Obligatory Wide Scope for *Any* DPs?

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1. Introduction

DPs headed by *any* ('*any* DPs') have a restricted distribution: they are licensed in downward entailing enviroments (1a) and in modal contexts (1b), but not in positive episodic sentences (2) (Vendler 1967, Horn 1972, Kadmon & Landman 1993, Dayal 1995, 1998, Chierchia 2013, Partee 2004).

(1) a. Bill didn't read any book.
b. Bill can read any book.

(2) * Bill read any book.

What is behind this restriction? A line of research blames the deviance of *any* DPs to the grammatical derivation of a contradictory meaning in (2) but not in (1) (Chierchia 2013). This short note focuses on the modal cases. The following question is addressed: If the derivation of a contradiction rules out *any* DPs in positive episodic sentences, how exactly is the derivation of a contradiction avoided in modal environments? The paper assesses two possible answers, presented in section 2. The first, endorsed in Chierchia 2013, relies on the context dependent nature of modals: grammar derives a contradiction, but since modals are context dependent, context shifting can save the day by weakening the derived meaning. The second answer, which the framework in Chierchia 2013 explores for other free choice items, is that modals *prevent* the derivation of a contradiction, altogether. Section 3 shows that the first strategy undergenerates. The second strategy faces overgeneration worries. Overgeneration challenges can be met by imposing further constraints, and are, therefore, potentially less severe. The paper ends in section 4 on a call to understand how to restrict overgeneration, a question we don't address here.

2. Capturing the modal dependency

2.1. Any DPs in positive episodic sentences

Why are *any* DPs deviant in positive episodic sentences, such as (2)? A prominent answer in the literature attributes the deviance of (2) to its meaning: grammar obligatorily derives a contradiction in this case. (Chierchia 2013)[1] Let's look at a particular implementation of this idea. In Chierchia 2013, free choice items are analyzed as existential quantifiers. The LF of (2), for instance, contains the constituent in (3a), which conveys that Bill read at least one book, as shown in (3b).[2]

(3) a. LF: any book_D λ_1 Bill read t_1
b. $[\![\text{any book}_D\ \lambda_1\ \text{Bill read}\ t_1]\!]^g = R(a) \vee R(b)$ $\quad (g(D) = [\![\text{book}]\!]^w = \{a, b\})$

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[1] See Dowty 1979, Barwise & Cooper 1981, von Fintel 1993, Gajewski 2002, among others, for the link between grammatically derived contradictions to ungrammaticality.

[2] Notation: We assume an interpretation function relativized to a world (and a variable assignment function), mapping IPs to truth values, and use '$[\![\alpha]\!]$' (for a node α of type t) to refer to $\lambda w.[\![\alpha]\!]^w$. 'R(a)' stands for the function named by the expression '$\lambda w.\text{READ}_w(\text{Bill})(a)$'. '$R(a) \vee R(b)$' stands for the function named by '$\lambda w.\text{READ}_w(\text{Bill})(a) \vee \text{READ}_w(\text{Bill})(b)$', and, finally, '$R(a) \wedge R(b)$' for the function named by '$\lambda w.\text{READ}_w(\text{Bill})(a) \wedge \text{READ}_w(\text{Bill})(b)$.' Domain variables are subscripted. '$[\![\alpha]\!]^{\text{ALT}}$' refers to the set of alternatives to $[\![\alpha]\!]$.

On top of expressing existential quantification, *any* DPs introduce into the semantic derivation two types of alternatives, scalar and so-called 'pre-exhaustified' domain alternatives. In the process of semantic composition, these alternatives end up being propositional. The scalar alternative to (3a), in (4), is determined by changing the existential force of *any* into universal. The 'pre-exhaustified' domain alternatives to (3a) are determined on the basis of a set of domain alternatives, in (5a), which correspond to the proposition that (3a) expresses when the domain of quantification of *any* is restricted to any subset of its original domain D. The set of pre-exhaustified domain alternatives, in (5b), is the set containing for any domain alternative p, the result of strengthening p with the exclusion of any other proposition in the set of domain alternatives that is 'innocently excludable.'[3]

(4) $\{R(a) \wedge R(b)\}$ (scalar alternative to (3a))

(5) a. $\{R(a), R(b)\}$ (domain alternatives to (3a))

b. $\{R(a) \wedge \neg R(b), R(b) \wedge \neg R(a)\}$ (pre-exhaustified domain alternatives to (3a))

In the framework presented in Chierchia 2013, these alternatives must be used up by an exhaustification operator, in (6), which strengthens the meaning in (3b) by excluding any alternative that this meaning does not entail.[4]

(6) $[\![\mathrm{O}\ \phi]\!] = \lambda w.[\![\phi]\!](w) = 1 \wedge \forall p \in [\![\phi]\!]^{\mathrm{ALT}}[p(w) = 0 \vee [\![\phi]\!] \subseteq p]$

Let's now consider the meaning of the complete LF of (2), in (7) below. Both the scalar alternative in (4) and the pre-exhaustified domain alternatives in (5b) are stronger than the proposition in (3b), so they must be excluded by O. The proposition in (3b) and the negation of the pre-exhaustified domain alternatives, in (8), entail the scalar alternative and are therefore inconsistent with its negation. Excluding both alternatives in (5b) and the scalar alternative derives a contradiction as the meaning of (7), as shown in (9). This accounts for the deviance of positive episodic sentences.

(7) O any $\mathrm{book}_{\mathrm{D}}$ λ_1 Bill read t_1

(8) $R(a) \leftrightarrow R(b)$ (domain implicature)

(9) $[\![\mathrm{O}\ \text{any}\ \mathrm{book}_{\mathrm{D}}\ \lambda_1\ \text{Bill read}\ \mathrm{t}_1]\!] = [R(a) \vee R(b)] \wedge [R(a) \leftrightarrow R(b)] \wedge \neg[R(a) \wedge R(b)] (\Leftrightarrow \bot)$

2.2. Any DPs in modal environments

We now turn our attention to modal sentences like (1b), where *any* DPs are licensed. What prevents the derivation of a contradiction in these cases? Since the modal is a propositional operator, the *any* DP can in principle scope under or over the modal. There are then two possible LFs to consider:

(10) a. LF_1: any $\mathrm{book}_{\mathrm{D}}$ $\mathrm{can}_{\mathrm{C}}$ λ_1 Bill read t_1

b. LF_2: $\mathrm{can}_{\mathrm{C}}$ any $\mathrm{book}_{\mathrm{D}}$ λ_1 Bill read t_1

The meaning of the LF in (10a) can be represented as in (11a), and that of (10b) as in (11b). The formulas in (11a) and (11b) are equivalent and represent one and the same proposition—because both the modal and *any* are existential quantifiers, they are scope commutative.

(11) a. $\Diamond_{\mathrm{C}} R(a) \vee \Diamond_{\mathrm{C}} R(b)$

b. $\Diamond_{\mathrm{C}}[R(a) \vee R(b)]$

The types of alternatives that *any* generates in these LFs differ, however, and so does the result of exhaustification. Let us first consider the case where *any* scopes over the modal. In this case, unsurprisingly, a contradiction is derived. The scalar alternative to (11a) is in (12a), and the pre-exhaustified alternatives in (12b). As before, the negation of the latter, in (12c), together with the assertion in (11a), entails the scalar alternative, and, so, negating both types of alternatives yields a contradiction, as illustrated in (13).

[3] We will consider only those domain alternatives that correspond to proper subsets of the domain of quantification. A proposition q is an alternative to p that is innocently excludable, in case every way of conjoining p with as many negated alternatives to p as consistency with p allows for entails $\neg q$ (Fox 2007, Alonso-Ovalle 2008).

[4] In Chierchia 2013 there are two types of exhaustification operators ($\mathrm{O}_{\text{EXH-D}}$ and O_{σ}). For the sake of illustration, here we will assume only one exhaustification operator, which targets both types of alternatives at once.

(12) a. $\Diamond_C R(a) \wedge \Diamond_C R(b)$
b. $\{\Diamond_C R(a) \wedge \neg\Diamond_C R(b), \neg\Diamond_C R(a) \wedge \Diamond_C R(b)\}$
c. $\Diamond_C R(a) \leftrightarrow \Diamond_C R(b)$

(13) $[\![\text{O any book}_D \text{ can}_C\ \lambda_1 \text{ Bill read } t_1]\!] =$
$[\Diamond_C R(a) \vee \Diamond_C R(b)] \wedge [\Diamond_C R(a) \leftrightarrow \Diamond_C R(b)] \wedge \neg[\Diamond_C R(a) \wedge \Diamond_C R(b)] (\Leftrightarrow \bot)$

When *any* scopes under the modal, no contradiction is generated. The assertion is the same as before, and so are the pre-exhaustified domain alternatives. However, the scalar alternative, in (14a), is stronger than the one derived under the wide scope configuration. That means that its negation will be weaker, and, in fact, consistent with the negation of the pre-exhaustified domain alternatives and with the assertion, as seen in (15). The derived meaning is contingent. It is satisfied, for instance, in the model in (16), where w_1 and w_2 are the accessible worlds.

(14) a. $\Diamond_C[R(a) \wedge R(b)]$
b. $\{\Diamond_C R(a) \wedge \neg\Diamond_C R(b), \neg\Diamond_C R(a) \wedge \Diamond_C R(b)]\}$
c. $\Diamond_C R(a) \leftrightarrow \Diamond_C R(b)$

(15) $[\![\text{O can}_C \text{ any book}_D\ \lambda_1 \text{ Bill read } t_1]\!] =$
$[\Diamond_C (R(a) \vee R(b))] \wedge [\Diamond_C R(a) \leftrightarrow \Diamond_C R(b)] \wedge \neg[\Diamond_C (R(a) \wedge R(b))]$

(16) w_1 $R(a) \wedge \neg R(b)$ w_2 $\neg R(a) \wedge R(b)$

Any DPs are licensed by modals, but we have seen that they yield a contradiction when they scope over them. Should we then conclude that *any* DPs cannot scope over modals? Not necessarily.

2.3. Context shifting

To explain the acceptability of *any* with possibility modals under its wide scope construal, the theory presented in Chierchia 2013 takes advantage of the context dependency of modals and requires that the scalar and domain components be satisfied with respect to different modal domains. An interpretation constraint ('Modal Containment', in (17)), requires the domain of the modal in the scalar component to be a subset of the domain of the modal in the domain component.

(17) *Modal Containment*: the modal base in the scalar implicature must be a proper subset of the modal base in the domain implicature. (Chierchia 2013: 314)

Consider, for instance, (18a). The first conjunct in (18a) collapses the existential component and the domain implicature in (13). We now use two domain variables to represent the possibility that the modal base of the scalar component be a subset of the modal base of the first conjunct in (18a), as Modal Containment requires. This yields a contingent meaning: the proposition in (18a) is true with respect to the accessible worlds in (18b) when the value of C is $\{w_1, w_2\}$ and that of C′ is $\{w_1\}$, for instance.

(18) a. $[\Diamond_C R(a) \wedge \Diamond_C R(b)] \wedge \neg[\Diamond_{C'} R(a) \wedge \Diamond_{C'} R(b)]$

b. w_1 $R(a) \wedge \neg R(b)$
w_2 $\neg R(a) \wedge R(b)$

2.4. Two options?

When *any* scopes over the modal, the derived contradiction can be avoided. There are then two ways for *any* DPs not to yield a contradiction: either a contradiction is generated, but the domain of the modal shifts, when the *any* DP takes wide scope, or a contradiction is not generated to begin with, because the modal intervenes and the configuration yields a stronger scalar implicature, whose negation, in turn, yields a meaning weaker than that derived under the wide scope construal.

The theory presented in Chierchia 2013 puts forth the hypothesis that the second option is in fact unavailable to *any* DPs. The unavailability of narrow scope construals for *any* DPs is enforced through an interpretation constraint (the Wide Scope Constraint) which sets *any* DPs apart from other

quantificational DPs.[5] Because it forces *any* DPs to have wide scope, we will refer to this theory as the Wide Scope Analysis.

Given the availability of the narrow scope construal, where no contradiction is generated, we should wonder why the Wide Scope Constraint is enforced. The reason is that *any* is widely taken not to be licensed by necessity modals, as in (19):[6]

(19) * Bill must read any book.

Consider the predictions of the setup discussed above for (19). As before, there are two possible LF fragments (excluding O) for (19) to consider:

(20) a. LF_1: any $book_D$ $must_C$ λ_1 Bill read t_1
b. LF_2: $must_C$ any $book_D$ λ_1 Bill read t_1

The meanings expressed by these LF fragments are now not equivalent: (21a) asymmetrically entails (21b). The result of exhaustifying these two LFs is not equivalent either. Let's start with (20a). As before, a contradiction is derived for (22), since the assertion in (21a), together with (23c), the negation of the pre-exhaustified domain alternatives in (23b), entails the scalar alternative in (23a).

(21) a. $\Box_C R(a) \vee \Box_C R(b)$
b. $\Box_C [R(a) \vee R(b)]$

(22) O any $book_D$ $must_C$ λ_1 Bill read t_1

(23) a. $\Box_C R(a) \wedge \Box_C R(b)$
b. $\{\Box_C R(a) \wedge \neg\Box_C R(b), \neg\Box_C R(a) \wedge \Box_C R(b)\}$
c. $\Box_C R(a) \leftrightarrow \Box_C R(b)$

Unlike in the possibility modal case, context shift cannot help now, since the first conjunct in (24a) entails that (24b) is true for any C' whose value is a subset of C. The wide scope construal in combination with a necessity modal necessarily derives a contradiction.

(24) a. $[\![$O any $book_D$ $must_C$ λ_1 Bill read $t_1]\!]$ =
$[\Box_C R(a) \vee \Box_C R(b)] \wedge \neg[\Box_C R(a) \wedge \Box_C R(b)] \wedge [\Box_C R(a) \leftrightarrow \Box_C R(b)] (\Leftrightarrow \bot)$
b. $\Box_{C'} R(a) \wedge \Box_{C'} R(b)$

As before, the LF where *any* takes scope beneath the modal does not derive a contradiction. The alternatives that we get under the narrow scope configuration, in (25a) and (25b), are equivalent to those that we got under the wide scope LF. The assertion under the narrow scope construal is however weaker than the assertion predicted under the wide scope construal, and it is consistent with the negation of the alternatives. The meaning in (26) is contingent. It is satisfied, for instance, in the model in (27).

(25) a. $\Box_C [R(a) \wedge R(b)]$
b. $\{\Box_C R(a) \wedge \neg\Box_C R(b), \neg\Box_C R(a) \wedge \Box_C R(b)]\}$

(26) $[\![$O $must_C$ any $book_D$ λ_1 Bill read $t_1]\!]$ =
$[\Box_C (R(a) \vee R(b))] \wedge \neg[\Box_C (R(a) \wedge R(b))] \wedge [\Box_C R(a) \leftrightarrow \Box_C R(b)]$

(27) w_1 $R(a) \wedge \neg R(b)$ w_2 $\neg R(a) \wedge R(b)$ w_3 $R(a) \wedge R(b)$

[5] There are constructions where *any* DPs convey narrow scope, existential interpretations: imperatives, supplementary constructions and when the NP restrictor of *any* is modified by a numeral (Giannakidou 2001, Chierchia 2013). Chierchia 2013 assumes that these are cases where there is not other option: for imperatives, he assumes that *any* cannot scope above the imperative operator, for supplementary *any*, that ellipsis resolution forces narrow scope.
[6] See, for instance, Dayal 1998, 2013, Chierchia 2013, Crnič 2020, 2019a

Since *any* DPs are taken not to be licensed by necessity modals, the narrow scope configuration needs to be blocked. If the wide scope configuration is the only option, the incompatibility of *any* DPs with necessity modals is expected, since the wide scope configuration yields a contradiction, the same way that positive episodic sentences do. Under the assumption that *any* DPs depart from other quantificational DPs in their scopal possibilities, what avoids the derivation of a contradiction in (certain) modal contexts is then the context dependency of modals.

In the next section we will see that that this hypothesis undergenerates, and that *any* DPs are in fact not that different from other DPs in that they can scope under modals.

3. An undergeneration challenge

3.1. Narrow scope?

Consider the following game:

(28) "Now [Akshat and Malvika] are playing a game on a grid made of n horizontal and m vertical sticks. An intersection point is any point on the grid which is formed by the intersection of one horizontal stick and one vertical stick. [...] The players move in turns. [...] During his/her move, a player must choose any remaining intersection point and remove from the grid all sticks which pass through this point. A player will lose the game if he/she cannot make a move (i.e. there are no intersection points remaining on the grid at his/her move)."
https://codeforces.com/problemset/problem/451/A

Let us now consider the target sentence below:

(29) During his/her move, a player must choose any remaining intersection point.

In the text where this game is presented, a permitted move is described where more than one intersecting point remains, and one of the players picks one intersection (which she was not forced to pick.) The intended interpretation of the sentence above conveys that the players must choose some intersection point or other and that every intersection point is a permitted option. There is no requirement to pick all intersection points. To describe what one particular player, say Akshat, can do, we can also use the sentence in (30). To simplify the discussion, and avoid the generic interpretation of the subject indefinite in (29), we will stick to the sentence in (30)—we will get back to the issue of genericity below.

(30) Akshat must choose any remaining intersection point.

The intended interpretation of (30) can be straightforwardly captured by assuming that *any* scopes under *must*. The predicted interpretation is provided in (31). For simplicity, we will assume that there are two remaining intersection points, a and b. The proposition in (31) conveys that Akshat is required to choose either point a or point b (first conjunct), but is not required to choose both (second conjunct). In addition, Akshat is required to choose point a if, and only if, he is required to choose point b (third conjunct). The second conjunct forces the two terms of the biconditional in the third conjunct to be false. This entails that Akshat is permitted to choose either point.

(31) $[\Box_C(C(a) \vee C(b))] \wedge \neg[\Box_C(C(a) \wedge C(b))] \wedge [\Box_C C(a) \leftrightarrow \Box_C C(b)]$

Naturally occurring examples of this sort, where *any* seems to scope under a necessity modal, are not hard to find. A sampler follows:

(32) a. During each turn, a player must choose any non-empty pile and take as many stones as they want. (https://www.hackerrank.com/challenges/taste-of-win/problem)

b. Customers must buy any new adult sized ATV or side-by-side 400cc or bigger. (https://powersportsbusiness.com/news/2019/06/12/free-weber-gas-grill-with-qualifying-unit-purchase-at-dealership/)

c. You must buy any ETF in any trading currency (ZAR, TFSA and USD accounts) to be taken in consideration for the prize money. (https://cdn2.hubspot.net/hubfs/1690236/%E2%80%9CAround%20the%20world%20in%2080%20ETFs%E2%80%9D%20Ts&Cs.pdf)

d. Starting on August 3, Dunkin' Perks members can get a free medium coffee—hot or iced—for free. In order to redeem the offer, members must buy any food item to claim the deal. (https://www.fox13news.com/news/dunkin-offering-free-coffee-mondays-starting-august-3)

e. Boris softens his stance: MPs must choose 'any deal or delay'. (https://www.express.co.uk/news/politics/1190126/boris-johnson-brexit-deal-super-saturday-deal-no-deal-brexit-delay-extension-latest)

Restricting *any* DPs so that they only scope over modals is too restrictive, then.[7]

3.2. Alternative explanations?

3.2.1. Genericity

Dayal 1998 observes that *any* DPs are not always deviant with necessity modals. Consider (33):

(33) a. Any student must work hard.
b. Any soldier should be prepared to die for her country. (Dayal 1998: 435)

In (33), we find the counterpart of these sentences with a regular indefinite instead of an *any DP*:

(34) a. A student must work hard.
b. A soldier should be prepared to die for her country. (Dayal 1998: 435-438)

The indefinites in the sentences in (34) are generic. The sentence in (34a) expresses a generalization over students, it conveys that if x is a (normal or typical) student, then x must work hard. Similarly, the sentence in (34b) expresses a generalization over soldiers: if x is a (normal or typical) soldier, then x should be prepared to die for her country. What we observe then is a correlation between the necessity sentences which license *any* DPs in (33) and the availability of a generic interpretation of a regular indefinite substituting the corresponding *any* DP. Genericity licenses *any* DPs (Kadmon & Landman 1993, Dayal 1998, Chierchia 2013).[8]

Is (30) and the related examples presented before cases where genericity licenses the *any* DP? We don't think so. Given the previous observations, we can assess whether the *any* DP is acceptable with the necessity modal due to genericity by replacing the *any* DP in the target sentence with a regular indefinite, as in (35), and see if it receives a generic interpretation.

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[7] There are two things worth mentioning. First, some of these examples contain a generic indefinite in subject position. We do not believe this to be an issue as the generic indefinite has no bearing on the (existential) interpretation: the same interpretation results if the generic indefinite is substituted for a non-generic subject. Second, the presence of a (quasi-universal) expression intervening between O and an *any* DP scoping over the modal predicts the grammaticality of the examples by avoiding a contradiction. To illustrate, consider the variant of (32a) in (ia) with the LF in (ib). The predicted assertion, in (ic) is consistent with the scalar and domain implicatures in (id) and (ie) (assuming two non-empty piles p_1 and p_2.) However, the predicted assertion in this configuration is stronger than the one we are after, as it requires that, in each turn, John be required to choose a certain pile. So the intervening (quasi-universal) expression is not responsible for generating the interpretation we are after, it is a separate issue.

(i) (a) In each turn, John must choose any non-empty pile.
(b) LF: O in each turn any non-empty pile $\lambda 1$ must [John choose t_1]
(c) Assertion: In each turn t, John must choose p_1 at t or he must choose p_2 at t.
(d) Scalar imp.: $\neg$ [In each turn t, John must choose p_1 at t and he must choose p_2 at t]
(e) Domain imp.: [In each turn t, John must choose p_1 at t] $\leftrightarrow$ [In each turn t, he must choose p_2 at t]

[8] For extensive discussion of Dayal's observation, see Menéndez-Benito 2005, chapter 5.

(35) Akshat must choose a remaining intersection point.

What we observe is that (35) does not convey a generalization over remaining intersection points. The sentence in (35) is not saying that, for every (normal or typical) remaining intersection point x, Akshat must pick x. These truth-conditions are too strong: (35) is compatible with a situation where Akshat is not required to choose any particular intersection point. Unlike what happens in cases like (33b), there is no correlation between the licensing of *any* and the generic interpretation of a corresponding indefinite. We conclude then that this is not a case of genericity licensing the *any* DP.

3.2.2. Subtrigging

Let's consider a second possibility. Legrand 1975, who dubbed this phenomenon 'subtrigging', observed that modification can license *any* DPs. Dayal (1995, 1998) illustrates that postnominal, but not prenominal, modification does. This is illustrated in (36). Dayal (1998) also observes that covert domain restriction can have the same effect, as in (37), where the speaker is understood to covertly restrict the domain of quantification to those objections that are raised during some temporally specified interval.

(36) a. John talked to any politician that is powerful.
b. *John talked to any powerful politician. (Dayal 1998: 445)

(37) John must answer any objection.

Could our target example be a case of subtrigging? The example features a prenominal modifier, casting doubts about it, but since subtrigging has been claimed to possibly be covert, let's nevertheless consider the possibility.

Cases where *any* is subtrigged receive a universal interpretation: for instance, (37) conveys that if John is presented with three objections, he must answer all three of them. Chierchia (2013: 317-323) spells out the interpretation of subtrigged sentences as follows. Following Quer 2000, he assumes that postnominal modifiers introduce a covert layer of modality. The sentence in (38a), for instance, has the LF in (38b), where '$\boxdot$' represents a covert modal.

(38) a. John must talk to any student that shows up.
b. O [any [student λ_2 $\boxdot$ t_2 shows up]] λ_1 must [John talked to t_1]

This modal can prevent a contradiction. The predicted assertion plus domain implicature conveys (39a) and the predicted scalar implicature (39b). If the interpretation of the covert modal is held constant, the conjunction of (39a) and (39b) will be contradictory. However, as we know, the domain of the covert modal can shift. Normally, context shifting would not help with necessity modals, but in this case, the covert modal is part of *any*'s restrictor—in contrast to the modal being part of *any*'s scope. This allows the conjunction of (39a) and (39b) to be consistent, through context shifting. If the domain of the covert modal in the scalar implicature (D_1) is a subset of the domain of the modal in the domain implicature (D_2), as Modal Containtment requires, then the property that corresponds to the restrictor of the universal quantifier in the scalar implicature will be weaker than the one that corresponds to the restrictor of the universal quantifier in the domain implicature: D_2 will be a superset of D_1.

(39) a. $\forall x \in \{y \mid \text{st}_w(y) \wedge \boxdot_{w'}\text{showed-up}_{w'}(y)\}$ $[\Box_w \text{talk}(j,x)]$ (assertion & domain imp.)
b. $\neg\forall x \in \{y \mid \text{st}_w(y) \wedge \boxdot_{w'}\text{showed-up}_{w'}(y)\}$ $[\Box_w \text{talk}(j,x)]$ (scalar implicature)

How does this context shift come about? Chierchia suggests that the two modal bases in the meaning components in (39) are determined differently: (39a) is determined by the speaker's 'objective evidence' and (39b) is determined by the speaker's 'subjective evidence' (Chierchia 2013: 322). This would make the set of worlds in the modal base of the domain component a superset of those in the scalar component, as more propositions will count as subjective evidence. Be that as it may, the key observation to retain is that these subtrigged cases still make a universal claim. Crucially, our target sentence does not: (30) does not convey that Akshat is required to choose all entities that are objectively known to be intersection points or all intersection points that are known to be remaining. In fact, (30) does not convey that Akshat is *required* to choose any particular entity. The predicted interpretation is too strong.

4. Conclusion

Restricting *any* DPs so that they cannot take scope under modals sets these DPs apart from others. Are *any* DPs that different? Perhaps not. The type of example that we have discussed poses a challenge to the theory presented in Chierchia 2013, where *any* DPs are forced to take wide scope. The challenge extends to other theories that do not assume the Wide Scope Constraint, but derive its effects, as is the case in the analysis presented in Dayal 2013, where the Wide Scope Constraint is derived from a separate interpretation constraint (Viability). The observation also has consequences for other types of analysis of *any* DPs. For instance, the analysis presented in Crnič 2019a,b assume that *any* DPs scope beneath modals, but aim to block sentences with necessity modals through different means — an additive presupposition which is due to a covert *even*. Crnič 2020 also blocks *any* DPs with necessity modals by appealing to a different licensing constraint– Strawson downward entailingness. The examples presented here illustrate that *any* DPs are not always ungrammatical with necessity modals, so any analysis tailored to rule out these sentences faces challenges.

Allowing *any* DPs to *always* combine with necessity modals faces obvious overgeneration challenges, though. Any theory of *any* DPs still needs to explain why *any* DPs are not always felicitous with necessity modals. Overcoming this overgeneration problem is a pressing issue.

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