \Diamond_{\{w_0, w_1, w_2\}} b \wedge \neg \Diamond_{\{w_0, w_1, w_2\}}(n \wedge b) \wedge \Box_{\{w_0, w_1, w_2\}}(n \vee b)$$

The final meaning says that Joe can vote for any candidate, but he will vote for exactly one of them. This seems to be the correct meaning of *Joe will vote for ANY candidate*. Moreover, *any* is licensed before the higher EXH applies.

But the *exactly one* meaning isn't always attested. We can take (11a) as an example: it's not clear that it implies that Bill will greet exactly one colleague. I assume that D only contains Bill's colleagues.

- (11) a. Bill will greet ANY colleague.
 b. $D = \{\text{Ann, Bob, Carl}\}$

If we assume one EXH associating with *any* D and a higher EXH associating with *will*, and no pruning occurs, then a meaning exactly parallel to the one for (3a) will be derived. Given the domain D above, the assertion will be paraphrasable as *Bill can greet any of the three, and he will greet exactly one of them*. But this meaning seems too strong.

Here's a suggestive way to weaken the derived meaning. Maybe there can be two parses: in parse 1, there is a single EXH associating with both *will* and *any* D ; in parse 2, there are two instances of EXH, with the lower one associating with *any* D and the higher one associating with *will*.

- (12) a. $[\text{EXH} \dots [\text{will}[\text{any } D \dots]] \dots]$ (parse 1)
 b. $\text{EXH}_2[\text{EXH}_1 \dots [\text{will}[\text{any } D \dots]] \dots]$ (parse 2)

If *will* is a possibility modal (with non-singleton domain), then parse 2 will (almost) guarantee that *any* is licensed. For the *any*-condition stated above only requires that *any* be in a Strawson DE constituent (see Homer, 2021, also). As long as there is some proper environment that can license *any*, what happens in larger constituents that embed it won't disrupt *any*.

However, since parse 2 will generate meanings that are too strong sometimes, parse 1 might also be used to generate more plausible meanings. Note that on parse 1 the only way to license *any* is to not strengthen *will*. Effectively, on parse 1, the pressure to license *any* forces us to prune all the subdomain alternatives of *will*. This also amounts to vacuous exhaustification of EXH_2 , with all the alternatives that's not its prejacent pruned out.

Vacuous exhaustification by EXH_2 derives the target reading for (11a). That is, we essentially have a parse that's an instance of parse 1, where a single EXH associates with both *will* and *any* D , but with the alternatives of *will* get pruned out.

- (13) a. $[\text{EXH}[\text{PRES}_1[\text{will}_{q,f,g}[\text{FUT}_3[[\text{any } D]_F \text{ colleague} \lambda_2[\text{Bill greet } t_2]]]]]]]$
 b. $C_1 = \{ \llbracket \text{PRES}_1[\text{will}_{q,f,g}[\text{FUT}_3[Q D' \text{ colleague} \lambda_2[\text{Bill greet } t_2]]]] \rrbracket \mid D' \subseteq D, Q \in \{\text{any, every}\} \}$

And thus, given a domain $D = \{\text{Ann, Bob, Carl}\}$ containing only Bill's colleagues, we adopt the following abbreviations

- (14) $a : \text{colleague}_{g(3)}(\text{Ann}) = \text{greet}_{g(3)}(\text{Ann})(\text{Bill}) = 1$
 $b : \text{colleague}_{g(3)}(\text{Bob}) = \text{greet}_{g(3)}(\text{Bob})(\text{Bill}) = 1$
 $c : \text{colleague}_{g(3)}(\text{Carl}) = \text{greet}_{g(3)}(\text{Carl})(\text{Bill}) = 1$

We thus drive (not taking into account the settledness presuppositions):

- (1) $\Diamond a \wedge \Diamond b \wedge \Diamond c \wedge \neg \Diamond(a \wedge b) \wedge \neg \Diamond(a \wedge c) \wedge \neg \Diamond(b \wedge c)$
 Bill might greet Ann & Bill might greet Bob & Bill might greet Carl & Bill won't greet more than one of them

The negative conjuncts all result from exclusion of IE alternatives. We may, following Bar-Lev and Fox (2017) and Crnič (2022), hold that the IE alternatives' negation don't always need to be generated as an implicature. This allows us to weaken the meaning further. Therefore, if $\Diamond(\text{Bill greet every}_D \text{ colleague})$ is not relevant, the implicature paraphrasable as *Bill won't greet every_D colleague* will not be generated for any D such that $|D| > 2$.²⁴ And it is easy to verify that if either (i) every exclusion implicature is present, or (ii) none of the exclusion implicature is present, the sentence is (Strawson) DE. We thus predict correctly that *any* in (11a) is licensed.

²⁴That is, we add domain restriction to the universal quantification over IE alternatives via a relevance predicate R : $\llbracket \text{EXH} \rrbracket^C(\phi) = \phi \wedge \forall \psi \in IE(\phi, C) [\neg \psi \wedge \forall \gamma \in II(\phi, C) : \gamma]$. The advantage of this approach (compared to pruning out the otherwise IE alternatives) is that it doesn't change which alternatives are II.