Free Choice under Ellipsis

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Abstract

The ellipsis of a VP whose antecedent contains an occurrence of so-called free choice *any* is highly constrained: it is acceptable only if the elided VP is appropriately embedded. We show that while this is unexpected on the common approaches to free choice and ellipsis, it is predicted on a theory of *any* that takes it to stand in a dependency relation with a c-commanding alternative-sensitive operator (see, esp., Lahiri 1998). We conclude the paper by exploring the consequences of our proposal for the distribution of polarity items in ellipsis contexts more generally.

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1 Ellipsis and the Puzzle of Free Choice

An ellipsis of a well-formed VP is licensed if the content of the VP can be appropriately recovered from the discourse. For example, the second sentence in (1-a) is interpretable because the elided VP, which we mark with △, can be recovered from the first sentence, namely, *read War and Peace*.

(1) a. John read *War and Peace*, and Mary did △ too.
b. △ = read *War and Peace*

1.1 Ellipsis Licensing Condition

In many cases the recovered VP does not correspond to a surface constituent in the preceding discourse. There have been many attempts to properly characterize the condition on ellipsis licensing in light of such data (e.g., Sag 1976, Rooth 1992, Hardt 1993, among many others). While all of these share the assumption that an appropriate matching relation must obtain between a constituent containing the elided VP and some antecedent constituent in the discourse, they differ with respect to the assumptions about the size of these constituents and the details of the matching relation.

A particularly influential account of ellipsis licensing has been put forward by Rooth (1992). We adopt it in the following, though any alternative that assumes syntactic structure at the ellipsis site would arguably suffice for the purposes of the paper (e.g., Fiengo & May 1994, Merchant 2001, 2013, Van Craenenbroeck 2010, among others). Rooth analyzes VP ellipsis as an extreme case of deaccentuation. He couches his proposal in alternative semantics and proposes that a VP can be elided if it is contained in a constituent whose focus alternatives include the meaning of some constituent from the previous discourse (he also proposes an LF identity requirement, which we leave aside in the following; see, e.g., Fox 2000, Ch. 3, for further discussion).[1]

(2) *Ellipsis Licensing Condition:*
A VP may be elided if it is reflexively dominated by a constituent α whose focus value contains the meaning of some constituent β in the discourse, $[\![\beta]\!]^g \in \mathrm{F}(\alpha)$.

We will call the constituents on the basis of which Ellipsis Licensing Condition is satisfied, 'parallelism domains' – specifically, the antecedent and the ellipsis parallelism domain. Following Rooth, we mark the ellipsis parallelism domain with a prefixed $\sim$-operator and indicate the antecedent parallelism domain with a suffixed index (we also

[1] Focus alternatives of a constituent, that is, its focus value, are defined recursively as in (i) (see Rooth 1985). If a more structural approach to alternatives were adopted (Fox & Katzir 2011), this would not affect the proposal in the main text, only its presentation (see Section 4.2 for further discussion).

(i) a. If X is a terminal node that is not F-marked, then $\mathrm{F(X)} = \{[\![\mathrm{X}]\!]^g\}$
b. If X is a terminal node that is F-marked, then $\mathrm{F(X)} = \{[\![\mathrm{Y}]\!]^g \mid \mathtt{type}(\mathrm{Y}) = \mathtt{type}(\mathrm{X})\}$
c. If X = [Y Z] is a branching node such that the meaning of Z is an argument of the meaning of Y, then $\mathrm{F(X)} = \{\mathrm{Y'(Z')} \mid \mathrm{Y'} \in \mathrm{F(Y)} \ \&\ \mathrm{Z'} \in \mathrm{F(Z)}\}$

underline them for salience). In the discourse in (1), the parallelism domains may be the whole sentences, as indicated in (3). The meaning of the first sentence is a focus alternative to the second sentence, as given in (4). This accounts for the licensing of VP ellipsis in (1). (In the following 'A' stands for a constituent containing the antecedent parallelism domain and 'E' stands for a constituent containing the ellipsis parallelism domain. Furthermore, we rely on simplified formulas when representing meanings and hope that more accurate representations can be reconstructed by the reader.)

(3) a. A: $\underline{[\text{John read } \textit{War and Peace}]_4}$
b. E: $[\sim 4\ \underline{[\text{Mary}_\text{F} \text{ read } \textit{War and Peace}]}]$

(4) *Ellipsis Licensing Condition:*
$[\![\text{John read } \textit{War and Peace}]\!]^g \in \text{F}(\text{Mary}_\text{F} \text{ read } \textit{War and Peace})$ $\big(= \{\text{that x read } \textit{War and Peace} \mid \text{x} \in \text{D}_\text{e}\}\big)$

A slightly more involved example is provided in (5). The discourse in (5) is ambiguous: it either conveys that some boy and some girl are such that each read every book (= surface scope reading in both conjuncts), or that every book is such that it was read by some boy and some girl (= inverse scope reading both conjuncts).

(5) Some boy read every book, and some girl did $\triangle$ too.

The second disambiguation is derived from the parses of the sentences given in (6), where the universal quantifier takes scope above the existential quantifier in both sentences and where *girl* is focused in the second sentence. The meaning of the antecedent parallelism domain is contained in the focus value of the ellipsis parallelism domain, as shown in (7). Accordingly, VP ellipsis is licensed.

(6) a. A: $\underline{[[\text{every book}]\ [\lambda 1\ [[\text{some boy}] \text{ read } t_1]]]_4}$
b. E: $[\sim 4\ \underline{[[\text{every book}]\ [\lambda 5\ [[\text{some girl}_\text{F}] \text{ read } t_5]]]}]$

(7) *Ellipsis Licensing Condition:*
$[\![[\text{every book}]\ [\lambda 1\ [[\text{some boy}] \text{ read } t_1]]]\!]^g \in \text{F}([\text{every book}]\ [\lambda 5\ [[\text{some girl}_\text{F}] \text{ read } t_5]]) = \{\text{that every book is such that some NP read it} \mid \text{NP} \in \text{D}_\text{et}\}$

If the scopes of the two quantifiers are not structurally isomorphic in the two parallelism domains (for instance, if we assign the inverse scope structure to the first sentence and the surface scope structure to the second sentence), Ellipsis Licensing Condition cannot be satisfied. This accounts for the fact that the discourse in (5) is only two-way and not four-way ambiguous (see, e.g., Rooth 1992, Fox 2007 for further discussion).

1.2 Alternations

Many examples of VP ellipsis are such that the sentence containing it would be ungrammatical if the antecedent VP were pronounced at the ellipsis site (see, e.g., van Craenenbroeck & Merchant 2013 for an extensive discussion). Bresnan (1971) and Sag (1976) discuss examples like (8), in which the antecedent VP contains the polarity item

any book. The polarity item is acceptable (or 'licensed') since it occurs in the scope of negation, that is, a downward-entailing environment.

(8) John didn't read any book, but Mary did △.

Now, if the second VP in (8) contained an overt occurrence of *any book*, the sentence would not be well-formed since *any* would not be contained in a licensing environment:

(9) #John didn't read any book, but Mary (did) read any book.

On the assumption of Ellipsis Licensing Condition in (2), however, one need not take the elided VP in the second sentence in (8) to have the form spelled out in (9): if we assume (i) that *any* denotes an existential quantifier akin to *a/some*, and (ii) that whatever governs its distribution does not significantly affect the syntax and semantics of the VP containing *any*, then the elided VP may be taken to contain a plain indefinite, as given in (10) and (11). Both of these assumptions are in line with many standard treatments of polarity items and have been adopted in much previous work on polarity items in antecedents for VP ellipsis (see Merchant 2013 for an overview).[2]

(10) John didn't read any book, but Mary (did) read a book.

(11) a. A: $\underline{[\text{not } [\text{John read any book}]]_4}$
b. E: $[\sim 4\ \underline{[\text{did}_{\text{F}}\ [\text{Mary}_{\text{F}}\ \text{read a book}]]}]$

These structures satisfy Ellipsis Licensing Condition, as shown in (12). We say that in discourses like (8), *any book* 'antecedes' *a book*.

(12) *Ellipsis Licensing Condition:*
$[\![[\text{not } [\text{John read any book}]]]\!]^g \in \text{F}([\text{did}_{\text{F}}\ [\text{Mary}_{\text{F}}\ \text{read a book}]])$ $\big(= \{\text{that x read a book, that x did not read a book} \mid \text{x} \in \text{D}_{\text{e}}\}\big)$

The above observation about the distribution of polarity items in ellipsis contexts, that is, in VPs on which the antecedent parallelism domain is built ('antecedent VPs' for short), can be summarized by the following truism:

(13) *Observation about polarity items and ellipsis:*
On the assumption that *any* is an indefinite and that its licensing mechanism does not significantly affect the syntax of the antecedent VP, it can freely antecede another indefinite in the elided VP.

In the following section, we discuss a class of occurrences of *any* that appear not to be able to antecede indefinites freely. We will come to grips with these data by dropping one of the assumptions in (13), namely, that the licensing mechanism responsible for the

[2]For illustration, following Giannakidou (2000) and others, Merchant (2013) proposes that polarity items have an unspecified polarity feature which gets valued by a c-commanding polarity head, which is external to the VP. This process determines the morphology of the polarity item, say, whether it is realized as *anything* or *something*.

distribution of *any* does not significantly affect its syntax.

1.3 Free choice puzzle

First observation. In addition to downward-entailing environments, such as the one in (8), *any* may occur also in the scope of existential modals and in some other modal environments. These occurrences have been dubbed as occurrences of 'free choice *any*'.[3] Namely, they give rise to the so-called freedom of choice inference that, roughly, every element in the restrictor of *any* verifies the statement (see, e.g., Dayal 1998, Chierchia 2013; but see Menéndez-Benito 2010 for a qualification). An example of such an occurrence of *any* is provided in (14), which conveys that every book is such that John may read it:

(14) John may/is allowed to read any book.

However, unlike the occurrence of *any* in the scope of negation, the occurrence of *any* in (14) is not able to antecede indefinites, or other NPs for that matter, freely. In particular, while free choice *any* may antecede a nominal expression that is embedded below an existential modal, as shown in (15), it cannot antecede an NP if the elided VP is embedded under a universal modal or if it is unembedded, as shown in (16).

(15) John may/is allowed to read any book. Bill is also allowed to △.

(16) a. #John may/is allowed to read any book. Bill (already) did △.
b. #John may/is allowed to read any book. Bill has to △.

These distributional patterns differ from those of other NPs in antecedent VPs, for example, those of plain indefinites and universal quantifiers, as shown in (17).

(17) a. John is allowed to read a/every book. Bill already did △.
b. John is allowed to read a/every book. Bill has to △.

Another modal-like environment in which *any* is acceptable and gives rise to a free choice inference is the imperative clause. Perhaps unsurprisingly in light of the above observations, the distribution of *any* in imperatives mirrors that of *any* in the scope of existential modals when it comes to ellipsis contexts: discourses in which *any* occurs in an imperative antecedent VP are felicitous when the elided VP is embedded in the scope of an existential modal, but not when it is embedded in a plain episodic sentence or in the scope of a universal modal. This holds both for *any* in matrix imperatives, given in (18), and for *any* in embedded imperatives, given in (19) (see Crnič & Trinh 2009 for discussion of English embedded imperatives).

(18) A: Ask anyone about it.
B: I am allowed to △?
B: #I already did △.

[3]While we largely follow this terminology in our paper, primarily for reasons of brevity, we do not assume that there are, in fact, different types of *any*. This should become clear in Section 3 at the latest, in which we present the analysis of *any* on which our proposal is based.

B: #John has to △ as well.

(19) a. I said read any book. He was allowed to △.
b. #I said read any book. He did △.
c. #I said read any book. So, he was required to △.

Taken together, these data constitute the first part of the puzzle about the interaction of free choice and VP ellipsis: in contrast to *any* in the scope of negation, *any* in the scope of an existential modal cannot freely antecede other nominal phrases.

(20) *First observation about the interaction of free choice and ellipsis:*
An occurrence of free choice *any* in the antecedent VP requires the elided VP to be in a free choice licensing environment.

Second observation. While free choice *any* in the antecedent parallelism domain constrains subsequent VP ellipsis, the reverse appears not to hold: free choice may be generated in the ellipsis domain without free choice *any* being used in the antecedent parallelism domain. Consider the felicitious discourse in (21). We submit that the elided nominal gives rise to a free choice inference.

(21) John didn't read any book. But he was allowed to △ – except for *Verbal Behavior*.

The second sentence of the discourse in (21) contains an exceptive modifier phrase, *except for Verbal Behavior*. While an exceptive modifier can be used on a free choice construal of the sentence, as shown in (22-a), the sentence is infelicitous in the absence of such a construal, as shown in (22-b).

(22) a. John was allowed to read any book – except for *Verbal Behavior*.
b. ?John was allowed to read a book – except for *Verbal Behavior*.

Accordingly, the felicity of the discourse in (21) suggests that the nominal phrase in the elided VP may induce a free choice inference. Moreover, note that while the exceptive modifier is used in (21) to force a free choice construal of the second sentence, its presence is not necessary for the second sentence to induce a free choice inference – a free choice inference may also obtain in its absence. In any case, a free choice inference can be induced in the second sentence even when there is no free choice *any* in the antecedent parallelism domain. This constitutes the second part of the puzzle about the interaction of free choice and VP ellipsis:

(23) *Second observation about the interaction of free choice and ellipsis:*
An elided VP occurring in a free choice licensing environment and giving rise to a free choice inference does not require the antecedent VP to be in a free choice licensing environment.

The puzzle. Coupled with Ellipsis Licensing Condition in (2), none of the existing approaches to free choice *any* is able to predict both observations, at least not without

making some further assumptions. We illustrate this in the following for simplified analyses of free choice *any* as (i) an existential quantifier (see Menéndez-Benito 2010, Dayal 2013, Chierchia 2013, among others), and (ii) as a universal quantifier, which is adopted in approaches that analyze occurrences of *any* in downward-entailing environments as different from those in modal environments (see Dayal 1998, 2004, 2009, among others).

(i) Free choice any *as an existential quantifier.* On one type of approach to free choice, *any* is analyzed as an existential quantifier, and the same, or at least similar, mechanisms are responsible for its licensing in downward-entailing and in modal environments. Its universal import as well as its distribution is derived with the help of alternative-sensitive operators that c-command it at LF and quantify over the alternatives it induces (see, e.g., Menéndez-Benito 2010, Chierchia 2013, among others). In some cases, for example, if *any* occurs in the scope of an existential modal, the inferences generated by the operators are consistent – they correspond to the so-called free choice inference described above. In such cases we say that the occurrence of *any* is licensed. A schematic representation of an analysis along these lines is given in (24) (see footnote 4 for a more detailed exposition).

(24) a. John is allowed to read any book.
b. [OP_i ... [OP_j [$\Diamond$ [John read any book]]]
association with alternatives

This type of approach has no problem with the second observation about free choice and ellipsis. For example, the felicitous discourse with the exceptive modifier in (21) may be assigned a representation akin to that sketched in (25), which satisfies Ellipsis Licensing Condition.

(25) a. A: [OP_i [not [John read any book]]$_4$]
b. E: [OP_i ... [OP_j [$\sim$4 [$\Diamond_F$[John read any book]]]]]

(26) *Ellipsis Licensing Condition:*
$[\![$[not [John read any book]]$]\!]^g \in F([\Diamond_F$ [John read any book]]) (= {that John read a book, that John didn't read a book, that John has to read a book, ...})

However, the approach faces an issue with the first observation about free choice and ellipsis. Namely, on this approach, there are several constituents in the sentence containing the elided VP in (16) that constitute licit parallelism domains on which ellipsis should be licensed. In (27), which presents possible parses of the sentences in the infelicitous discourse in (16-a), the minimal clauses containing the antecedent and the elided VP are chosen as the parallelism domains. Since the subject of the clause containing the elided VP is focused, its focus value contains the meaning of an antecedent constituent, specifically, of the embedded clause in the preceding sentence. Accordingly, VP ellipsis is incorrectly predicted to be licensed.[4]

[4] The representations in (24), (25) and (27) are considerable simplifications. For example, the structure that Chierchia (2013) envisions for sentences with free choice *any* is exemplified in (i), where the two

(27) a. A: [OP_i ... [OP_j [$\Diamond$ [John eat any dessert]$_4$]]]
b. E: [$\Box$ [$\sim$4 [$Bill_F$ eat a dessert]]]

(28) *Ellipsis Licensing Condition:*
$[\![$John eat any dessert$]\!]^g \in F($$Bill_F$ eat a dessert$)$ $\big(= \{$that x ate a dessert $\mid x \in D_e\}\big)$

(ii) Free choice any *as a universal quantifier.* On the ambiguity approach to *any*, an occurrence of *any* can either be an occurrence of so-called negative polarity *any* or an occurrence of free choice *any*. The latter is analyzed as a universal quantifier similar to *every*. Its universal import follows from its universal semantics, while its distribution is derived with the help of an additional inference that accompanies it (e.g., Dayal 1998, 2004, 2009). This additional inference has been claimed to be satisfied only in a very restricted set of configurations, in particular, if *any* scopes above an existential modal. An LF that contains an existential modal and free choice *any*, and that purportedly yields a licit interpretation, is provided in (29), where *any NP* scopes above the modal.

(29) a. John is allowed to read any book.
b. [any book] [λ1 [$\Diamond$ [John read t_1]]]

In order to account for the first observation, the approach would crucially have to assume that free choice *any* does not have a plain quantifier meaning, in contrast to

'OP' operators are variants of the *exh* operator discussed in the next section (they associate with the resource domain of *any*). If the parallelism domains are selected as in (i)-(ii), Ellipsis Licensing Condition is satisfied (at least on the *de re* construal of the indefinite): namely, the selected antecedent parallelism domain conveys that there is a book that John is allowed to read.

(i) a. John is allowed to read any book.
b. A: [OP_1 [OP_2 [[any book] λ3 [$\Diamond$ [John read t_3]]]$_4$]]

(ii) a. #Bill already did $\triangle$.
b. E: [$\sim$4 [did_F [$Bill_F$ read a book]]]

(iii) *Ellipsis Licensing Condition:*
$[\![$[any book] λ3 [$\Diamond$ [John read t_3]]$]\!]^g \in F($[did_F [$Bill_F$ read a book]]$)$ $\big(= \{$that x read a book, that x didn't read a book, that x may read a book, ... $\mid x \in D_e\}\big)$

A similar prediction obtains on Menéndez-Benito's (2010) account, according to which a sentence with free choice *any* has a representation along the lines of (iv-a). There are several parses of the problematic discourse that should satisfy Ellipsis Licensing Condition, one of which is provided in (iv).

(iv) a. A: [$\forall$ [$\Diamond$ [exh [John read a book]$_4$]]]
b. E: [$\exists$ [$\sim$4 [$Bill_F$ read a book]]]

(v) *Ellipsis Licensing Condition:*
$[\![$[John read a book]$]\!]^g \in F($[$Bill_F$ read a book]$)$ $\big(= \{$that x read a book) $\mid x \in D_e\}\big)$

Parallel considerations apply to examples where the elided VP is embedded under a universal modal, etc.

negative polarity *any*. More to the point, it would have to assume that the inference constraining its distribution is encoded in the semantics of *any* itself. If that were not the case and the inference were somehow triggered more globally, *any* should be able to antecede *every* in the discourse in (30). This is demonstrated in (31)-(32), where the relevant alternative to the second sentence is that every book is such that John read it.

(30) #John may/is allowed to read any book. Bill (already) did △.

(31) a. A: $\underline{[[\text{any book}]\ \lambda 3\ [\Diamond\ [\text{John read } t_3]]]}_4$

b. E: $[\sim 4\ \underline{[\text{every book}]\ \lambda 5\ [\text{did}_F\ [\text{Bill}_F\ \text{read } t_5]]}]$

(32) *Ellipsis Licensing Condition:*
$[\![[\text{any book}]\ \lambda 3\ [\Diamond\ [\text{John read } t_3]]]\!]^g \in F([\text{every book}]\ \lambda 5\ [\text{did}_F\ [\text{Bill}_F\ \text{read } t_5]])$

Now, if the inference responsible for its restricted distribution is triggered by *any* itself, the elided VP with an antecedent that contains free choice *any* has to occur in the scope of an existential modal, as shown in (33). This would account for the first observation and provide tentative support for the treatment of free choice *any* as being significantly different from other polarity items.

(33) a. A: $\underline{[[\text{any book}]\ [\lambda 1\ [\Diamond\ [\text{John read } t_1]]]]}_4$

b. E: $[\sim 4\ \underline{[\text{any book}]\ [\lambda 2\ [\Diamond\ [\text{Bill}_F\ \text{read } t_2]]]}]$

c. #E: $[\sim 4\ \underline{[\text{any book}]\ [\lambda 2\ [\Box_F\ [\text{Bill}_F\ \text{read } t_2]]]}]$

d. #E: $[\sim 4\ \underline{[\text{any book}]\ [\lambda 2\ [\text{did}_F\ [\text{Bill}_F\ \text{read } t_2]]]}]$

The pertinent question is, of course, how this inference responsible for *any*'s restricted distribution can be adequately encoded in the meaning of *any*, not least given the fact that if *any* scopes above the modal, as it is required to, it does not in fact occur in a modal environment. Concretely, the occurrences of *any* in (33-a)-(33-b) are as much in an episodic environment as those of *any* in (33-c)-(33-d) are. This is a patent issue for the account, which we cannot elaborate on more extensively here (see Dayal 2013, Chierchia 2013 for a further discussion).

This approach also sheds no light by itself on the second observation about free choice and ellipsis. Since the approach is designed so that, all else being equal, *any* yields a felicitous inference only in specific modal environments, Ellipsis Licensing Condition cannot be satisfied in a discourse like (21) if free choice *any* is used in the elided VP. In particular, if we assign the discourse in (21) the configuration in (34), we obtain the set of focus alternatives to the ellipsis parallelism domain given in (35) – in light of the properties of free choice *any*, no alternative to the existential modal can figure in the focus alternatives (otherwise the inference triggered by *any* would not be satisfied). And so the meaning of the antecedent parallelism domain cannot be contained in the focus value of the ellipsis parallelism domain. The VP ellipsis should thus not be licensed.

(34) a. A: $\underline{[\text{not } [\text{John read any book}]]}_4$

b. E: $[\sim 4\ \underline{[[\text{any book}]\ [\lambda 3\ [\Diamond_F\ [\text{Bill}_F\ \text{read } t_3]]]]}]$

(35) F([any book] [λ3 [$\Diamond_{F}$ [Bill$_{F}$ read t_3]]]]) =
{that any/every book is such that x may read it | x $\in D_e$}

Of course, a proponent of this approach may argue that the free choice inference conveyed by the second sentence in (21) is derived by other means, that is, means that do not require the presence of free choice *any*. This is indeed an attractive direction and one that we will end up adopting in this paper. But, in addition to accounting for the second observation discussed above, we will show how these means can be utilized in developing a uniform treatment of *any*, effectively making the universal quantifier approach to *any* unnecessary (following, esp., Lahiri 1998 and Chierchia 2013).

Summary. We have seen that (i) the distribution of free choice *any* in antecedent VPs constrains the availability of VP ellipsis – this constituted our first observation – and that (ii) a free choice interpretation of an elided indefinite appears to be possible even if the antecedent VP does not contain an occurrence of free choice *any* – this constituted our second observation. We have indicated that this state of affairs is puzzling on the existing approaches to free choice *any* when combined with the standard assumptions about ellipsis licensing.

1.4 Preview of the account

We show that if we make the following three assumptions, the puzzling observations described above can be explained in approaches that take the distribution of *any* to be governed by an alternative-sensitive operator (e.g., Krifka 1995, Lahiri 1998, Chierchia 2013): (i) a dependency relation obtains between *any* and its licensing operator (that is, a relation that corresponds to either movement or binding); (ii) free choice inferences observed with *any* and disjunction under existential modals are induced in grammar by a grammatical device of recursive exhaustification; and (iii) exhaustification is subject to an economy constraint. While the first assumption is to some extent novel (though see Lahiri 1998 on Hindi polarity items), the latter two assumptions have received considerable attention and support in recent literature (e.g., Fox 2007, Fox & Spector 2009, Chierchia et al. 2011, Chierchia 2013, among others). Moreover, we show that this explanation of the two observations about the interaction of free choice and ellipsis requires neither a deviation from the standard assumptions about ellipsis licensing, as described in (2), nor from Sag's and others' assumption that *any* may in principle antecede indefinites. Thus, while the observation in (13), repeated below, remains a truism, we argue that the second assumption in it – that the syntax of a VP containing *any* is not significantly affected by whatever governs the distribution of *any* – should be dropped.

(13) *Observation about polarity items and ellipsis:*
On the assumption that *any* is an indefinite and that its licensing mechanism does not significantly affect the syntax of the antecedent VP, it can freely antecede another indefinite in the elided VP.

The paper is structured as follows. Section 2 presents an analysis of *any* that is based on Lahiri's (1998) treatment of Hindi polarity items (see also Lee & Horn 1994). The crucial ingredient of the analysis is the assumption that the alternative-sensitive operator governing the distribution of *any* stands in a dependency relation with (a subcomponent of) *any NP*. Furthermore, we introduce a theory of free choice that takes it to be generated in grammar by means of recursive exhaustification (Fox 2007, Chierchia et al. 2011, Chierchia 2013). Section 3 derives the observations described above from the assumption set out in Section 2. The derivation mirrors that of other so-called parallelism facts observed in the discussion of ellipsis, in particular the obligatory structural isomorphism in binding and scope relations between the parallelism domains (e.g., Fiengo & May 1994, Fox 2000). Section 4 discusses some further predictions of our proposal, in particular predictions pertaining to the distribution of negative polarity items in ellipsis contexts. Section 5 concludes the paper by pointing to some avenues for future research.

2 A theory of free choice *any*

Kadmon & Landman (1993) proposed a strengthening requirement on the distribution of *any*: it is felicitous only if it is contained in a constituent whose meaning is stronger than it would be if *any* were replaced by an indefinite with a narrower domain. On the assumption that free choice is generated in grammar by recursive exhaustification, the distribution of *any* in all its guises can be successfully captured by this requirement. For concreteness, we encode the strengthening requirement by taking *any* to be accompanied by a covert *even* (cf. Lee & Horn 1994, Lahiri 1998.

2.1 *Any*

We adopt a variant of Lahiri's (1998) operationalization of Kadmon & Landman's strengthening requirement by assuming that *any* is an indefinite, given in (36), whose resource domain is base-generated as an argument of a covert *even* operator, given in (37).

(36) $[\![\text{any}]\!]^g(\text{D})(\text{P})(\text{Q}) = 1$ iff $\exists \text{x} \in \text{D}\ (\text{P}(\text{x}) = \text{Q}(\text{x}) = 1)$

(37) *Base-generated structure of* any NP:
[any [even D] NP]

The constituent [*even D*] must move at LF to a position in which it is interpretable and in which it triggers a satisfiable presupposition. Specifically, when *even* combines with a domain argument, its second argument must be a predicate of domains (see, e.g., Rooth 1985 on *even* taking arguments of different types). It thus cannot be interpreted *in situ* in a configuration like (37). Moreover, its final landing site must be such that the presupposition triggered by *even* in it is satisfied, that is, the property of domains, P, combined with D must be ordered higher on a salient scale than it combined with any subset (so-called subdomain) D' of D, which we represent with $\text{P}(\text{D}) < \text{P}(\text{D'})$ in (38); unless stated otherwise we will assume that the salient scale is the entailment scale (see,

e.g., Greenberg 2015 and references cited therein, as well as the discussion in Section 4.3).[5,6]

(38) $[\![\text{even}]\!]^g(\text{D})(\text{P})$ is defined only if $\forall$D'$\subset$D ($\hat{}$P(D) $<$ $\hat{}$P(D')).
If defined, $[\![\text{even}]\!]^g(\text{D})(\text{P}) = 1$ iff P(D) = 1.

For illustration, a sentence like (39-a) is felicitous because [*even D*] may scope above negation, as given in (39-b). In that position it triggers the presupposition that John not reading a book in D entails John not reading a book in D', for every subset of D'. Since this presupposition is a tautology, it is satisfied in every context.

(39) a. John didn't read any book.
b. [even D] λ1 [not [John read any t_1 book]]
movement of even

(40) *Presupposition of* even *in (39-b):*
$\forall$D'$\subset$D: $\neg$(John read a book in D) $<$ $\neg$(John read a book in D') (✓)

However, if [*even D*] is not base-generated in a downward-entailing (or non-monotone) environment or, equivalently, if its trace is not in a downward-entailing (or non-monotone) environment, the prediction is that the presupposition triggered by *even* will not be satisfied (as discussed at length in Crnič 2014). For example, take the sentence with free choice *any* in (41-a). If we assume that the structure of the sentence is the one given in (41-b), we predict that the sentence will trigger a presupposition, given in (42), that is unsatisfiable: it cannot be the case that John being allowed to read a book in D entails John being allowed to read a book in every one of D's subdomains.

(41) a. John is allowed to read any book.
b. [even D] [λ1 [$\Diamond$ [John read [any t_1 book]]]]

(42) *Presupposition of* even *in (41-b):*
$\forall$D'$\subset$D: $\Diamond$(John read a book in D) $<$ $\Diamond$(John read a book in D') (↯)

Thus, all else being equal, we predict *any* to be unacceptable in existential and other modal environments. However, as we will show in the remainder of the section, this prediction can be avoided on the assumption of recursive exhaustification in grammar.

[5]It is actually not crucial for our purposes that a subconstituent of an *any* phrase moves at LF. It would also suffice if the base-generated resource domain of *any* were a variable bound by a c-commanding [*even D*]. This might allow us to avoid issues involving the displacement of [*even D*] (cf. Rooth 1985, Schwarz 2000, Nakanishi 2012 and the discussion in Section 3.2).

[6]The proposal we put forward in this paper to deal with free choice *any* in ellipsis contexts could be transposed to alternative approaches to *any* and perhaps yield identical predictions (see esp. Krifka 1995, Chierchia 2013). We briefly discuss this possibility with respect Chierchia's (2013) framework in the conclusion.

2.2 Recursive exhaustification

Consider sentences (43) and (44).

(43) John is allowed to read *War and Peace* or *Anna Karenina*.

(44) John has to read *War and Peace* or *Anna Karenina*.

Both sentences convey that John is allowed to read *War and Peace* and that he is allowed to read *Anna Karenina* (and perhaps that he is not allowed, or required, to read both, respectively). This inference, a free choice inference, has been argued to be derived in grammar by the mechanism of covert exhaustification (Fox 2007). The semantics of the covert exhaustification operator, *exh*, is provided in (45): it takes a set of alternatives, which is determined by the elements in its scope with which it associates, and a proposition as its arguments and returns that the proposition is true and that all the the excludable alternatives, which form a subset of the first argument of *exh*, are false.[7]

(45) $[\![\text{exh}]\!]^g(\text{C})(\text{p}) = 1$ iff $\check{}\,\text{p}$ & $\forall \text{q} \in \text{Excl}(\text{C, p})(\text{p} \not\Rightarrow \text{q} \rightarrow \check{}\,\neg\text{q})$

Free choice with existential modals. Let us now apply the exhaustification operator recursively to existential modal sentences containing embedded disjunction, such as the one in (43). The resulting structure of the sentence in (43) is provided in (46).

(46) [exh C_2] [exh C_1] [$\Diamond$ [John read W or A]]

If we assume that the resource domain of the lower *exh* is the one given in (47), then the application of that *exh* will not affect the meaning of its sister constituent, that is, its prejacent, since neither of the disjunct alternatives is excludable (see footnote 7 and Fox 2007 for details).

(47) $\text{C}_1 = \{\Diamond(\text{John read W}), \Diamond(\text{John read A})\}$

(48) $[\![[\text{exh } \text{C}_1]\ [\Diamond\ [\text{John read W or A}]]]\!]^g = 1$ iff $\Diamond(\text{John read W or A})$

However, this selection of C_1 does affect the interpretation of the matrix sentence. In particular, if the resource domain of the higher *exh* is chosen as in (49), then the application of that *exh* will yield a meaning that is different from its prejacent.

(49) $\text{C}_2 = \{\text{exh}(\text{C}_1)(\Diamond(\text{John read W}))\ \text{exh}(\text{C}_1)(\Diamond(\text{John read A}))\}$ $\big(= \{\Diamond(\text{John read W}) \,\&\, \neg\Diamond(\text{John read A}), \Diamond(\text{John read A}) \,\&\, \neg\Diamond(\text{John read W})\}\big)$

[7] The reason why not all alternatives in the first argument of *exh* are negated is to avoid potential contradictions and other issues. For example, when dealing with plain disjunction, one does not want to negate both disjuncts. Fox (2007) proposes the following characterization of excludable alternatives (see also Spector 2006 for discussion): the set of excludable alternatives with respect to a proposition p and a set of alternatives C is the instersection of all the maximal sets C' in C that have the property that the negations of all their members can be jointly conjoined with p:

(i) $\text{Excl(C,p)} = \cap\{\text{C'} \subseteq \text{C} \mid \text{C' is a maximal set in C s.t. } \{\neg\text{q} \mid \text{q} \in \text{C}\} \cup \{\text{p}\} \text{ is consistent}\}$

In particular, we obtain the inference that the prejacent of the higher *exh* is true and that both the alternative that John is only allowed to read *War and Peace* and the alternative that John is only allowed to read *Anna Karenina* are false. Together, these inferences convey that John is allowed to read *War and Peace* and that he is allowed to read *Anna Karenina*. This corresponds to the free choice interpretation of the sentence.

(50) $[\![[\text{exh } C_2]\ [\text{exh } C_1]\ [\Diamond\ [\text{John read W or A}]]]\!]^g = \text{iff } \Diamond(\text{John read W or A}) \,\&\, \neg(\Diamond(\text{John read W}) \,\&\, \neg\Diamond(\text{John read A})) \,\&\, \neg(\Diamond(\text{John read A}) \,\&\, \neg\Diamond(\text{John read W}))$ iff $\Diamond(\text{John read W}) \,\&\, \Diamond(\text{John read A})$

Although we have not included the conjunctive alternative in the resource domains of the two *exh* operators, that is, it was 'pruned', this was a matter of choice rather than necessity. Not pruning the conjunctive alternative from either domain would result in the sentence conveying the meaning described in (51), which in addition to (50) conveys that the conjunctive alternative is false.

(51) $\Diamond(\text{John read W}) \,\&\, \Diamond(\text{John read A}) \,\&\, \neg\Diamond(\text{John read A and W})$

Following Fox (2007), we have thus derived the free choice inference of disjunction by a double application of the exhaustification operator. The crucial component of this analysis is that there is a device in grammar, *exh*, that is utilized in generating free choice inferences, and that this device may be embedded in the scope of other expressions.

Free choice with universal modals. We saw in (44) that we can obtain a free choice inference also with universal modals. This can be achieved with a single *exh* operator.

(52) $[\text{exh } C_1]\ [\Box\ [\text{John read W or A}]]$

Namely, assume that the domain of C_1 in (52) contains the disjunct alternatives and the conjunctive alternative, as given in (53).

(53) $C_1 = \{\Box(\text{John read W}), \Box(\text{John read A}), \Box(\text{John read W and A})\}$

Since all the alternatives are excludable in this case, as witnessed by their negation being jointly consistent with the prejacent, they can all be negated. We obtain the free choice interpretation of the disjunction together with the negation of the conjunctive alternative, as given in (54): John has to read *War and Peace* or *Anna Karenina* but it is false that he has to read *War and Peace*, that he has to read *Anna Karenina*, and that he has to read *War and Peace* and *Anna Karenina*; this jointly entails that he is allowed to read *War and Peace* and that he is allowed to read *Anna Karenina*.

(54) $\Box(\text{John read W or A}) \,\&\, \Diamond(\text{John read W}) \,\&\, \Diamond(\text{John read A}) \,\&\, \neg\Box(\text{John read W and A})$

If we apply exhaustification another time, as we have done in the case of existential modals, this does not affect the meaning of the sentence. Namely, in this case, all the alternatives in the domain of *exh* are incompatible with the prejacent of *exh* and, accord-

ingly, their negation are entailed by the prejacent (for example, (54) entails that it is false that John only has to read *War and Peace*).

(55) a. [exh C_2] [exh C_1] [□ [John read W or A]]
b. C_2 = {exh(C_1)(□(John read W)), exh(C_1)(□(John read A))} (= {(□(John read W)&¬□(John read A)), (□(John read A)&¬□(John read W))})

(56) *Vacuity of the higher* exh *in (55-a):*
$[\![$[exh C_2] [exh C_1] [□ [John read W or A]]$]\!]^g = [\![$[exh C_1] [□ [John read W and A]]$]\!]^g$

Economy constraint. Exhaustified meanings of embedded expressions are not always accessible, in particular, of expressions embedded in downward-entailing environments. In the approach to exhaustification adopted here this means that the distribution of *exh* must be constrained. In light of this, it has been proposed that an application of *exh* is licit only if it affects in some specific way the interpretation of the sentence in which it occurs. While different formulations of the specific way in which the interpretation of the sentence must be affected have been put forward (see, esp., Fox & Spector 2009), the weakest conceivable formulation suffices for the purposes of this paper (cf. Fox 2000):

(57) *Economy Constraint on* exh:
An occurrence of *exh* is licensed only if it occurs in a constituent whose interpretation would be different if the occurrence of *exh* were deleted.

We have already seen a hypothesized occurrence of *exh* that would violate Economy Constraint on *exh*, namely, the higher *exh* in the structure in (55-a): it did not affect the meaning of any constituent in which it was located, as stated in (56). In contrast, both occurrences of *exh* in (46) on the resolution of the resource domains given in (47) and (49) affected the meaning of a constituent in which they were located, namely, that of the matrix sentence, as stated in (58).

(58) *Economy Constraint is respected in (46):*
$[\![$[exh C_2] [exh C_1] [◇ [John read W or A]]$]\!]^g \neq [\![$[exh $C_{1/2}$] [◇ [John read W or A]]$]\!]^g$

This constraint will turn out to be of crucial importance in deriving the distribution of free choice *any* in antecedents for VP ellipsis.

2.3 Putting the pieces together

In introducing the syntax and semantics of *any*, we ran into the problem of incorrectly predicting that *any* should be infelicitous in the scope of an existential modal, that is, we did not allow for free choice *any*. We show in the following that this prediction can be avoided by appropriately applying the *exh* operator. Although much of the discussion in the following is based on (Chierchia 2013), our take on the function of *exh* in the theory of licensing *any* is different than his: we assign *exh* merely a role of a potential rescue mechanism, rather than treat it as a mechanism that single-handedly governs the distribution of *any*.

Let us look at a sentence containing *any* in the scope of an existential modal, given in (59-a). If we assume that *even* moves above two *exh* operators, in addition to the existential modal, and if the *exh* operators associate with the resource domain of *any*, we may obtain a licit interpretation. We show this stepwise.

(59) a. John is allowed to read any book.

b. [even D] [λ3 [exh C_2] [exh C_1] [$\Diamond$ [John read [any t_3 book]]]]

domain exhaustification

movement of even

Free choice meaning If the two *exh* operators associate with the resource domain of *any* in (59), and if the alternatives over which *exh* quantifies are built on the subdomains of that domain, we obtain parallel results to when *exh* associates with a disjunction and the alternatives in the domain of *exh* are all the 'subdisjunctions' of that disjunction (that is, all the disjunctions built on the various disjuncts of that disjunction). The first layer of exhaustification does not affect the prejacent if we assume that the resource domain of *exh* corresponds to (60): in this case none of the alternatives in the domain of *exh* are excludable relative to the prejacent of *exh* and so none of them are negated.

(60) $C_1 = \{\Diamond(\text{John read a book in D}) \mid D \subseteq g(3)\}$

(61) $[\![[\text{exh } C_1]\ [\Diamond\ [\text{John read [any } t_3 \text{ book}]]]\!]^g = 1$ iff John read a book in g(3)

The second layer of exhaustification yields a free choice interpretation of *any*, in parallel to what we observed for disjunction. The alternatives in the domain of *exh* are in (62).

(62) $C_2 = \{\Diamond(\text{John read a book in D'})\&\neg\Diamond(\text{John read a book in D"}) \mid D' \subseteq D, D" = D \setminus D'\}$

All these alternatives are excludable, as witnessed by their negations being jointly consistent with the prejacent, and so we obtain the proposition that the prejacent is true – that John is allowed to read a book in D – and that for every subdomain D' of D, it is false that John is only allowed to read a book in D'. This proposition is equivalent to the free choice inference described in (63).

(63) $[\![[\text{exh } C_2]\ [\text{exh } C_1]\ [\Diamond\ [\text{John read [any } t_3 \text{ book}]]]\!]^g = 1$ iff
$\forall D' \subseteq D$: $\Diamond$(John read a book in D')

Note that given all the we said so far it is not necessary to have an *any* indefinite in the structure to induce free choice – rather, free choice could in principle be induced by every indefinite if its resource domain were recursively exhaustified (as argued forcefully by Chierchia 2013, Ch. 5). The reason why free choice is obligatory with *any*, but at most optional with other indefinites, is that only in the former case there is a covert *even* accompanying the indefinite and operating on its resource domain, requiring recursive exhaustification to be used as a rescue mechanism.

Presupposition of *even*. If *even* that comes with *any* scopes above the two *exh* operators that associate with its trace, we obtain the presupposition in (65).

(64) [even D] [λ3 [exh C_2] [exh C_1] [$\Diamond$ [John read [any t_3 book]]]]

(65) *Presupposition of* even *in (64):*
$\forall$D'$\subset$D: $\big(\forall$D"$\subseteq$D: $\Diamond$(John read a book in D")$\big) < \big(\forall$D"$\subseteq$D': $\Diamond$(John read a book in D")$\big)$ ($\checkmark$)

This presupposition is a tautology: if it is true that for every subdomain of a domain D that John is allowed to read a book in that subdomain, then it is also true that for every subdomain of a subset D' of D that John is allowed to read a book in that subdomain. Accordingly, on this construal of the sentence *John is allowed to read any book*, the occurrence of *any* is licensed and context-independent, that is, *even* that accompanies it triggers a presupposition that is satisfied in every context. This accounts for the felicity of *any* in existential modal sentences and for the free choice inference it induces. We discuss some further predictions and issues of the proposal in the remainder of the section.

Prediction about universal modals. It has been observed that *any* is marked in universal modal environments (e.g., Dayal 1998). This is predicted on the account developed above. Specifically, if the sentence in (66-a) is assigned the structure in (66-b), it has the assertive meaning in (67).

(66) a. #John has to to read any book.
b. [even D] [λ3 [exh C_1] [$\Box$ [John read [any t_3 book]]]]

(67) $\Box$(John read a book in D) & $\forall$D'$\subset$D: $\neg\Box$(John read a book in D')

The domain of *even* consists in this case of mutually logically independent alternatives. If the ordering on which *even* operates is resolved to entailment, as we have been assuming so far, it triggers an inconsistent presupposition. All else being equal, we would thus predict that *any* may not occur in the scope of universal modals.

(68) *Presupposition of* even *in (66):*
$\forall$D'$\subset$D: $\big(\Box$(John read a book in D) & $\forall$D"$\subset$D: $\neg\Box$(John read a book in D")$\big) <$
$\big(\Box$(John read a book in D') & $\forall$D"$\subset$D': $\neg\Box$(John read a book in D")$\big)$ ($\Diamond$)

The assumption that *even* that accompanies *any* may only operate on an entailment ordering is not warranted however (see esp. Section 4.3). This means that the presupposition in (68) may in principle be satisfied in appropriate contexts if the ordering relation is resolved appropriately, say, as the 'be less likely than' relation. But on such a resolution it is not at all clear how to adequately characterize what needs obtain in the context for the presupposition in (68) to be satisfied. Since we cannot investigate here how to distinguish the contexts in which (68) could be satisfied, we provisionally assume that the presupposed relation is implausible in natural contexts or, at least, less accessible than the relation described in (65), and that this is the source of apparent markedness of *any*

in universal modal environments (cf. Crnič 2013).[8] Although this is only an initial step towards a proper understanding of the distribution of *any* in universal modal environments (see Chierchia 2013, Ch. 6, for the intricacies involved), the proposal does provide a distinction between the existential and the univeral modal environments that could be exploited in explaining the contrast between (59) and (66).

Overgeneration and the scalar alternative. Admitting recursive exhaustification into grammar introduces several issues for the theory of licensing *any* (see Rothschild 2006, Crnič 2014). For instance, given our assumptions so far, the recursive exhaustification of the domain of *any* that occurs in a plain episodic sentence, given in (69), should yield a universal interpretation of *any*, given in (70): the application of the higher *exh* leads to the inference that John read a book in D and that it is false that D' but not D\D' is such that John read a book in D', for all D'⊂D; this is equivalent to John reading every book in D (see Chierchia 2013, Bar-Lev & Margulis 2013, Singh et al. 2013).

(69) a. #John read any book.
b. [even D] $\lambda 3$ [exh C_2] [exh C_1] [John read any t_3 book]

(70) $[\![$[exh C_2] [exh C_1] [John read any t_3 book]$]\!]^g = 1$ iff ∀D'⊆D: John read a book in D'

The presupposition of *even* would in this case be satisfied: since the domain of *any* is in (69-b) in a downward-entailing environment (in effect, the restrictor of a universal quantifier), replacing it with a subdomain yields a weaker meaning.

(71) *Presupposition of* even *in (70):*
∀D'⊂D: $\big($∀D"⊂D: John read a book in D"$\big) < \big($∀D"⊂D': John read a book in D"$\big)$ (✓)

But, of course, rather than having a universal quantifier meaning, the occurrence of *any* in (69) is infelicitous. Following Chierchia (2013), this problem can be resolved by assuming that *exh* that associates with the resource domain of *any* must also associate with *any* itself, which induces a scalar alternative (*every*). And while scalar and other alternatives may be pruned under certain conditions, that is, subtracted from the domain of *exh*, this is arguably not possible in (69). Specifically, if we assume the constraint on pruning that requires pruning to always result in a weaker meaning (as proposed by Crnič et al. 2015; see Fox & Katzir 2011, Katzir 2013 for alternatives), the sentence in (69) is

[8] The ascertainment that the presupposition in (68) may in principle be satisfied in certain contexts receives some support by the occurrence of *any* in environments that appear to involve universal modals. Two such examples are provided in (i) and (ii) ((i) is from Kadmon & Landman 1993). They exhibit clear context-dependence: roughly, their felicity depends on the content described by the embedded clause being (or having been) very unlikely to obtain. See Crnič 2013 for a preliminary discussion.

(i) John is glad that they got ANY tickets.

(ii) I would like him to read ANY book.

correctly ruled out.[9] Namely, the universal meaning described in (71) is crucially derived by pruning the universal alternative from the domains of both *exh* operators. But this, trivially, results in a stronger meaning for the higher *exh* operator compared to the parse in which pruning had not applied: if the universal alternative is contained in the domain of the higher *exh*, none of the alternatives is excludable and, thus, none of them gets negated. This means that the pruning that is required to derive the universal meaning of *any* is not legitimate (= it does not weaken the meaning).

Furthermore, a single exhaustification also does not yield a consistent interpretation of a plain episodic sentence containing *any*. For instance, the exhaustification represented in (72), which results in the negation of the universal quantifier alternative to *any* if it is not pruned, as shown in (73), does not rescue the presupposition of the sentence: John reading some but not every book in a subset of D entails John reading some but not every book in D – the opposite is required by the presupposition of *even*.

(72) [even D] $\lambda 3$ [exh C_1] [John read any t_3 book]

(73) *Presupposition of* even *in (72):*
$\big($that John read a book but not every book in D$\big) < \big($that John read a book but not every book in D'$\big)$ (↯)

Finally, the assumption of a universal quantifier alternative for *any* does not affect our treatment of *any* in existential modal environments. In particular, pruning the universal quantifier alternative from the domains of both *exh* operators leads to a weaker meaning of (59) compared to when no pruning takes place: if one does not prune the universal alternative from the domain of either *exh* operator, one obtains the meaning computed in (63) conjoined with the negations of all the universal quantifier alternatives, as given in (74).[10]

(74) *Assertive meaning of (59) (without pruning):*
$\forall$D'$\subset$D: $\Diamond$(John read a book in D') & $\neg\exists$D'$\subset$D: card(D')$\geq$2 & $\Diamond$(John read every

[9]The constraint on pruning is more formally stated in (i). It remains to be determined whether it or one of its alternatives should be preferred (see Crnič et al. 2015 for discussion and qualifications). The choice of a particular constraint is not crucial for the purposes of the paper, and a different constraint could be employed.

(i) *Constraint on pruning:*
exh(C)(S) is licensed for C $\subseteq$ F(S) only if for any C', C$\subset$C'$\subseteq$ALT(S), exh(C')(S) asymmetrically entails exh(C)(S).

[10]With the lower *exh* in (63), if one prunes the universal quantifier alternative, one obtains the proposition that John is allowed to read a book in D (no alternatives are negated by *exh*) instead of the stronger proposition that John is allowed to read a book in D but for no subdomain D' of D that consists of at least two elements John is allowed to read every book in D'. With the higher *exh*, if one prunes the universal quantifier alternative, one obtains the proposition that every domain D' of D is such that John is allowed to read a book in D instead of the stronger proposition that every domain D' of D is such that John is allowed to read a book in D', but for no subdomain D" of D that consists of at least two elements John is allowed to read every book in D". This means that pruning the universal quantifier alternative from both domains of *exh* respects the condition on pruning.

book in D')

The presupposition of *even*, given in (75), is also in this case a tautology. To recognize this, it suffices to observe that for both conjuncts in (74), the conjunct containing a domain D entails the same conjunct in which D is replaced with a subdomain D' of D. While this is a possible interpretation of the sentence, it may be dispreferred compared to the interpretation in which the conjunctive alternative is pruned.

(75) *Presupposition of* even *in (59) (without pruning):*
∀D'⊂D: (∀D"⊂D: John is allowed to read a book in D" & ¬∃D"⊂D: card(D")≥2 & ◇(John read every book in D")) < (∀D"⊂D': John is allowed to read a book in D" & ¬∃D"⊂D': card(D")≥2 & ◇(John read every book in D")) (✓)

To conclude, building on the insights of Chierchia (2013), we proposed that *any NP*s induce, in addition to the subdomain alternatives, also a potentially prunable universal quantifier alternative (*every*). We showed that this assumption constrains the overgeneration of the proposal presented above and rules out the problematic universal construal of unembedded *any*. Although many further cases of potential overgeneration due to covert exhaustification should be investigated, we cannot pursue this task here.

2.4 Summary

Any takes as its first argument a resource domain that is an argument of a covert *even*, that is, [*even D*]. Since [*even D*] cannot be interpreted *in situ*, it must move at LF, leaving behind an (et)-type trace. If *any* is appropriately embedded, *even* may trigger a licit presupposition at its landing site (see, e.g., Lahiri 1998, Crnič 2014 for details). This is the case if *even* moves above an existential modal and two *exh* operators that associate with its trace: we obtain a licit interpretation of the sentence, specifically, a free choice interpretation of *any*. The presupposition triggered by *even* is tautologous in such a configuration.

(76) [even D] [λ3 [exh C_2] [exh C_1] [◇ [John read [any t_3 book]]]]

domain exhaustification

movement of even

Furthermore, we saw that while we also get a licit interpretation if *any* occurs in a downward-entailing environment (again, the presupposition of *even* is tautologous if it moves above a downward-entailing operator), this is not necessarily the case if *any* is embedded below a universal modal (where only a single exhaustification may apply), and necessarily not the case if *any* occurs in an episodic upward-entailing environment. Finally, we discussed some cases of overgeneration of the proposal. We ruled them out on independently supported grounds by assuming that *any* has *every* as an alternative.

3 Free choice puzzle derived

If the treatment of *any* presented in the preceding section is combined with the standard assumptions about ellipsis licensing, the two puzzling observations about the interaction of free choice and ellipsis fall out naturally. We first show that the scope position of *even* that accompanies *any* in an antecedent VP determines the lower bound on the size of the parallelism domains – everything that is in the scope of *even* must have a potentially focused counterpart in the ellipsis parallelism domain. If this is not the case, or if one of the respective counterparts violates some principle of grammar, the discourse will be infelicitous. This accounts for the first observation. We then proceed to show that if the nominal expression giving rise to a free choice inference is unpronounced, one need not assume that it is *any* rather than some other indefinite. Accordingly, since the presence of *even* is optional, no lower bound on the size of the parallelism domain need obtain. This accounts for the second observation.

3.1 First observation

Recall the first observation about the interaction of free choice and ellipsis:

(20) *First observation about the interaction of free choice and ellipsis:*
An occurrence of free choice *any* in the antecedent VP requires the elided VP to be in a free choice licensing environment.

Specifically, unlike occurrences of *any* in the scope of negation, an occurrence of free choice *any* appears to only be able to antecede an occurrence of free choice *any* or, more precisely, an indefinite that gives rise to a free choice inference. This means that the elided VP must occur, roughly, in the scope of an existential modal. We discuss sequentially the different environments in which one could try to embed an elided VP with an antecedent containing free choice *any*.

Existential modals. The felicity of the discourse in (77), repeated from above, follows straightforwardly from the proposal in Section 2.

(77) John may/is allowed to eat any dessert. Bill is also allowed to △.

Namely, the two sentences in (77) may be assigned the structures in (78), where the resource domains of the indefinites are recursively exhaustified, generating a free choice inference in both sentences. The matrix sentences are chosen as the parallelism domains.

(78) a. A: $\underline{[[\text{even D}]\ [\lambda 3\ [\text{exh C}_2]\ [\text{exh C}_1]\ [\Diamond\ [\text{John read [any t}_3\text{ book}]]]]]}_4$
b. E: $[\sim 4\ \underline{[[\text{exh C}_2]\ [\text{exh C}_1]\ [\Diamond\ [\text{Bill}_F\text{ read [a D book}]]]]]}$

The focus value of the second sentence is represented in (79).

(79) $F([\text{exh C}_2]\ [\text{exh C}_1]\ [\Diamond\ [\text{Bill}_F\text{ read [a D book}]]]]) =$
$\{\forall D' \subseteq D\text{: } \Diamond(x\text{ read a D' book}) \mid x \in D_e\}$

The meaning of the antecedent parallelism domain is clearly contained in this set: since the presupposition of *even* in the structure in (78-a) is tautologous, as discussed in the preceding section, only its assertive meaning matters.

(80) $[\![$[even D] $\lambda 3$ [exh C_2] [exh C_1] [$\Diamond$ [John read [any t_3 book]]]$]\!]^g$ =
$[\![$[exh C_2] [exh C_1] [$\Diamond$ [John read [any D book]]]$]\!]^g = 1$ iff
$\forall$D'$\subseteq$D: $\Diamond$(John read a D' book)

And this meaning is clearly contained in the set of focus alternatives to the ellipsis parallelism domain in (79). Accordingly, Ellipsis Licensing Condition is satisfied by the structures in (78), as stated in (81).

(81) *Ellipsis Licensing Condition:*
$[\![$[even D] $\lambda 3$ [exh C_2] [exh C_1] [$\Diamond$ [John read [any t_3 book]]]$]\!]^g$
$\in$ F([exh C_2] [exh C_1] [$\Diamond$ [Bill_F read [any D book]]])

It is worth highlighting that it is not necessary, though it is possible, for the ellipsis parallelism domain to contain *even* for the discourse to be felicitous. This is because the presupposition of *even* is a tautology in the antecedent parallelism domain in (78) (see Section 4.3 for discussion of examples in which the presupposition of *even* is not a tautology).

A question that arises in light of this discussion is whether there are other constituents in the two sentences on the basis of which Ellipsis Licensing Condition could be satisfied. The answer turns out to be 'no'. In order to appreciate this we first need to discuss another constraint operative in ellipsis resolution: No Meaningless Coindexation.

Excursus: No Meaningless Coindexation. Recall the discourse in (5), repeated below. We have observed that the discourse is two-way ambiguous; in particular, the interepretation of the first sentence determines the interpretation of the second sentence (for instance, if the first sentence is assigned the surface scope interpretation of the quantifiers, the second sentence is as well).

(5) Some boy read every book, and some girl did $\triangle$ too.

Importantly, the second sentence cannot be interpreted to mean that some girl read, say, (only) *War and Peace*. This does not follow immediately from Ellipsis Licensing Condition proposed above. For example, the sentences in (5) could be assigned the representations in (82), where *it* refers to *War and Peace* and bears the same index as the trace of *every book* in the first sentence. These representations satisfy Ellipsis Licensing Condition, as shown in (83).

(82) a. A: [[every book] $\lambda 5$ [some boy] $\underline{[\text{read } t_5]}_4$
b. E: [$\text{some girl}_\text{F}$] [$\sim 4$ $\underline{[\text{read it}_5]}$]

(83) *Ellipsis Licensing Condition:*
$[\![\text{read } t_5]\!]^g \in \text{F}(\text{read it}_5)$ $\big(= \{\lambda \text{x. x read g}(5)\}\big)$

A way to avoid this prediction is to prevent opportunistic choices of indices. This was proposed by Heim (1997) and is captured by the following constraint (see also Sag 1976:180):

(84) *No Meaningless Coindexation:*
If an LF contains an occurrence of a variable X that is bound by a node Z, then all occurrences of X in this LF must be bound by the same node Z.

Accordingly, the problematic representations in (82) are ruled out. Since the same selection of parallelism domains, but with a different choice of indices, does not satisfy Ellipsis Licensing Condition, we correctly predict that the discourse in (5) will not have the undesirable interpretation.

(85) a. A: [[every book] $\lambda 1$ [some boy] [read t_1]$_4$
b. E: [some girl_F] [$\sim$4 [read it_5]]
(✓ No Meaningless Coindexation, ↯ Ellipsis Licensing Condition)

Let us now turn back to the VP ellipsis in the discourse in (77). Given No Meaningless Coindexation, selecting any subconstituent of (78-a) that does not include the moved constituent [*even D*] will either respect No Meaningless Coindexation but violate Ellipsis Licensing Condition, or violate No Meaningless Coindexation, as illustrated in (86)-(87) for the sentential complement of the existential modal.

(86) a. A: [even D] $\lambda 5$ [exh C_2] [exh C_1] [$\Diamond$ [John read [any t_5 book]]$_4$]
b. E: [exh C_2] [exh C_1] [$\Diamond$ [$\sim$4 [Bill_F read [a D book]]]]
(✓ No Meaningless Coindexation, ↯ Ellipsis Licensing Condition)

(87) a. A: [even D] $\lambda 3$ [exh C_2] [exh C_1] [$\Diamond$ [John read [any t_3 book]]$_4$]
b. E: [exh C_2] [exh C_1] [$\Diamond$ [$\sim$4 [Bill_F read [a D_3 book]]]]
(↯ No Meaningless Coindexation, ✓ Ellipsis Licensing Condition)

No Meaningless Coindexation, coupled with our assumption that a subconstituent of an *any* phrase stands in a dependency relation with a c-commanding operator, thus turns out to regulate the minimal size of a parallelism domain containing an *any* phrase: it has to contain the [*even D*] constituent accompanying *any*, as stated in (88). This generalization has noticeable repercussions for *any*'s ability to antecede indefinites in elided VPs.[11]

(88) *Generalization about* any *in ellipsis contexts:*
If an antecedent VP contains *any*, any antecedent parallelism domain dominating

[11]Strictly speaking, it suffices to take the λ-prefixed sister of [*even D*] as the antecedent parallelism domain. Consequently, Ellipsis Licensing Condition could be satisfied by either moving [*even* D], out of the elided VP and taking the sister to its landing site as the ellipsis parallelism domain, or doing the same while moving just the domain of a plain indefinite (if *any* were to antecede a plain indefinite). While the later option would violate Scope Economy (Fox 2000), the former option is licit. Note, however, that it requires the presence of [*even* D] in the clause containing the elided VP, which is not necessitated by the generalization in (88). See Section 3.2 for further discussion.

the VP will have to also dominate [*even* D] accompanying *any* and all the material c-commanded by it.

In the remainder of the section we examine instances of this generalization with regard to occurences of free choice *any* in antecedent VPs. We turn to some so-called occurrences of negative polarity *any* in the next section.

Episodic environments. The discourse in (89) is infelicitous. To account for this fact, we need to show that there are no parses of the sentences of the discourse that could simultaneously satisfy all the pertinent grammatical constraints, that is, the constraints on ellipsis licensing, on exhaustification, and on the distribution of *any* described above.

(89) #John may/is allowed to eat any dessert. Bill (already) did △.

As we noted, the antecedent parallelism domain in (89) must be the matrix sentence, otherwise Ellipsis Licensing Condition cannot be satisfied.

(90) A: $\underbrace{[[\text{even D}]\ \lambda 3\ [\text{exh } C_2]\ [\text{exh } C_1]\ [\Diamond\ [\text{John read [any } t_3 \text{ book}]]]]]_4}_{\textit{minimal parallelism domain}}$

We may assign the second sentence in (89) one of the parses in (91). However, all these parses violate at least one of the constraints introduced above. We attend to them in turn. (Of course, there is a variety of other parses that the sentence could be assigned, but they all suffer from one of the problems facing the parses in (91).)

(91) a. E: [∼4 $\underline{[\text{did}_F\ [\text{Bill}_F \text{ read [a D book}]]]}$]
b. E: [∼4 $\underline{[\text{exh } C_2]\ [\text{exh } C_1]\ [\text{did}_F\ [\text{Bill}_F \text{ read [a D book}]]]}$]

First: The structure in (91-a) does not induce any focus alternative that would correspond to the meaning of the antecedent parallelism domain – to have a chance of satisfying Ellipsis Licensing Condition, the elided VP has to be embedded under a (focused) sentential operator and two *exh* operators. Accordingly, the discourse consisting of (90)-(91-a) is predicted to be infelicitous.

(92) *Ellipsis Licensing Condition:*
$[\![[\text{even D}]\ [\lambda 3\ [\text{exh } C_2]\ [\text{exh } C_1]\ [\Diamond\ [\text{John read [any } t_3 \text{ book}]]]]]]\!]^g \notin$
$F([\text{did}_F\ [\text{Bill}_F \text{ read [a D book}]]])$ $\big(= \{\text{that x read a book in D, that x did not read a book in D, that x may read a book in D, ... } \mid x \in D_e\}\big)$

Second: The representation in (91-b) faces a different problem. In contrast to (91-a), the meaning of the antecedent parallelism domain is contained in the focus value of the ellipsis parallelism domain in (91-b), as shown in (93).

(93) *Ellipsis Licensing Condition:*
$[\![[\text{even D}]\ [\lambda 3\ [\text{exh } C_2]\ [\text{exh } C_1]\ [\Diamond\ [\text{John read [any } t_3 \text{ book}]]]]]]\!]^g \in$

F([exh C_2] [exh C_1] [did_F [$Bill_F$ read [a D book]]]) (= {that x read a book in D, that x did not read a book in D, $\forall$D'$\subseteq$D: $\Diamond$(x read a book in D'), ... | x $\in$ D_e}

However, the structure in (91-b) suffers from another problem: it violates Economy Constraint on *exh*. Namely, at least one of the occurrences of *exh* in (91-b) is vacuous, as discussed in Section 2:

(94) *Economy Constraint on* exh *is violated in (91-b):*
$[\![$[exh C_2] [exh C_1] [did_F [$Bill_F$ read [a D book]]]$]\!]^g$ =
$[\![$[exh $C_{1/2}$] [did_F [$Bill_F$ read [a D book]]]$]\!]^g$

Namely, on the one hand, if the universal quantifier alternative is pruned from the domain of the lower *exh* in (91-b), it cannot be pruned from the domain of the higher *exh*, and so both occurrences of *exh* turn out to be vacuous. On the other hand, if the universal quantifier alternative is not pruned from the domain of the lower *exh*, the higher *exh* is vacuous. Finally, since it is not possible to prune the universal quantifer alternative from the domains of both *exh* operators – the pruning would in the case of higer *exh* violate the constraint on pruning –, we conclude that the structure in (91-b) runs afoul of Economy Constraint on *exh* on any legitimate selection of relevant alternatives.[12]

Universal modals. Discourses in which the antecedent VP contains an occurrence of free choice *any* and in which the elided VP is embedded in the scope of a universal modal face the same problem: while the antecedent parallelism domain has the representation given in (90), the second sentence may be parsed along the lines of one of the representations in (96), all of which either violate Ellipsis Licensing Condition or Economy Constraint on *exh*.

(95) #John may/is allowed to eat any dessert. Bill has to $\triangle$.

(96) a. E: [$\sim$4 [$\Box_F$ [$Bill_F$ read [a D book]]]]
b. E: [$\sim$4 [exh C_1] [$\Box_F$ [$Bill_F$ read [a D book]]]]
c. E: [$\sim$4 [exh C_2] [exh C_1] [$\Box_F$ [$Bill_F$ read [a D book]]]]

First: The discourses (90)-(96-a) and (90)-(96-b) cannot satisfy Ellipsis Licensing Condition because in order to have a chance of satisfying Ellipsis Licensing Condition the elided VP has to be embedded in the scope of two *exh* operators. Second: While the elided VP is embedded under two *exh* operators in (96-c), the representation violates Economy Constraint on *exh*. Namely, on any legitimate selection of the relevant alternatives, one of the two *exh* operators will not affect the meaning of the sentence, as discussed in Section 2: if the universal quantifier alternative is pruned from the domain of the lower *exh*, but not the higher *exh*, the lower *exh* turns out to be vacuous (since none of the alternatives of the

[12]The satisfaction of Ellipsis Licensing Condition does not sanction a vacuous application of *exh* by itself. This is in line with preceding work on economy and ellipsis licensing, for example, the satisfaction of Ellipsis Licensing Condition does not license covert movement that would otherwise not affect the meaning of the sentence (see Fox 2000 for detailed discussion).

higher *exh* can be pruned); if the reverse holds, the higher *exh* turns out to be vacuous.

(97) *Economy Constraint on* exh *is violated in (96-c):*
$[\![$[exh C_2] [exh C_1] [$\Box_F$ [Bill$_F$ read [a D book]]]$]\!]^g$ =
$[\![$[exh $C_{1/2}$] [$\Box_F$ [Bill$_F$ read [a D book]]]$]\!]^g$

Free choice in imperatives. In addition to existential modal environments, free choice *any* may also occur in imperatives. Its ability to antecede elided nominals is similarly constrained as when *any* occurs in an existential modal environment: the elided VP has to occur in an environment in which free choice *any* would be licensed. This is exemplified in (98), repeated from above.

(98) A: Ask anyone about it.
B: I am allowed to $\triangle$?
B: #I already did $\triangle$.
B: #John has to $\triangle$ as well.

The pattern in (98) is straightforwardly predicted if we assume (i) that the imperative operator in sentences like (98-A) has an existential semantics, akin to that of the performatively used *may*, and (ii) that *even* and *exh* can take scope above it (see Kaufmann 2011 for a modal analysis of imperatives). In this case, the derivation of the data in (98) would parallel the one described above. The LF of the first sentence in (98) would have the form given in (99), where we represent the imperative operator with $\Diamond_{IMP}$.

(99) A: [[even D] λ6 [exh C_2] [exh C_1] [$\Diamond_{IMP}$ [you ask [any t_6 one] about it]]]$_4$

No Meaningless Coindexation mandates that the structure in (99), just as the parallel one with a plain existential modal, constitutes the antecedent parallelism domain. As a consequence, the ellipsis parallelism domain is subject to the constraints already discussed in the preceding paragraphs: while the recursive exhaustification in existential modal environments satisfies Economy Constraint on *exh*, this is not the case for other environments.

(100) a. E: [$\sim$4 [exh C_2] [exh C_1] [$\Diamond_{IMP}$ [I ask [any t_6 one] about it]]]
b. #E: [$\sim$4 [exh C_2] [exh C_1] [did$_F$ [I ask [any t_6 one] about it]]]
c. #E: [$\sim$4 [exh C_2] [exh C_1] [$\Box_F$ [I ask [any t_6 one] about it]]]
(b. and c. violate Economy Constraint on *exh*)

Indeed, analyzing the quantificational force of the imperatives containing *any* as akin to that of existential modals may be warranted. For example, the imperative in (100) appears to convey a permission, paraphrased in (101), rather than a command.

(101) You can ask anyone about it.

Nonetheless, such a treatment of imperatives containing *any* raises a variety of issues pertaining to the proper analysis of imperatives that we cannot go into here. While

it is well-known that many uses of imperatives are closer to the performative uses of existential modal sentences rather than those of universal modal sentences, there is no consensus as to how the former uses should be captured formally (see e.g. Crnič & Trinh 2009, Grosz 2009, Kaufmann 2011, von Fintel & Iatridou 2015 for discussion). We abstain from resolving this debate here and assume that an analysis adopted in (100) constitutes a viable approach to imperative structures containing *any* and to perhaps other occurrences of imperatives that are naturally paraphrased with existential modals.[13,14]

Summary. An occurrence of free choice *any* in an antecedent for VP ellipsis requires the parallelism domain that contains the antecedent VP to also contain the existential modal and the mechanism responsible for free choice, that is, two *exh* operators.

(102) [even D] [λ3 [exh C_2] [exh C_1] [◇ [John read [any t_3 book]]]]

domain exhaustification

movement of even

minimal parallelism domain

Consequently, recursive exhaustification must also apply in the ellipsis parallelism domain in order for Ellipsis Licensing Condition to be satisfied. This leads to a licit result only if the application of recursive exhaustification is licensed by grammar. This is not the case if at least one of the exhaustification operators is vacuous, as is the case if the elided VP occurs in an episodic or a universal modal environment.

3.2 Excursus: Movement of *even* and its properties

Following Lahiri's (1998) assumptions for Hindi polarity items, we assumed that *even* that accompanies *any* is base-generated in *any NP* and moves covertly at LF. This movement has been argued to be problematic since at least (Rooth 1985), not least because it may cross island boundaries (see Nakanishi 2012 for a recent discussion). Accordingly, we pointed out in footnote 5 that our approach could potentially be restated in terms of long-distance binding that does not involve movement, which would allow us to steer

[13]It is worth pointing out that it is possible to assign the imperative operator, $\diamond_{\text{IMP}}$, an existential semantics as its basic meaning and derive the universal import of the imperative clause by relying on the recursive exhaustification of the modal domain of the imperative operator. This type of analysis of an existential operators and their kin to derive strengthened, universal meanings has been employed in analyzing certain nominals (e.g., Bar-Lev & Margulis 2013) as well as certain connectives (e.g., Singh et al. 2013, Bowler 2014, Meyer 2015). The details of those analyses could be transposed straightforwardly to imperatives, though we cannot pursue this here (an analysis along these lines is developed by Oikonomou 2016).

[14]If the occurrences of *any* in imperatives are not analyzed as occurrences of *any* in existential-like modal environments, both the theory of *any* developed in Section 2 and its alternatives face a challenge. In particular, one would have to identify another subconstituent of the imperative clause relative to which the domain of *any* would be in a non-upward-entailing environment and in which a free choice inference could be generated. See e.g. Chierchia 2013, Ch. 6, for a preliminary discussion.

clear of questions pertaining to movement, though it might raise others (see Lahiri 2006 for issues involved). In this subsection we explore in greater detail some more intricate consequences of assuming that *even* moves for our account of the interaction of free choice and ellipsis. In particular, we explore what predictions one would obtain if the mevoement of *even* were successive cyclic (that is, that *even* may have intermediate landing sites).

Plain episodic, existential modal, and universal modal environments. The assumption that the movement of *even* is (at least optionally) successive cyclic does not significantly affect the predictions discussed in the preceding subsection. For example, consider the case of the plain episodic environment, exemplified in (103).

(103) #John may/is allowed to eat any dessert. Bill (already) did △.

The first sentence in (103) may on the assumption that there are intermediate steps in the movement of *even* be assigned the structure in (104), where [*even D*] first moves to a position below the modal, creating an embedded λ-prefixed constituent along the way.

(104) A: [even D] λ5 [exh C_2] [exh C_1] [◇ [t_5 [λ3 [John read [any t_3 book]]]]$_4$]

In (104) the most embedded λ-prefixed constituent is chosen as the antecedent parallelism domain (if a bigger constituent were chosen, we would obtain the same prediction as discussed above; if a smaller constituent were chosen, we would not be able to satisfy Ellipsis Licensing Condition, due to No Meaningless Coindexation). Turning now to the ellipsis parallelism domain, different structures can again be assigned to the sentence containing the elided VP. We discuss them in turn. First: if no movement of the resource domain of the indefinite takes place in the ellipsis parallelism domain, as given in (105), Ellipsis Licensing Condition cannot be satisified, as shown in (106).

(105) #E: [∼4 [Bill_F read a D book]]

(106) *Ellipsis Licensing Condition:*
$[\![$[λ3 [John read [any t_3 book]]]$]\!]^g \notin$ F([Bill_F read a D book])

Second: if the resource domain moves by itself to adjoin to the matrix clause, as given in (107), we would obtain a violation of Scope Economy (Fox 2002), stated in (108), since the movement would not affect the meaning of the sentence.

(107) E: [D [∼4 [λ1 [Bill_F read a t_1 book]]]]

(108) *Scope Economy:*
A scope-shifting operation can move α from a position in which it is interpretable only if the movement leads to an interpretation of the resulting structure that is distinct from that of the structure in which this movement did not apply.

Third: if the ellipsis parallelism domain contained the constituent [*even D*] and this constituent moved, as given in (109), the sentence would trigger an unsatisfiable presup-

postion, given in (110): that John reading a book in D entails John reading a book in D', for every subset D' of D.

(109) E: [even D] [λ1 [Bill$_F$ read a t_1 book]]

(110) *Presupposition of* even *in (109):*
$\forall$D'$\subset$D: that Bill read a book in D $<$ that Bill read a book in D' (↯)

These are all the pertinent parses of the second sentence of the infelicitous discourse in (103). We showed that the addition of an intermediate landing site in the movement of *even* does not rescue the felicity of the discourse. While identical considerations apply to the examples with universal modals, the predictions for felicitous examples in which the elided VP is embedded in the scope of an existential modal remain unaffected by the availability of intermediate landing sites for *even*.

Episodic downward-entailing environments. There is one class of examples not discussed yet in this paper in which the assumption of successive cyclic movement of *even* may have a noticeable effect: discourses with free choice *any* in the antecedent VP and with the elided VP embedded in a downward-entailing environment. Note, first of all, that such discourses appear to be infelicitous, as exemplified in (111), in contrast to their counterparts with other nominals in the antecedent VP, as exemplified in (112).

(111) ?John was allowed to read any book, but he didn't $\triangle$.

(112) John was allowed to read a/every book, but he didn't $\triangle$.

(i) No successive cyclicity. If we do not assume that the movement of *even* involves intermediate landing sites, the infelicity of (111) is correctly predicted. Namely, the first sentence of the discourse can in this case be assigned only the structure in (113), while the second sentence may be assigned one of the structures in (114), all of which violate Economy Constraint on *exh*.

(113) A: [[even D] [λ3 [exh C_2] [exh C_1] [$\Diamond$ [John read [any t_3 book]]]]]$_4$

(114) a. E: [$\sim$4 [exh C_2] [exh C_1] [not$_F$ [John read a D book]]]
b. E: [$\sim$4 [not$_F$ [exh C_2] [exh C_1] [John read a D book]]]
c. E: [$\sim$4 [exh C_2] [not$_F$ [exh C_1] [John read a D book]]]

First: in (114-a), two *exh* operators associate with the domain of an indefinite across a downward-entailing operator. Accordingly, all the alternatives that the two *exh* operators operate on are entailed by their prejacents and thus cannot be negated. So, both *exh* operators are vacuous. Second: in (114-b), the domain of an indefinite is in the immediate scope of two *exh* operators. As we have seen in Section 2 and in the preceding paragraphs, at least one *exh* operator will be vacuous in such a configuration. Third: the prejacent of the higher *exh* in (114-c) entails all the alternatives in the domain of the higher *exh* and so none of them will be negated, causing the higher *exh* to be vacuous. To conclude,

there is no parse of the second sentence of (111) that would satisfy Economy Constraint on *exh*.[15]

(ii) Successive cyclicity. The first sentence in (111) may on the assumption of successive cyclicity be assigned the structure in (104), repeated below, where there is an intermediate landing site of *even* below the modal.

(104) A: [even D] $\lambda 5$ [exh C_2] [exh C_1] [$\Diamond$ [t_5 [$\lambda 3$ [John read [any t_3 book]]]]$_4$]

If the second sentence of (111) is assigned the structure in (115), the movement of *even* respects Scope Economy and the focus value of the ellipsis parallelism domain contains the meaning of the antecedent parallelism domain, as stated in (116). Moreover, the presupposition triggered by *even* is tautologous in both structures (see the discussion of (39) above). Accordingly, the discourse in (111) is incorrectly predicted to be felicitous on the assumption of successive cyclic movement of *even*.

(115) E: [even D] [$\sim$4 [$\lambda 1$ [not$_F$ [Bill$_F$ read a t_1 book]]]]

(116) *Ellipsis Licensing Condition:*
$[\![\lambda 3$ [John read [any t_3 book]]$]\!]^g \in [\![[\lambda 1$ [not$_F$ [Bill$_F$ read a t_1 book]]$]\!]^g$ $\big(= \{\lambda$D. that x read a book in D, λD. that x did not read a book in D, ... $\mid$ x $\in D_e\}\big)$

[15] If we modify the discourse in (111) so that the elided VP is not contained just in the scope of negation, but also in the scope of an existential modal, given in (i), the acceptability of the discourse appears to improve for some speakers. The second sentence of (i) conveys that Mary was not given a free choice permission to read any book.

(i) ?John was allowed to read any book. Mary wasn't $\triangle$.

This is to some extent predicted by our proposal, namely, to the extent that the structure in (ii-b) respects Economy Constraint on *exh*.

(ii) a. A: [[even D]$_3$ [exh C_2] [exh C_1] [$\Diamond$ [John read [any t_3 book]]]]$_4$
b. E: [not [$\sim$4 [exh C_2] [exh C_1] [$\Diamond_F$ [Bill$_F$ read [a D book]]]]

The issue is that a stronger, perhaps more adequate variant of Economy Constraint on *exh* requires *exh* not just to affect the meaning of its host structure but not to weaken it (Fox & Spector 2009). This variant would render the second sentence on the representation in (ii-b) marked. Namely, it holds that if you embed an expression with a free choice meaning under negation, you obtain a weaker meaning than if you embed its variant that does not have a free choice meaning. We are thus faced with a puzzle: the stronger Economy Constraint appears to rule out some cases of weakening (for example, (91-b)), but not others (for example, (ii)). However, there is a difference between (91-b) and (ii-b) that could be utilized in characterizing Economy Constraint on *exh* and its interaction with Ellipsis Licensing Condition in a way that would admit the latter but not the former configuration: while in the former case an *exh* operator is vacuous both in the scope of the $\sim$-operator and globally, in the latter case the two *exh* operators lead to a stronger meaning in the scope of the $\sim$-operator and a weaker meaning globally. Accordingly, it seems that while ellipsis licensing cannot rescue an otherwise vacuous *exh* (see also footnote 12), it may be able to rescue an *exh* in a parallelism domain if that *exh* is locally strengthening. We have to defer a more thorough investigation of issues involving the potential acceptability of (i) and its consequences to a future occasion.

Avoiding potential overgeneration. To the extent that (111) and its ilk are indeed infelicitous, the structure in (104) should not be available. We list some of the options available to us to rule it out: (i) since the movement of *even* is known to exhibit some exceptional properties, one could well add another one – that it does not involve intermediate landing sites – to the list; (ii) one could stipulate that if a binder prefix is part of a parallelism domain, the binder has to be as well (this could effectively be achieved by assuming that syntactic binding does not employ λ-operators, *pace*, e.g., Nissenbaum 1998, Hartman 2011, among others); and, as a last resort, (iii) since reliance on movement instead of binding is not crucial for the purpose of this paper, we may simply assume that sentences with *any* realize binding but not movement configurations. While we will not evaluate these and other options here, some of which may have quite wide-ranging consequences, we hope to investigate them, as well as the interaction of successive cyclicity and ellipsis licensing more generally, at another occasion.

3.3 Second observation

Recall the second observation about the interaction of free choice and ellipsis:

(23) *Second observation about the interaction of free choice and ellipsis:*
An elided VP occurring in a free choice licensing environment and giving rise to a free choice inference does not require the antecedent VP to be in a free choice licensing environment.

This means that there is an asymmetry between the antecedent and the ellipsis parallelism domains with respect to whether a free choice construal of an embedded indefinite in one domain affects the construal of its counterpart in the other domain: while it is not possible to induce free choice in the antecedent parallelism domain without inducing free choice in the ellipsis parallelism domain, the reverse appears to be possible. We argue that this state of affairs follows from, and provides further support for, the approach to *any* and free choice adopted in this paper.

Derivation. The discourse in (117) may have the representation in (118), in which we do not represent the exceptive modifier for reasons of simplicity (recall also that the free choice inference can be induced in the absence of the exceptive modifier).[16]

(117) John didn't read any book. But he was allowed to $\triangle$ – except for *Verbal Behavior*.

(118) a. A: $\underline{[[\text{even D}]\ \lambda 1\ [\text{not}\ [\text{John read any}\ t_1\ \text{book}]]]}_4$
b. E: $[\text{exh}\ C_2]\ [\text{exh}\ C_1]\ [\sim 4\ \underline{[\Diamond_F\ \text{John read a D book}]}]$

[16] We take it that the choice of ignoring the exceptive modifier is innocuous: if we follow Gajewski (2009, 2013) in assuming that exceptives are interpreted *in situ* and induce exhaustification that may apply higher in the structure, we could assume that the exceptive modifier in (117) occurs in the same minimal clause as the elided VP, but that its 'exceptive' import is computed at the matrix level.

The representations in (118) satisfy Ellipsis Licensing Condition. Importantly, the ellipsis parallelism domain in (118-b) does not contain the two *exh* operators that associate with the resource domain of the indefinite and are responsible for the free choice inference. This is possible because, trivially, no dependency relation obtains between any of the elements in the elided VP and an element taking scope above the two *exh* operators. Accordingly, the focus alternatives to the ellipsis parallelism domain are those provided in (119).

(119) $F(\diamond_F$ [John read a D book]) = {that John read a book in D, that John did not read a book in D, that John has to read a book in D, ...}

Given that the presupposition of *even* in (118-a) is tautologous (*any* occurs in a downward-entailing environment), the meaning of the antecedent parallelism domain corresponds to one of the alternatives in (119), namely, that John did not read a book in D, as stated in (120). This accounts for the felicity of the discourse in (117).

(120) *Ellipsis Licensing Condition:*
$[\![$[even D] $\lambda 1$ [not [John read any t_1 book]]]$]\!]^g =$
$[\![$[not [John read any D book]]]$]\!]^g \in F(\diamond_F$ [John read a D book])

Summary. We have seen that recursive exhaustification of the resource domain of an indefinite contained in the elided VP, which generates a free choice inference, does not require two *exh* operators to be contained in the ellipsis parallelism domain, not least because there is no requirement for the indefinite at the ellipsis site to be accompanied by a covert *even*. The crucial difference between the examples captured by the first observation and those captured by the second observation is in the overt morphology of the indefinites that give rise to a free choice inference. While free choice *any* in the antecedent VP is overt, is accompanied by *even*, and its domain is recursively exhaustified, this is not the case for the indefinite in the elided VP – although it need not be accompanied by *even* (since it need not be an *any* phrase), its resource domain may nonetheless be recursively exhaustified (see Chierchia 2013 on free choice readings of plain indefinites).

4 Further predictions

We presented two observations pertaining to the interaction of free choice and ellipsis. Although these observations are puzzling on the standard assumptions about *any* and ellipsis licensing, we showed that we can derive them on an approach that takes *any* to be accompanied by covert *even* that stands in a dependency relation with it (see, esp., Lahiri 1998). Accordingly, the distribution of free choice *any* in ellipsis contexts can be subsumed by the more general constraints on extraction from, or binding into, elided VPs and their antecedents (e.g., Fiengo & May 1994, Fox 2000, among many others).

domain exhaustification

ellipsis parallelism domain

This analysis of *any* makes a host of predictions about the distribution of *any* in ellipsis contexts more generally. In particular, it makes novel, apparently predictions involving *any* in downward-entailing and non-monotone environments, though only on specific assumptions about the nature of focus alternatives.

4.1 *Any* in downward-entailing environments

We discuss two types of occurrences of antecedent VPs with *any* in a downward-entailing environment. They differ with respect to the size of the downward-entailing environment.

Sag's example. Let us first look at Sag's (1976) example from the introduction, repeated below. In this example the antecedent VP is embedded in the immediate scope of sentential negation, while the elided VP occurs in a plain episodic sentence.

(8) John didn't read any book, but Mary did △.

The proposal developed above assigns the first sentence the representation in (121-a). Again, due to the generalization in (88), the antecedent parallelism domain must contain the [*even D*] operator.

(121) a. A: [[even D] λ1 [not [John read any t_1 book]]]$_4$
b. E: [∼4 [did_F [$Mary_F$ read a D book]]]

If the ellipsis domain is chosen as in (121-b), Ellipsis Licensing Condition is satisfied: given that the presupposition of *even* is tautologous in (121-a), the meaning of the structure corresponds to John not having read a book, which is among the focus alternatives to the second sentence.

(122) *Ellipsis Licensing Condition:*
$[\![$[even D] λ1 [not [John read any t_1 book]]$]\!]^g$ = $[\![$[not [John read any D book]]$]\!]^g$
∈ F([did_F [$Mary_F$ read a D book]])

Moreover, if the elided VP is embedded, say, in the scope of an attitude predicate, the discourse is correctly predicted to be felicitous as well.

(123) John didn't read any book, though Mary thinks he did △.

This follows from the fact that one can select the minimal clause containing the elided VP as the parallelism domain. For example, the sentences in (123) could be assigned the structures in (124), which clearly satisfy Ellipsis Licensing Condition.

(124) a. A: [[even D] λ1 [not [John read any t_1 book]]]$_4$
b. E: [Mary thinks that [∼4 [did_F [he read a D book]]]]

More involved examples. Imagine a context in which it is required that (only) one of Bill and Mary perform a certain task. In such a context, the following discourse with

a plain indefinite in the antecedent VP is felicitous:

(125) I am surprised that Mary read a book, because Bill did △ too.

But its counterpart in which the indefinite is replaced by *any* is infelicitous:

(126) #I am surprised that Mary read any book, because Bill did △ too.

The pattern changes if, say, the elided VP is embedded under the attitude predicate *expect*, as shown in (127).

(127) I am surprised that John read any book, because I expect that Bill did △ too.

This state of affairs is predicted by the account put forward in this paper (though see the following subsection for a qualification). Recall that the generalization about *any* in parallelism domains, given in (88) and repeated below, dictates that *even* that moves out of the antecedent VP is contained in the antecedent parallelism domain, toghether with all the material it c-commands at LF.

(88) *Generalization about* any *in parallelism domains:*
If an antecedent VP contains *any*, any antecedent parallelism domain dominating the VP will have to also dominate [*even* D] accompanying *any* and all the material c-commanded by it.

This means that the antecedent parallelism domain in (127) must contain the embedding predicate *be surprised*:

(128) A: $\underbrace{[[\text{even D}]\ [\lambda 1\ [\text{John was surprised that Mary read any } t_1 \text{ book}]]]_4}$
minimal antecedent parallelism domain

Accordingly, if the ellipsis parallelism domain is chosen as in (129), Ellipsis Licensing Condition will not be satisfied, all else being equal: namely, on certain natural assumptions about focus alternatives, which we elaborate on in Section 4.2, *did* does not have a focus alternative corresponding to *John is surprised that* (for example, the latter would be significantly more complex), and thus the the sentence in (129) does not have the meaning of (128) as a focus alternative.

(129) E: [∼4 [did_F [Sue_F read a D book]]]

(130) *Ellipsis Licensing Condition:*
$[\![[\text{even D}]\ [\lambda 1\ [\text{John was surprised that Mary read any } t_1 \text{ book}]]]\!]^g =$
$[\![[\text{John was surprised that Mary read any D book}]]\!]^g$
$\notin$ F([did_F [Sue_F read a D book]])

The discourse in (127), in which the elided VP is embedded in the scope of a focused attitude predicate, is different however – Ellipsis Licensing Condition is satisfied in this case, with the matrix sentence constituting the ellipsis parallelism domain.

(131) E: [∼4 [I expected$_F$ [Sue$_F$ read a D book]]]

Given that the presupposition of *even* in (128) is tautologous,[17] the meaning of the antecedent parallelism domain, (128), corresponds to a focus alternative to the ellipsis parallelism domain, namely, that I am surprised that John read a book.

(132) *Ellipsis Licensing Condition:*
$[\![$[even D] [λ1 [I am surprised that Mary read any t_1 book]]$]\!]^g$ =
$[\![$[I am surprised that Mary read any D book]]$]\!]^g$
$\in$ F([I expect$_F$ [Sue$_F$ read a D book]])

Summary. If *any* occurs in an antecedent VP that is embedded in the scope of a downward-entailing operator, the downward-entailing operator is predicted to have to be contained in the antecedent parallelism domain for Ellipsis Licensing Condition. This prediction is an instance of the generalization about *any* in parallelism domains in (88). Accordingly, if the ellipsis parallelism domain fails to contain an element whose focus value contains the meaning of the downward-entailing operator, Ellipsis Licensing Condition cannot be satisfied. This was shown to be responsible for the infelicity of (126).

4.2 Excursus: Focus alternatives and their properties

In our account of the markedness of (126) we relied on certain assumptions about what are the focus alternatives to focused *did* – specifically, on the assumption that the meaning corresponding to *I am surprised that* is not a focus alternative to *did*, as stated in (133). Namely, if *did* were to have such an alternative, the discourse in (126) would be predicted to be felicitous, contrary to fact. We want to flesh out what may underlie this assumption and discuss whether it is warranted.

(133) *Assumption about alternatives:*
λp.$[\![$surprised$]\!]^g$(p)(I) $\notin$ F(did$_F$)

Structural alternatives. If no constraints other than having the same type are imposed on the focus alternatives to an expression (see footnote 1), the assumption in (133) is in fact not warranted. However, it has been argued that a more constrained approach to focus alternatives is needed (esp., Fox & Katzir 2011). Katzir (2007) and Fox & Katzir (2011) develop such an approach (see also Trinh & Haida 2015 for further refinements). According to it, a structure X' is an alternative to a structure X, which we represent with X' $\lesssim$ X in the following, if X' can be derived from X by one of three types of replacements:

(134) X' $\lesssim$ X if X' can be derived from X by successive replacements of subconstituents of X (i) with elements from the lexicon, (ii) with subconstituents of X, and (iii)

[17] For the presupposition in (128) to be tautologous, in light of *be surprised* being Strawson downward-entailing rather than downward-entailing *simpliciter*, we have to assume that the ordering relation featured in the semantics of *even* is not resolved to logical entailment in (128) but rather to Strawson entailment. See von Fintel 1999 for detailed discussion of Strawson-entailment and NPI licesning.

with salient constituents in the context.

In light of this, the focus alternatives to a structure are those alternatives to the structure in which the focused constituents have been appropriately replaced:

(135) $F(X) = \{X' \mid X'$ is derived from X by replacing focused constituents x_1, ..., x_n with y_1, ..., y_n, where $y_1 \lesssim x_1$, ..., $y_n \lesssim x_n\}$

This shift to a structural theory of alternatives requires only a minor rephrasing of Ellipsis Licensing Condition: instead of requiring that the meaning of some antecedent structure is in the focus value of a constituent containing the elided VP, it is required that the meaning of some antecedent structure corresponds to the meaning of a focus alternative to a constituent containing the elided VP.

(136) *Ellipsis Licensing Condition (rephrased):*
A VP may be elided if it is reflexively dominated by a constituent α whose focus value contains a structure whose meaning is identical to that of some constituent β in the discourse, $[\![\beta]\!]^g \in \{[\![\alpha']\!]^g \mid \alpha' \in F(\alpha)\}$.

On this assumption about focus alternatives, the structures in (137), which were assumed above, do not satisfy Ellipsis Licensing Condition: since *I am surprised that* is neither in the lexicon, nor a subconstituent of *did*, nor a constituent provided in the discourse, there is no alternative to the second clause whose meaning would correspond to that of the first sentence, as stated in (138).

(137) a. A: [[even D] [λ1 [I am surprised that Mary read any t_1 book]]]$_4$
b. E: [$\sim$4 [did_F [$Bill_F$ read a D book]]]

(138) *Ellipsis Licensing Condition:*
$[\![$[even D] [λ1 [I am surprised that Mary read any t_1 book]]$]\!]^g \notin \{[\![\alpha]\!]^g \mid \alpha \in F($[$did_F$ [$Bill_F$ read a D book]$])$

But the sentence *I am surprised that John read any book* may in principle also be assigned the more involved representation in (139), where the sentential complement of *be surprised* does not occur in its scope (note that the sentential complement of *be surprised* may already string-vacuously move out of the embedded position at suface structure and may thus not require covert movement, see Kayne 1998).

(139) A: [even D] [λ1 [Mary read any t_1 book] [λ2 [I am surprised that t_2]]]$_4$

The structure in (139) has the same interpretation as its simpler counterpart in (137-a); but, unlike (137-a), it contains a constituent corresponding to *I am surprised that* to the exclusion of its complement. And this constituent may feature in the derivation of focus alternatives to (137-b). Specifically, in the presence of (139), the ellipsis parallelism domain in (137-b) has the structural alternatives in (140): one can replace the focused element *did* with elements from the lexicon, for example, the negative marker and a modal operator, but also with a constituent from the structure in (139), roughly corresponding

to *I am surprised that*.

(140) F([did$_F$ [Bill$_F$ read a D book]]) = {[neg [Mary read a D book], [$\Diamond$ [Mary read a D book], [$\boxed{\lambda 2\ [\text{I am surprised that } t_2]}$] [Mary read a D book]], ...}

Obviously, the meaning of the structure in (139) corresponds to the meaning of the final alternative represented in the set in (140). Accordingly, this analysis of the discourse would satisfy Ellipsis Licensing Condition, while at the same time abiding to the assumptions of the independently argued-for structural theory of alternatives that we sketched out above. But, in light of all this, why is the discourse (126) and its ilk marked? And could a similar strategy apply in the cases of free choice *any*? We conclude this excursus by briefly addressing these two questions.

Restrictions on extraction. The structure of the antecedent clause required by Ellipsis Licensing Condition, given in (139), involves either a string-vacuous extraction of the sentential complement at surface structure, or a semantically vacuous extraction of the sentential complement at LF. These operations have often been claimed to be either unavailable in grammar or, at least, not easily accessible to the processor (e.g., Fox 2002). Accordingly, all else being equal, we still predict the markedness of the discourses like (126), though we do allow for the possibility of variation across speakers and, possibly, across different structural configurations. We hope to investigate this issue at a future occasion.

Discourses with free choice *any*. Recall that our analysis of the infelicity of the discourse in (141) relied on either Ellipsis Licensing Condition not being satisfied or on Economy Constraint on *exh* being violated.

(141) #John may/is allowed to eat any dessert. Bill (already) did $\triangle$.

In light of the preceding discussion, the question arises whether it is in principle possible to accommodate one or both exhaustification operators along the lines suggested above. The structures that would introduce an appropriate alternative to *did* would be of the form given in (142), where the sentential complement of the existential modal moves above the modal and the two *exh* operators, leaving behind an (st)-type trace. The constituent that would serve as a structural alternative to *did* is surrounded by a box in (142).

(142) a. A: [[even D] [$\lambda 3$ [John read [any t_3 book]] $\boxed{\lambda 5\ [\text{exh } C_2]\ [\text{exh } C_1]\ [\Diamond\ t_5]}$]]$_4$

b. E: [$\sim$4 [did$_F$ [Bill$_F$ read [a D book]]]]

However, note that in the configuration in (142-a) no alternatives-inducing element that could condition the domains of the two *exh* operators is located in their scope. This structure thus violates the principle that alternative-sensitive operators must c-command at LF the alternatives-inducing elements they associate with, given in (143) (see, e.g., Bayer 1996, Büring & Hartmann 2001, Rullmann 2003, among many others). For this

reason the discourse in (126) cannot be rescued by identifying more complex alternatives in the discourse.

(143) *Requirement on the association with alternatives:*
An alternative-sensitive operator must c-command at LF the expression(s) that it associates with.

Summary. We made explicit the assumptions about the theory of alternatives that are needed in order to derive the results described in the preceding subsection: if one adopts a theory of alternatives on which these are constrained solely by type considerations, the contrasts from the preceding subsection are not predicted; this is not the case if one adopts a structural theory of alternatives, together with some independent assumptions about constraints on extraction. In any case, the questions addressed in this subsection should be investigated further and may be subject to both individual variation and variation across environments (see, e.g., Hardt & Romero 2004, who assume that *I am surprised that* may be an alternative to *did*). For reasons of readability, we continue to employ the 'simpler' theory of alternatives introduced in Section 1 in the remainder of the paper, rather than the more adequate structural theory described in this section.

4.3 *Any* in non-monotone environments

All the occurrences of *any* in the preceding sections were embedded in environments that allowed the presupposition of *even* that accompanied them to be tautologous. This is not always the case, as extensively discussed in (Crnič 2014). That is, at least in some cases, *even* that accompanies *any* must be taken to compare alternatives relative to orderings other than logical entailment (for example, '$<$' in our representations may stand for 'be less likely than'; see Greenberg 2015 for a recent discussion of this assumption).

A prominent class of examples in which *even* that accompanies *any* triggers a contingent presupposition comprises of occurrences of *any* in the scope of non-monotone nominal quantifiers like *exactly two students* (see Linebarger 1980 for an early discussion). An example is provided in (144).

(144) Exactly two students in my class read any book at all.

The presupposition triggered by *even* in (144), provided in (146), is not tautologous. Rather, it is satisfied only in contexts in which the expectation is that many students have read at least one of the relevant books (see Crnič 2014 for a detailed characterization of the presupposition and the contexts in which it is satisfied).

(145) [even D] $\lambda 1$ [exactly two students read any t_1 book]

(146) *Presupposition of* even *in* (145):
$\forall$D'$\subset$D: $\big($that exactly two students read a book in D$\big) < \big($that exactly two students read a book in D'$\big)$ ($\diamond$)

***Any* in non-monotone environments and ellipsis.** Sentences like the one in (144) may provide a licit antecedent for VP ellipsis. This is illustrated in (147).

(147) a. Exactly two boys read any book. Exactly two girls did △ too.
b. Exactly two boys read any book. No one else did △.

The theories of ellipsis licensing and *any* licensing adopted in this paper have the consequence that if *even* accompanies *any* in a non-monotone environment, in which case it triggers a contingent presupposition, it must not only be contained in the antecedent parallelism domain but, in contrast to the examples discussed above, must also have a parallel occurrence of *even* in the ellipsis parallelism domain (that is, an occurrence of *even* that is structurally isomorphic to the one in the antecedent parallelism domain):

(148) Even *and parallelism domains:*
If an occurrence of *even* triggers a contingent presupposition in the antecedent parallelism domain, a parallel occurrence of *even* must be contained in the ellipsis parallelism domain.

This holds because if an occurrence of *even* were not also contained in the ellipsis parallelism domain, the meaning of the antecedent parallelism domain would not be contained in the focus value of the ellipsis parallelism domain – namely, none of the alternatives would trigger the presupposition triggered by *even* in the antecedent parallelism domain. This generalization leads to the prediction that if an indefinite is anteceded by *any* that occurs in a non-monotone environment, the sentence will be felicitous only if the indefinite occurs in a downward-entailing or an appropriate non-monotone environment – otherwise *even* will trigger an unsatisfiable presupposition in the ellipsis parallelism domain.

The examples in (147) show that if an indefinite anteceded by an occurrence of *any* in a non-monotone environment is contained in a downward-entailing or an appropriate non-monotone environment, the discourse is felicitous. In these examples, (i) Ellipsis Licensing Condition is satisfied and, in addition, (ii) *even* triggers a licit presupposition both in the antecedent and the ellipsis parallelism domain. *Ad (i).* Ellipsis Licensing Condition is satisfied since the elements in the ellipsis parallelism domain that are distinct from those in the antecedent parallelism domain are focused and have appropriate counterparts in the antecedent parallelism domain, as shown in (151).

(149) A: $\underline{[[\text{even D}]\ \lambda 1\ [\text{exactly two boys read any } t_1 \text{ book}]]_4}$

(150) a. E: $[\sim 4\ \underline{[[\text{even D}]\ \lambda 1\ [\text{exactly two girls}_F \text{ read any } t_1 \text{ book}]]}]$
b. E: $[\sim 4\ \underline{[[\text{even D}]\ \lambda 1\ [[\text{no one}]_F \text{ read any } t_1 \text{ book}]]}]$

(151) *Ellipsis Licensing Condition:*
a. $[\![[\text{even D}]\ \lambda 1\ [\text{exactly two boys read any } t_1 \text{ book}]]\!]^g \in$
$F([\text{even D}]\ \lambda 1\ [\text{exactly two girls}_F \text{ read any } t_1 \text{ book}])$
b. $[\![[\text{even D}]\ \lambda 1\ [\text{exactly two boys read any } t_1 \text{ book}]]\!]^g \in$
$F([\text{even D}]\ \lambda 1\ [[\text{no one}]_F \text{ read any } t_1 \text{ book}])$

Ad (ii). The presupposition of *even* in (150-a), given in (152), is context-sensitive and is satisfied in contexts in which the expectation is that, roughly, many girls will have read at least one book. The presupposition of *even* in (150-b), given in (153), is satisfied in practically every context since a logically stronger proposition, that no one read a book in D, may well be less likely than the logically weaker propositions, that no one read a book in some subset of D.

(152) *Presupposition of* even *in (150-a):*
∀D'⊂D: that exactly two girls read a book in D < that exactly two girls read a book in D' (✓)

(153) *Presupposition of* even *in (150-b):*
∀D'⊂D: that no one read a book in D < that no one read a book in D' (✓)

However, if the indefinite that is anteceded by an occurrence of *any* in a non-monotone environment does not itself occur in a downward-entailing or an appropriate non-monotone environment, the discourse is predicted to be infelicitous: the presupposition triggered by *even* in the ellipsis parallelism domain, which occurs obligatorily therein, will not be satisfied. This prediction is borne out, as exemplified in (154).

(154) #Exactly two boys read any book. Mary did △ too.

The first sentence of (154) has the structure provided in (149), while the second sentence may be assigned one of the structures in (155). Neither of these structures leads to a felicitous discourse.

(155) a. E: [∼4 [Mary_{F} read a D book]]
b. E: [∼4 [even D] λ1 [Mary_{F} read a t_1 book]]

On the one hand, the discourse (149)-(155-a) violates Ellipsis Licensing Condition: although *Mary* may have *exactly two boys* as an alternative, the focus value of the structure in (155-a) still fails to include the meaning of the antecedent parallelism domain since in the absence of *even* none of the alternatives triggers the required context-sensitive presupposition, as shown in (156).

(156) *Ellipsis Licensing Condition:*
$[\![$[even D] λ1 [exactly two boys read any t_1 book]$]\!]^g \notin$
F([Mary_{F} read a D book]) $\left(= \{\text{that x read a book in D} \mid \text{x} \in \text{D}_{\text{e}} \cup \text{D}_{((\text{et})\text{t})}\}\right)$

On the other hand, the representation in (155-b) satisfies Ellipsis Licensing Condition, but the presupposition triggered by *even* in that structure is unsatisfiable: a logically weaker alternative, that Mary read a book in D, cannot be less likely than a logically stronger alternative, that Mary read a book in D', for some subset D' of D.

(157) *Presupposition of* even *in (155-b):*
∀D'⊂D: that Mary read a book in D < that Mary read a book in D' (↯)

Summary. Our proposal gives rise to the prediction that if the presupposition of *even* that accompanies *any* is contingent, which may be the case if *any* occurs in a non-monotone environment, then a parallel occurrence of *even* must also be contained in the ellipsis parallelism domain. This results in a licit discourse only if the elided VP is embedded in a downward-entailing or an appropriate non-monotone environment.

(158) A: $\underbrace{[[\text{even D}]\ \lambda 1\ [\text{exactly two boys read any } t_1 \text{ book}]]_4}_{\textit{antecedent parallelism domain}}$

(159) E: $[\sim 4\ \underbrace{[[\text{even D}]\ \lambda 2\ [\text{exactly two girls}_F/[\text{no one}]_F/\#\text{John}_F \text{ read any } t_2 \text{ book}]]}_{\textit{ellipsis parallelism domain}}]$

5 Conclusion and outlook

The starting point of the paper were two observations pertaining to the distribution of free choice *any* in ellipsis contexts:

(20) *First observation about the interaction of free choice and ellipsis:*
An occurrence of free choice *any* in the antecedent VP requires the elided VP to be in a free choice licensing environment.

(23) *Second observation about the interaction of free choice and ellipsis:*
An elided VP occurring in a free choice licensing environment and giving rise to a free choice inference does not require the antecedent VP to be in a free choice licensing environment.

We showed that these observations can be derived on an approach (i) that takes *any NP* to be accompanied by a covert *even* that stands in a dependency relation with a subconstituent of *any NP*, and (ii) that assumes that free choice is generated in grammar by a recursive application of covert exhaustification.

First observation. The assumption about *any* coupled with standard assumptions about ellipsis licensing imposes a lower bound on the minimal size of the parallelism domains involved in ellipsis licensing. Specifically, we have seen that if the antecedent VP contains *any*, then *even* must be contained in the antcedent parallelism domain. This means that everything that *even* c-commands must have a (focused) parallel counterpart in the ellipsis parallelism domain.

(160) A: $\underbrace{[\text{even D}]\ [\lambda 3\ [\text{exh } C_2]\ [\text{exh } C_1]\ [\Diamond\ [\text{John read [any } t_3 \text{ book}]]]]}_{\textit{minimal parallelism domain}}$

Thus, if the antecedent parallelism domain contains two *exh* operators, the ellipsis parallelism domain must also contain them in order to satisfy Ellipsis Licensing Condition.

Since these operators have to be licensed by Economy Constraint on *exh*, we obtain a licit discourse only if the elided VP occurs in a free choice environment.

(161) a. E: [exh C_2] [exh C_1] [$\Diamond$ [Bill_F read [a D book]]]]
b. #E: [exh C_2] [exh C_1] [did_F [Bill_F read [a D book]]]]
c. #E: [exh C_2] [exh C_1] [$\Box_F$ [Bill_F read [a D book]]]]
(a. and b. violate Economy Constraint on *exh*)

Second observation. The state of affairs is different if a free choice inference is generated in the ellipsis parallelism domain. In this case the antecedent parallelism domain need not contain a free choice licensing environment. The key difference is that in the examples discussed under the second observation recursive exhaustification may apply in the absence of matrix *even* and need not be part of the ellipsis parallelism domain.

(162) a. A: [even D] $\lambda 1$ [not [John read [any t_1 book]]$_4$
b. E: [exh C_2] [exh C_1] [~ 4 [$\Diamond_F$ [John read [a D book]]]]
minimal parallelism domain

Predictions. Finally, we looked at some predictions of our proposal pertaining to other occurrences of *any* in antecedent VPs, in particular, at occurrences of *any* in downward-entailing and non-monotone environments. With respect to the downward-entailing environments, we explored the prediction that the entire downward-entailing environment that contains the antecedent VP must be contained in the antecedent parallelism domain, as illustrated in (163). Accordingly, the downward-entailing operator in the antecedent clause is predicted to require a (focused) counterpart in the ellipsis parallelism domain.

(163) A: [even D] [$\lambda 3$ [I am surprised [John read [any t_3 book]]]]
minimal parallelism domain

With respect to the non-monotone environments, we explored the prediction that if *even* triggers a contingent presupposition in the antecedent parallelism domain, it must have a parallel occurrence in the ellipsis parallelism domain. This results in a felicitous interpretation only if the elided VP is embedded in a downward-entailing or an appropriate non-monotone environment.

(164) A: [[even D] $\lambda 1$ [exactly two boys read any t_1 book]]$_4$

(165) E: [~ 4 [[even D] $\lambda 2$ [[no one]$_F$ read any t_2 book]]]
minimal parallelism domain

Future work. We conclude the paper by discussing two topics for future research. One involves the extent to which our proposal is wedded to the analysis of *any* adopted here, while the other involves the behavior of polarity items other than *any* in ellipsis constexts.

(i) Alternative approaches to any. The three main ingredients of our proposal are the assumptions (a) that an *any* phrase, or one of its subcomponents, stands in a dependency relation with a c-commanding expression governing its behavior, (b) that this expression may occur above a mechanism generating free choice, and (c) that this mechanism is subject to an economy constraint. There may be other approaches to the licensing of *any* that could in principle incorporate these assumptions and perhaps generate the same predictions. For example, in Chierchia's (2013) approach, which assumes (a) and (b), similar results might be derived if one were to assume that the domain of *any* stands in a dependency relation with an appropriate *exh* operator. We hope to investigate this possibility in the future.

(ii) Strict NPIs and other polarity items. Collins & Postal (2014) discuss the distribution of the so-called strict NPIs like the punctual *until 6PM* in ellipsis contexts. They observe that, at least for some speakers, they appear to only be able to antecede expressions that are embedded in environments in which strict NPIs are licensed (see, esp., Collins & Postal 2014, Ch. 4). An illustration of this is provided in (166), where the elided VP is in an upward-entailing environment.

(166) A: Nobody got there until 6PM. B: #I did △.

One potential explanation of these data available to us would take strict NPIs to have meanings or syntactic properties that are simply not shared by other expressions; in this respect, they would be different from *any*, whose meaning corresponds to that of a plain indefinite. One implementation of this could be to assume that strict NPIs always trigger some non-vacuous inference, an inference that can be satisfied only if the NPI occurs in a specific downward-entailing environment (cf., e.g., Eckardt 2005, Chierchia 2013 on minimizers). Accordingly, since such inferences would have to be triggered in both the ellipsis and the antecedent parallelism domain to satisfy Ellipsis Licensing Condition, both parallelism domains would have to contain an environment in which strict NPIs are licensed (see Section 4.3 for a related treatment of *any* in non-monotone environments). While we cannot develop such an analysis here, nor properly investigate the empirical landscape involving strict NPIs and other polarity items, it is on our to-do list.

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